



Pharmacist perceptions of patient care competency: A survey in Vietnam

[Percepciones de los farmacéuticos sobre la competencia en el cuidado del paciente: una encuesta en Vietnam]

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Abstract

Context: In order to perform effectively in professional practice, a pharmacist should demonstrate crucial competencies on delivery of patient care.

Aims: To evaluate current pharmacists' perceptions on their delivery of patient care competencies.

Methods: The evaluation divided into 8 domains of competencies with 35 behavioral statements was distributed to hospital and community pharmacists. Respondents were asked to self-evaluate their competencies on a four-point Likert scale.

Results: Of 207 responses returned, there were 106 hospital pharmacists and 89 community pharmacists. The mean score ranged from 2.2 to 3.5. Respondents perceived themselves as the most competent in "Drug Specific Issues" and "Provision of drug product" cluster (3.5 ± 0.68 , 3.3 ± 0.84 , respectively), whereas the lowest performance was noted in "Patient Consultation" and "Evaluation of Outcomes" (2.8 ± 1.01 and 2.8 ± 0.88 , respectively). Pharmacists demonstrated the best performance in the behavioral statements pertaining to the "Appropriate route is ensured" (3.6 ± 0.63). The two behaviors with the lowest performance were "Recording Consultations" (2.2 ± 1.02) and "Record of contributions" (2.7 ± 0.93). There were no statistically significant differences in the competence cluster scores in terms of types of pharmacists, sex, age, education level, years of experience ($p > 0.05$).

Conclusions: This research represents the first self-assessment of Vietnamese pharmacists in patient care practice. Areas for additional professional education which were determined include recording patient consultation, obtaining patient consent, prioritization of drug-related problems, referrals to doctors, and assessment of patient outcomes.

Keywords: competency; education; pharmacist; self-assessment; Vietnam.

Resumen

Contexto: Para desempeñarse eficazmente en la práctica profesional, un farmacéutico debe demostrar competencias cruciales en la prestación de atención al paciente.

Objetivos: Evaluar las percepciones de los farmacéuticos actuales sobre su prestación de competencias de atención al paciente.

Métodos: La evaluación dividida en 8 dominios de competencias con 35 declaraciones de comportamiento se distribuyó a los farmacéuticos hospitalarios y comunitarios. Se pidió a los encuestados que autoevaluaran sus competencias en una escala Likert de cuatro puntos.

Resultados: De 207 respuestas devueltas, había 106 farmacéuticos de hospital y 89 farmacéuticos comunitarios. La puntuación media osciló entre 2,2 y 3,5. Los encuestados se percibieron a sí mismos como los más competentes en el grupo de "Problemas específicos de medicamentos" y "Suministro de medicamentos" ($3,5 \pm 0,68$, $3,3 \pm 0,84$, respectivamente), mientras que el rendimiento más bajo se observó en "Consulta del paciente" y "Evaluación de Resultados" ($2,8 \pm 1,01$ y $2,8 \pm 0,88$, respectivamente). Los farmacéuticos demostraron el mejor desempeño en las declaraciones de comportamiento correspondientes a la "Se garantiza la ruta adecuada" ($3,6 \pm 0,63$). Los dos comportamientos con menor desempeño fueron "Registro de consultas" ($2,2 \pm 1,02$) y "Registro de contribuciones" ($2,7 \pm 0,93$). No hubo diferencias estadísticamente significativas en las puntuaciones del grupo de competencias en términos de tipos de farmacéuticos, sexo, edad, nivel educativo, años de experiencia ($p > 0,05$).

Conclusiones: Esta investigación representa la primera autoevaluación de los farmacéuticos vietnamitas en la práctica de atención al paciente. Las áreas de educación profesional adicional que se determinaron incluyen el registro de la consulta del paciente, la obtención del consentimiento del paciente, la priorización de los problemas relacionados con los medicamentos, las derivaciones a los médicos y la evaluación de los resultados del paciente.

Palabras Clave: autoevaluación; competencia; educación; farmacéutico; Vietnam.

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INTRODUCTION

Certain pharmacy competencies are important for students to acquire before graduation and for practitioners to maintain throughout their professional practice to effectively provide pharmaceutical care and ensure patients' outcomes (Mann et al., 2018). In recent years, the role of pharmacists has changed significantly over the period. Pharmacists are not only experts in discovering and developing drugs. They are also required to provide patients' healthcare services such as patient education and counseling, as well as discussing drug therapy issues with physicians and nurses. To perform effectively in professional practice, a pharmacist should demonstrate crucial competencies in delivering patient care.

