

Emerging Roles of Pharmacist in Global Health: An Exploratory Study on their Knowledge, Perception and Competency

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Abstract

Pharmacists, being an integral part of the health care team, have a remarkable contribution in public health care delivery with the increasing health demands globally. This study aimed to determine the pharmacists' knowledge, perception, and competencies in the importance of the implementation of global health initiatives in both local and international arenas. A cross-sectional descriptive study was done through a validated self-administered questionnaire distributed among 398 respondents attending the two International Certificate Course in Global Health Pharmacy. The results of the study demonstrated moderate to high levels of knowledge and competencies among ASEAN pharmacists to assume significant roles in improving global health. The results also vividly signify their capacity to address issues related to health care knowledge, clinical care, and research, quality improvement in various pharmacy services, collaboration with other health care providers and substantial improvement in pharmaceutical care services. Based on the survey results, there is an immediate need among pharmacists to foster research collaborations with other institutions and health care providers in the field to transcend beyond the expected traditional roles of the pharmacy profession in improving public health locally and abroad.

Keywords: Emerging roles, Pharmacist, Global health, Knowledge, Perception, Competency

INTRODUCTION

The World Health Organization (WHO) and the International Pharmaceutical Federation (FIP) have clearly described the significant role of pharmacists in the increasing health demands^[1, 2]. The ever-growing and complicated variety of medications and non-adherence to prescribed medications have compelled the pharmacist's position to evolve into a more patient-centered strategy (*e.g.* pharmaceutical care)^[2-7]. In current practice, most pharmacy graduates & licensed pharmacists undertake community & hospital practice with a smaller proportion pursuing a career in academia or the pharmaceutical industry^[8].

Global Health is defined as the area of study, research & practice that places a priority on improving health & achieving equity in health for all people worldwide^[9, 10]. Many developing countries are currently dealing with the burden of both communicable and non-communicable diseases. The demand for better health is rising as people's incomes increase^[11-13]. With the recent ASEAN integration of countries with more than 600 million people (8.6% of the world population), it is thus deemed important to promote equity in healthcare access across the region^[11].

According to the Consortium of Universities for Global Health (CUGH), global health should refer to the scope of a problem rather than a geographical location^[14, 15]. The scope of work of pharmacists in diverse settings faces challenges of global health such as self-care & self-medication^[16, 17], management of diseases through medication therapy management (MTM)^[15, 18-23], resistance to existing drugs^[8, 24] or recreational drugs being abused, medicines supplied through unregistered online pharmacies, online advertising of

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How to cite this article: Martinez Faller, E., Therese Hernandez, M., Mark Hernandez, A., Risia San Gabriel, J. Emerging Roles of Pharmacist in Global Health: An Exploratory Study on their Knowledge, Perception and Competency. Arch Pharma Pract 2020;11(1):40-6.

prescription drugs, direct-to-consumer websites and the distribution of substandard & spurious, falsely-labeled, falsified or counterfeit medicines [8, 25].

Thus pharmacists have the potential to address emerging global health issues such as health literacy [26-32], management of acute and chronic diseases [33-38], environmental care [39], e-Health [40], impact of global travel on the spread of infectious diseases [41], mental health [42], traditional & herbal medicines [43], HIV/AIDS [15, 44], enhance pharmacovigilance [45], unmet needs of underserving patients [4, 44, 46] & addressing other global burdens of diseases such as neurological disorders. Also in tailoring interventions to the needs of the vulnerable population such as geriatric care [47], adolescent care [48, 49], pediatric care [50], maternal care [51], family planning [51], people with special needs and palliative care/comfort care [52-54].

The purpose of pharmaceutical care is to provide patient-oriented care in an outcome-oriented manner in order to improve the patient’s quality of life [55]. The emerging of the Global health pharmacy aims to define, promote and recommend the need to go beyond the pharmacist’s traditional role of drug dispensing to being an integral part of the health care team. This will also provide clear insights into the emerging roles of pharmacists in global health and gauge the level of competencies and perception of pharmacists in adopting this role [15, 56]. Consequently, the world health governing body initiated a global safety challenge on the overall safety of medication with the intention of reducing the harm that are attributed to medication errors by 50% globally by the year 2022 [57]. The study aims to determine the pharmacist’s level of knowledge, perception, and competency on the emerging roles in global health.

METHODOLOGY

A cross-sectional descriptive research design was utilized to determine the knowledge, perception, and competencies of the respondents regarding their roles in global health. A validated self-administered questionnaire modified from Veras *et al.* (2013) and Addoh-Atuah (2014) was used for this study [27, 58]. The questionnaire was validated by three experts from the academe, industry and public health.