However, pharmacy education on patient care in Vietnam is still limited. Most pharmacy education programs in Vietnam offer a broad framework without specific orientations. The programs allow students to get competences in all five fields: (1) pharmaceutical industry, (2) drug quality assurance, (3) pharmacoeconomic and administration, (4) traditional medicine and pharmacognosy, and (5) pharmacology and clinical pharmacy (Vo et al., 2013). Some other pharmacy programs provide specific orientation programs for students to choose. The training path is different from other countries; when students complete their 5th year successfully and graduate, they go directly into practice in health settings without an approved internship or national license examination. Some clinical pharmacy training weaknesses consist of insufficient time for training, lack of high-quality rotations in a hospital or community pharmacy, and lack of lecturers who practice in health care settings.

In recent years, pharmacists' core competency frameworks have been developed to navigate the education and training of practitioners (International Pharmaceutical Federation, 2012; Pharmaceutical Society of Australia, 2016). While no single model may be appropriate for all cultures and contexts, the General Level Framework (GLF) was

developed by the Competency and Education Development Group (CoDEG) in the United Kingdom has shown as a reliable and useful tool to facilitate the evaluation of competency of the general pharmacist practitioners (CoDEG, 2007).

No studies have been published in Viet Nam regarding pharmacists' competencies related to patient care, making it difficult to change education programs for pharmacists to perform excellent healthcare services. As a result, we conduct this study to evaluate current pharmacists' perceptions of their delivery of patient care competencies, define gaps, identify problems and needs of education and other training programs.

MATERIAL AND METHODS

Questionnaire development

The first section of the questionnaire contained questions about respondent's demographic information, included the respondent's age, gender, year of graduation, highest level of education, area of practice, year of practice. If one works as a hospital pharmacist, it is important to fill in years of experience, hospital's bed number and location. As for community pharmacists, we require information regarding years of experience, the average number of patients being served daily, and pharmacy's location.

The second section contained questions on pharmacists' perceptions of their patient care competencies. To achieve an adequate understanding of pharmacists' perceptions of their performances, we have adopted a survey method, which we find most appropriate to gather insights into our assumptions. The evaluation standards were based on the patient care competencies of the GLF by CoDEG (2007).

The original English version of CoDEG was translated into Vietnamese by two professors of clinical pharmacy and two pharmacy students, who are familiar with the medical terms covered by the document and knowledgeable of English-speaking culture.

The second section was divided into 8 domains of competencies with 35 behavioral statements. Respondents were asked to self-evaluate their competencies on a four-point Likert scale, based on how frequently a certain behavior was demonstrated in their everyday practice: (1) Never (0 to 20% of the time); (2) sometimes (21 to 50% of the time); (3) regular (51 to 84% of the time); or (4) always (85 to 100% of the time). If the behavior was not relevant to a respondent's practice, it was categorized as "not-applicable."

Data collection

Afterward, we provided it into an online survey by using Google Forms, which was then distributed on a Facebook fan page (Vietnam network of clinical pharmacists - "Nhịp cầu Dược lâm sàng") in November 2019. "Nhịp cầu Dược lâm sàng" fan page, which was found in January 2014 for connecting Vietnamese clinical pharmacists and sharing academic information, has above 40,000 followers in the moment of the survey and its website (nhipcauduoclamsang.com). Respondents were pharmacists who worked in hospital and community pharmacies who were asked to self-evaluate by using the survey. To ensure a high response rate, the survey instrument was published five times online as a reminder.

Ethical issues

The study was conducted ethically according to the National guide for ethics in biomedical research and was approved by the Faculty of Pharmacy, Pham Ngoc Thach University of Medicine. Participants were informed of the researchers' profile, the objective of the survey and asked for written consent before participating in the survey. Participation in the study was completely voluntary, and all collected information was anonymous and used only for research purposes.

Statistical analysis

Each self-evaluation was recorded on an Excel sheet. Data were anonymized and transferred from the Excel database on to the R software for analysis. Independent t-test was used to analyze the differences in performance levels between two

groups of pharmacists with different characteristics. Statistical significance was placed on any p-value that was less than 0.05 for a two-sided test.

RESULTS

Characteristics of respondents

After one month of collecting data, 207 responses were returned. However, among the received results, we did not analyze twelve since they did not have a bachelor degree in pharmacy or higher. There were 106 hospital pharmacists and 89 community pharmacists. Table 1 summarizes the demographic information of 195 respondents. The average age of the pharmacists was 33 years old. Pharmacists were predominantly female (65.6%). Out of all the respondents, 19.5% held a postgraduate qualification. A total of 84.1% of respondents had been in practice for 10 years or less. In terms of hospital's capacity, 84.9% answered that their hospitals had 1000 beds or less.