Participants were selected using a convenience sampling method from participants from the International Certificate Course in Global Health Pharmacy from 2016 to 2017. A total of 691 participants from the consecutive certificate course comprising delegates from Malaysia (25), Philippines (653), Thailand (4), Indonesia (3), Sudan (1), Nigeria(1), Singapore(1), Nepal (1) and Pakistan (2). Written consent was obtained from the participants.

A total of 398 (58%) out of 691 respondents returned their questionnaire to the researchers. The questionnaire included questions about the socio-demographic characteristics of the respondents, knowledge of pharmacists on global health topics, perception of their role and competencies on the

emerging role in global health. Respondents were asked to indicate the degree of their agreement on the level of perception, competencies, and knowledge using a 3 and 5-point Likert-type scale.

Data obtained were coded, entered and analyzed using Statistical Packaged on Social Sciences (SPSS). Data were analyzed using descriptive and inferential statistics. Frequencies, percentages, means and standard deviations were used to describe the responses.

RESULTS

The response data from the survey were juxtaposed and tabulated to determine the pharmacists’ demographic profile, knowledge, competency, perception, and knowledge regarding their emerging roles in global health. Table 1 presents a description of the respondents according to their demographics.

398 respondents participated in the survey. Of these, 46.7% were young professional pharmacists (21-25 years old) followed by those aged above 41 years. Others were randomly distributed in the age range of 26-30, 31-35 and 36-40, comprising 10.6%, 12.8% and 12.3% of the respondents, respectively. Most of the respondents were female (84.7%) pharmacists. A majority of respondents (47.5%) had served for 1-2 years in the field of pharmacy, which was subsequently followed by those with more than 10 years of work experience (25.4%). Length of service is a good criterion in the determination of their perception and competency in the field to uphold and participate in supporting the goals of global health.

Table 1: Demographic profile of respondents (n=398)

Variables	Segmentation	Frequency (f)	Percent (%)
Age	21-25	186	46.7
	26-30	42	10.6
	31-35	51	12.8
	36-40	49	12.3
	41 & above	70	17.6
Gender	Female	338	84.9
	Male	60	15.1
Location	Philippines	380	95.4
	Luzon	71	17.8
	Visayas	258	64.8
	Mindanao	51	12.8
	Malaysia	16	4.0
	Singapore	1	0.3
Years of Practice	1-2 years	189	47.5
	3-4 years	2	0.5
	3-5 years	49	12.3
	5-10 years	57	14.3
	10 years and above	101	25.4
Education Background	BS Pharmacy/ BPharm	342	85.9

Area of Practice			
Area of Practice	BS Pharmacy Major in Clinical Pharmacy	29	7.3
	BS Pharmacy, taking up masters in occupational health and safety	1	0.3
	MS in Hospital System Management	1	0.3
	MS Pharmacy PharmD	18	4.5
	PhD	5	1.3
	Academe	2	0.5
	Clinical Pharmacy	15	5.0
	Community	5	1.7
	Distributor	207	69.5
	Government	4	1.3
	Hospital	3	1.0
	Industry	128	43.0
	Infirmery	9	3.0
	Laboratory Analyst	1	0.3
	Medical Service	1	0.3
	Regulatory	8	2.7
	Research	5	1.7
	Student	7	2.3
	Post graduate student	2	0.7
	Unemployed	2	0.7

In terms of education, numerous participants graduated with a Bachelor’s degree in Pharmacy and Clinical Pharmacy, consisting of 85.9% and 7.3% of the total respondents. The percentages of those who had pursued and finished graduate school (Master’s and Doctorate levels) were 4.5% and 0.5%, respectively.

In terms of work experience, the majority of respondents were assigned as community pharmacists (69.5%), as opposed to being academicians, clinical pharmacists, hospital pharmacists, researchers, working in regulating bodies and others. The current job status of pharmacists is vital in their roles as front liners in global health. As commonly known, a community pharmacist interacts with patients more often than the prescribing medical professional. Helping patients understand their medication regimens certainly improves health outcomes, but it also strengthens the pharmacist-patient relationship and helps to reinforce the role of the pharmacist as a trusted health advisor.

Knowledge of Global Health

To indicate the importance of practicing pharmacy towards global health, the researchers had formulated questions about the level of knowledge of pharmacy professionals on global health. The results are summarized in Table 2.