Self-assessed competencies

The mean scores on 35 behavior competencies are shown in Table 2. The results illustrate that the mean score ranged from 2.2 to 3.5. Overall, respondents in this study perceived themselves as the most competent in the "Drug Specific Issues" and "Provision of drug product" cluster (3.5 ± 0.68 , 3.3 ± 0.84 , respectively), whereas the lowest performance was noted in the "Patient Consultation" and "Evaluation of Outcomes" cluster (2.8 ± 1.01 and 2.8 ± 0.88 , respectively). From the 35 behaviors analyzed, pharmacists demonstrated the best performance in the behavioral statements pertaining to the "Selection of dosing regimen: Appropriate route is ensured" (3.6 ± 0.63). The two behaviors with the lowest performance were "Recording Consultations" (2.2 ± 1.02) and "Record of contributions" (2.7 ± 0.93). There were no statistically significant differences in the competence cluster scores in term of types of pharmacists (hospital or community pharmacist), sex (female and male), age (≤ 30 and >30), education level (bachelor and post-graduate), years of experience (≤ 10 and >10) ($p > 0.05$).

Table 1. Characteristics of respondents (n = 194).

Characteristics	Hospital % (n = 106)	Community pharmacy % (n = 89)	Total % (n = 195)
1. Gender			
Male	35.8 (n = 38)	32.6 (n = 29)	34.4 (n = 67)
Female	64.2 (n = 68)	67.4 (n = 60)	65.6 (n = 128)
2. Age (years)			
≤30	51.9 (n = 55)	41.6 (n = 37)	47.2 (n = 92)
31-40	37.7 (n = 40)	40.4 (n = 36)	39.0 (n = 76)
41-50	7.6 (n = 8)	13.5 (n = 12)	10.2 (n = 20)
≥51	2.8 (n = 3)	4.50 (n = 4)	3.6 (n = 7)
3. Year of graduation			
1981-1990	0.9 (n = 1)	1.1 (n = 1)	1.0 (n = 2)
1991-2000	3.8 (n = 4)	7.9 (n = 7)	5.7 (n = 11)
2001-2010	18.9 (n = 20)	14.6 (n = 13)	16.9 (n = 33)
2011-2019	76.4 (n = 81)	76.4 (n = 68)	76.4 (n = 149)
4. Highest education			
Bachelor degree	73.6 (n = 78)	88.8 (n = 79)	80.5 (n = 157)
Master degree	25.5 (n = 27)	10.1 (n = 9)	18.5 (n = 36)
PhD degree	0.9 (n = 1)	1.1 (n = 1)	1.0 (n = 2)
5. Years of experience			
0-10 years	80.2 (n = 85)	88.8 (n = 79)	84.1 (n = 164)
11-20 years	15.1 (n = 16)	6.7 (n = 6)	11.3 (n = 22)
21-30 years	3.8 (n = 4)	4.5 (n = 4)	4.1 (n = 8)
>30 years	0.9 (n = 1)	0 (n = 0)	0.5 (n = 1)

DISCUSSION

Recently, the Minister of Health has just published the first official documents on "Basic Competency Standards for Vietnamese Pharmacist" in October 2019 (Vietnam Minister of Health, 2019), in which competencies has 8 clusters: professional and ethical practice, communication and cooperation competence, organization and management, quality assurance of drug, drug manufacturing, drug provision, optimal drug use. These compe-

tency standards focus more on soft skills and patient care, which the current pharmacy education program does not meet in undergraduate programs (Vo et al., 2013). The reasons are: lack of time for training on patient care topics, skills learned mainly in classroom or skills laboratories (skill-lab) but not commonly in hospitals and pharmacies, and lack of lecturers who had profound knowledge and experiences on clinical pharmacists.

Table 2. Self-assessed competencies' mean scores.

Competencies		Mean relevance score (SD)
A. Patient consultation		2.8 (1.01)
1. Patient assessment: Uses appropriate questioning to obtain relevant information from the patient		3.1 (0.87)
2. Consultation or referral: Pharmaceutical or health problems are appropriately referred		3.0 (0.86)
3. Recording consultations: Documents consultation where appropriate in the patient's records		2.2 (1.02)
4. Patient consent: Satisfactorily obtains patient consent if appropriate		2.8 (1.04)
B. Need for the drug		3.1 (0.90)
5. Relevant patient background: Retrieval of relevant and available information		3.1 (0.90)
6. Drug History: documents an accurate and comprehensive drug history when required		3.1 (0.90)
C. Selection of drug		2.9 (0.85)
7-9. Drug-drug interactions	Drug-drug interactions are identified	3.0 (0.81)
	Drug-drug interactions are appropriately prioritized	3.0 (0.82)
	Appropriate action is taken	3.0 (0.82)
10-12. Drug - patient interactions	Drug-patient interactions are identified	2.9 (0.87)
	Drug-patient interactions are appropriately prioritized	2.9 (0.85)
	Appropriate action is taken	2.9 (0.86)
13-15. Drug - disease interactions	Drug-disease interactions are identified	2.8 (0.83)
	Drug-disease interactions are appropriately prioritized	2.9 (0.87)
	Appropriate action is taken	2.9 (0.89)
D. Drug specific issues		3.5 (0.68)
16. Ensures appropriate dose: Appropriate dose is ensured		3.5 (0.68)
17-18. Selection of dosing regimen	Appropriate route is ensured	3.6 (0.63)
	Appropriate timing of the dose is ensured	3.4 (0.69)
19-20. Selection of formulation and concentration	Appropriate formulation is ensured	3.4 (0.70)
	Appropriate concentration is ensured	3.5 (0.70)
E. Provision of drug product		3.3 (0.84)
21. The prescription is clear: Ensures the prescriber's intentions are clear		3.4 (0.69)
22. The prescription is legal: Legality of prescription is ensured		3.5 (0.75)
23-24. Labeling of the medicine	The label on the dispensed medicine includes the required information	3.5 (0.69)
	Dispensed medicine is labeled appropriately for the patient	2.9 (1.03)

Table 2. Self-assessed competencies' mean scores (continued...)

Competencies	Mean relevance score (SD)
F. Medicines Information and patient education	3.1 (0.86)
25. Public Health: Provides lifestyle advice appropriately	3.2 (0.86)
26. Health Needs: Takes into account the patient's individual circumstances	2.9 (0.96)
27. Need for information is identified: Patient need for information is accurately identified	3.0 (0.85)
28. Medicines Information: Accurate and appropriate medicines information is communicated	3.3 (0.71)
29. Provision of written information: Appropriate information is provided	3.1 (0.83)
G. Monitoring drug therapy	2.9 (0.87)
30. Identification of medicines management problems: Medicines management problems are identified	2.8 (0.88)
31. Prioritization of medicines management problems: Medicines management problems are accurately prioritized	2.9 (0.87)
32. Use of Guidelines: Current clinical guidelines are applied as appropriate	3.0 (0.86)
33. Resolution of medicines management problems: Appropriate action is taken to resolve or refer medicines management problems	3.0 (0.82)
34. Record of contributions: Appropriate documentation of the intervention is completed	2.7 (0.93)
H. Evaluation of outcomes	2.8 (0.88)
35. Assessing outcomes of contributions: Outcomes of contributions are appropriately assessed	2.8 (0.88)

The pharmacy schools in Vietnam have been going through a process of formulating the learning objectives for the curriculum. The Ministry of Education and Training requires each school to publish "competency standards for graduated students" publicly on each school website. However, there was some question about the capacity of the schools, at present, to train the students to the skill levels defined by the school. To answer this question, some methods of evaluation of competency applied were: written traditional methods [Multiple Choice Questions (MCQs)], short and long essays, assessment of clinical skills Objective Structured Clinical Examination (OSCE), Objective Structured Practical Examination (OSPE), short, long cases, Mini-Clinical Evaluation Exercise (Mini-CEX), self-assessment, peer assessment, and other tests (log-book, open-book exams, seminar) (Ibrahim et al., 2015). In this study, self-assessment of pharmacists made it possible to identify discrepancies between what the teachers expected and what the students thought they had achieved.

This information is useful for formulating the revised learning objectives.