Table 2: Knowledge of practicing pharmacists on the emerging roles in global health

Survey Questions	Mean	S.D.	Description
Access to health care and medicine	2.46	0.5192	Moderately high
Health care models that may enhance access to care	2.37	0.5322	Moderately high

Communicable and Non Communicable Diseases	2.40	0.5346	Moderately high
Leadership in Global Health	2.24	0.6082	Moderately high
Extended Pharmacy Services	2.39	0.5828	Moderately high
Antimicrobial Stewardship	2.33	0.5893	Moderately high
Pharmacogenomics	2.11	0.6504	Moderately high
Personalized Medicine	2.21	0.6262	Moderately high
Gender and access to health care	2.34	0.5661	Moderately high
Research and Development in Practice	2.19	0.6366	Moderately high
Occupational Health and Safety	2.33	0.5533	Moderately high
Quality Use of Medicine	2.55	0.5278	High
Halal Pharmaceuticals and Cosmeceuticals	2.24	0.6434	Moderately high
Inter Professional Collaboration	2.35	0.5657	Moderately high
Grand Mean	2.32	0.1156	Moderately high

Results showed that respondents had a moderately high to the high level of knowledge on their emerging roles in global health. One factor contributing to this finding is their knowledge in promoting quality use of medicine. It is important to note that the majority of respondents were community pharmacists having direct access to patients for counseling and drug dispensing. According to the World Health Organization (2017), community pharmacists are the health professionals most accessible to the public since they supply medicines under a prescription, or when legally permitted, sell them without a prescription. In addition to ensuring an accurate supply of appropriate products, their professional activities also cover the counseling of patients when dispensing prescription and non-prescription drugs, providing drug information to health professionals, patients, and the general public, as well as participation in health promotion programs. Also, they maintain links with other health professionals in primary healthcare. Factors contributing to the significant importance of pharmacists in global health include having in-depth information on access to healthcare and medicine, communicable and non-communicable diseases, extended pharmacy services and others^[56]. However, additional information is still necessary to enhance the level of knowledge among practicing pharmacy professionals in the area of pharmacogenomics, personalized medicine, research and development, halal pharmaceuticals and cosmeceuticals.

Perceptions in Global Health

In 2012, the International Pharmaceutical Federation openly indicated that a competent and capable practitioner workforce is an essential pre-requisite for all health care professions. The capacity to improve therapeutic outcomes, patients’ quality of life, scientific advancement and enhancement of public health imperatives is dependent on a foundation of

competence. Concerning this, the researchers measured the level of specific competencies among the pharmacists to gauge their enthusiasm for adopting their emerging roles in global health. The results are shown in Table 3.

Table 3: Perceptions of practicing pharmacists in the emerging roles in global health

Survey Questions	Mean	S.D.	Description
I am able to understand the perspectives of patients with different backgrounds.	3.99	0.7026	High
I am uncomfortable consulting with other health care professionals to address issues of my patients with different backgrounds.	3.11	1.1105	Moderately high
It is challenging to discuss sensitive issues (alcohol, drugs, sexual issues) with patients of different backgrounds than my own.	3.74	0.8604	High
I am aware of the health services available to patients of different backgrounds.	3.91	0.7265	High
I am effective in completing my clinical responsibilities when working with patients with different backgrounds.	3.74	0.7533	High
Helping patients with different backgrounds to set realistic goals for there is challenging.	4.02	0.7375	High
I know how to access resources to keep up to date with global health issues.	3.78	0.7793	High
I actively participate in global health activities.	3.63	0.8405	High
Grand Mean	3.74	0.2879	High

The results revealed a high level of commitment among ASEAN pharmacists towards their imminent roles in global health. To corroborate this, respondents had demonstrated a sound understanding of patients with diverse backgrounds as well as a high commitment to work collaboratively with other healthcare professionals to address patient issues. In gearing towards the global health goals related to pharmacy, most of them had shown interest in accessing resources to update their knowledge on global health and have also remained active in participating in global health activities.

Competency assessment

To provide evidence on the pharmacists' competencies in global health issues, the researchers conducted an assessment to evaluate the respondents' responses regarding the importance of various issues related to their profession. The overall results are shown in Table 4.