Clinical pharmacy first developed in Vietnam in the 1990s, but the most recent development in the sector is the Ministry of Health's release of the *Guidelines on Clinical Pharmacy Practice in Hospitals* in 2012 and the *Good Pharmacy Practice Principles and Standards for Community Pharmacies* in 2011 (Viet Nam's Ministry of Health, 2010) to encourage and develop clinical pharmacy activities for patient care in hospital and community. The regulations clearly state that pharmacists should implement medication dispensing and counseling services. However, the study found that "Patient Consultation" and "Evaluation of Outcomes" were the worst two competence clusters of pharmacists. Indeed, the literature on pharmacy performance in Vietnam indicated that community pharmacists in the country ask a few and insufficient questions before they dispense medications. A study showed that 52% of community pharmacists did not pose inquiries before providing advice (Pham et al.,

2013). Research also revealed that only 35.3% of pharmacists specified instances that warrant a visit to a physician (Pham et al., 2013). Written information is essential as a supplement and reinforcement to verbal information when verbal interaction is insufficient in educating a customer (Hamrosi et al., 2014). A national survey of hospital clinical pharmacy services in 39 hospitals in Vietnam in 2018 (Trinh et al., 2018) found that most activities were non-patient-specific (87%) while the preliminary patient-specific clinical pharmacy services were available in only 8/39 hospitals (21%). The most common non-patient-specific activities were providing medicines information (97%), reporting adverse drug reactions (97%), monitoring medication usage (97%). The patient-specific activities varied widely between hospitals and were limited. The main challenges reported were a lack of workforce and qualified clinical pharmacists.

Of the 65 behaviors analyzed, some behaviors demonstrated a need for significant improvement, including "Recording Consultations" and "Record of contributions". A national survey on medication review in 48 Vietnamese hospitals in 2016 (Vo and Hoang, 2019) found that 12.5% of the hospitals did not conduct any medication review (MR) documentation and there were only 8 hospitals built the specific tools to support MR. Therefore, Vo et al. (2020) developed and validated a tool called Vi-Med® for use in supporting MR in Vietnamese hospitals in which pharmacists can document their interventions to physicians. The literature yielded numerous tools for the classification and documentation of drug-related problems and pharmacist interventions (van Mil et al., 2004), improving pharmacists' competence in recording their patient care activities.

Pharmacists had the highest competences in "Drug Specific Issues" (including "Ensures appropriate dose/dosage/route") and "Provision of drug product" (including "Ensures clear and legal prescription" and "Labelling of the medicine"), but had lower competences in "Selection of drug" and "Monitoring drug therapy". These findings were similar to those of the study of Rutter et al. (2012) in which they used the GLF to evaluate and

facilitate performance improvement in hospital pharmacists in Singapore.

There was no statistically significant difference between pharmacists in different sectors (hospital *vs.* community), age, gender, education level, and experience year. This result showed that the competency among pharmacists was quite equal and similar. In contrast, the study of Austin et al. (2004) found that pharmacists who were educated outside Canada or the United States, those in community pharmacy practice, and those who had been in practice 25 years or more demonstrated the greatest difficulty in meeting patient care standards.

These findings need to be taken into account when conducting a new pharmacy education program for pharmacists. We should design specific education modules on topics in which pharmacists are still incompetent, such as recording patient consultation, obtaining patient consent, prioritizing drug-related problems, referrals to doctors, and assessing patient outcomes. In other studies, the GLF was used as a useful tool for facilitating self-reflection, providing a platform for feedback, and planning needs-based learning under the guidance and accountability of a more experienced practitioner (Rutter et al., 2012). Ensuring sustainable clinical pharmacy practice necessitates appropriate and continuous training. Correspondingly, multi-faceted interventions should be implemented covering issues such as innovation of content and method of teaching and learning, strict assessment and supervision, change of license requirement, building up networks of clinical pharmacists for training, and systematic management by the Vietnamese Ministry of Health (Pham et al., 2013).

Limitation

Although self-assessment is not a reliable measure of real achievement of competency, it was not feasible to carry out a more objective assessment such as OSCE. Therefore, we asked pharmacists to assess themselves to report their true perception as feedback to the teachers to help improve the learning objectives and teaching (Hoat et

al., 2008). Another limitation is that the research did not collect pharmacy schools' names of pharmacists who responded while pharmacy schools' names are different. Each pharmacy school should focus on evaluating their own graduated students' competency.

CONCLUSIONS

This research represents the first self-assessment of Vietnamese pharmacists in patient care practice. Areas for additional professional education were determined by recording patient consultation, obtaining patient consent, prioritizing drug-related problems, referrals to doctors, and assessing patient outcomes.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHOR CONTRIBUTION:

Contribution	Ha VT	Hai TV	Xuan NM	HuongNTL
Concepts or ideas	x	x	x	x
Design	x	x	x	x
Definition of intellectual content	x	x	x	
Literature search	x			x
Experimental studies	x			x
Data acquisition	x			x
Data analysis	x			x
Statistical analysis	x			x
Manuscript preparation	x	x	x	x
Manuscript editing	x	x	x	x
Manuscript review	x	x	x	x

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