Table 4: Competencies of practicing pharmacists in the emerging roles in global health

Survey Questions	Mean	S.D.	Description
Development and implementation of research activities related to global health.	4.25	0.8184	High
Health risks associated with travel and migration, including possible risks and appropriate management.	4.09	0.8355	High
Knowledge about how travel and trade contribute to the spread of communicable diseases.	4.20	0.8041	High
Relationship between health and social determinants of health, including its variations across world regions.	4.22	0.7719	High
Cultural competency and health outcomes.	4.13	0.7963	High
Understanding the relationship between health and human rights.	4.27	0.7915	High
Relationship between access to clean water, sanitation and nutrition on individual and population health.	4.48	0.7499	High
Knowledge about how global health institutions like the WHO and agencies of the United Nations influence health in different world regions through policy and funding.	4.42	0.7594	High
Grand Mean	4.26	0.1337	High

DISCUSSION

The survey revealed that the pharmacists in the field had weighed aspects such as the implementation of research activities [59], knowledge on communicable diseases [60], patients socio-demographic variables, cultural and health outcomes, health and human rights, sanitation, and knowledge on global health institutions (such as WHO and other UN agencies) as having great importance [26].

Social determinants such as socioeconomic level, educational background, gender, area of profession and years of practice are relevant factors that influence the knowledge and perception of pharmacists on global health issues and their emerging roles [27].

A positive and negative experience working as a pharmacist in any area of the profession - community, hospital, regulatory, academe, industrial, and public health -

contributes as well in developing a global perspective and empathy for society. At times, it results to motivate pharmacists in pursuing further education such as attaining a graduate degree or a Ph.D. In the future, the information obtained can be used to develop a set of measures to motivate the pharmacy specialists, as a basis for decision making to meet the requirements and stimulate the work^[61]. Having a graduate degree associates with greater awareness and having an in-depth understanding of global health issues and how their roles contribute a positive and critical effect on society^[62-64].

When there is motivation on addressing global health issues in a meaningful way, pharmacists felt this need to pursue new knowledge and this compels them to develop further competencies that could be useful in addressing threats to global health such antimicrobial resistance, weak primary health care, vaccine hesitancy, HIV and dengue^[47, 58, 65]. This prompts an expansion in more learning, having better understanding and recognition for there is a need to look at the world from changing points of view and to end up mindful of the perplexing interrelationships^[66].

Having a career in health, length of service and being involved in volunteer work taps the psyche to create cognizant conclusions and thoughts that dives pharmacists into research^[46, 62, 65, 67]. Significant variables urging pharmacists to partake in the research were longing to improve the calling, the opportunity to learn more about disease management and to provide enhanced services to patients and personal interest^[59]. Thus generating more public awareness and developing research skills such as managing pharmaceuticals in underserved populations through knowledge of a drug management cycle, searching the literature for relevant global information, report composing abilities, being able to explain the health status or indicators of a country from a knowledge of their determinants of health and available health resources and to be able to design projects that address health issues in a certain community or population.

Maintaining competence throughout their careers is a lifelong challenge for all health care professionals and it is the eagerness of pharmacists to keep themselves abreast on current events and to attend formal lifelong learning systems (*e.g.* Continuing education and professional development) created by their pharmacist association to sustain the practitioner's competence and ensure the provision of quality patient care. The International Pharmaceutical Federation (FIP) has adopted the CPD concept in 2002 as the "responsibility of individual pharmacists for systematic maintenance, development, and broadening of knowledge, skills and attitudes, to ensure competence as a professional, throughout their careers"^[58, 68].

Respondents may have noted the importance of these aspects as they showed a high degree of agreement on the need to be informed and to understand the underlying factors that may

affect their roles and understanding regarding global health^[15, 69]. Consequently, they agreed that pharmacists have the opportunity to play an important role in both public health and global health^[70, 71]. In particular, pharmacists can look at the varied global health careers established in medicine and use these as a framework to understand the potential roles of the pharmacist within the global health practice as well as program delivery, research and policy^[15, 72-74].

CONCLUSION

The focus in global health has transcended beyond the idea of confining the pharmacist's work to a specific geographical location and broadened it to the global level. Based on the findings of this research, it is well understood that pharmacists have taken part in global healthcare initiatives and are well-informed regarding their important functions in global healthcare. In widening their perspective for them to rise above their traditional roles and accept their emerging roles in global health, it is imperative that pharmacists look at the varied globally established health careers in medicine and use this as a framework to understand the potential roles of the pharmacist within the global health practice and program delivery, research, and policy. Therefore, pharmacists must participate in the endeavor to shape their role in global health by changing their perception towards the types of services they can provide, not only in their respective local areas but also at the global level.

ACKNOWLEDGMENT

The author would like to thank the Management and Science University (MSU) Malaysia and the University of the Immaculate Conception-Philippines for the support in organizing the International Certificate Course in Global Health Pharmacy.

Conflict of interest

No conflict of interest is declared by the authors concerning this study.

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