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# INTRODUCTION: DISCOVERING ISSUES AND CHALLENGES IN LOW- AND MIDDLE-INCOME COUNTRIES

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*What is today greatly depends upon what was yesterday and helps shape the future of what will be tomorrow*  
Robert V. Evanson et al. (1985)

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## INTRODUCTION

Evanson, McEvilla, Hammel, and DeSalvo (1985) reminded us that the major obstacle to the establishment of pharmacy administration is due to the negative attitudes and imbalanced focus and emphasis between professionalism versus business orientation that are inherent in pharmacy practice. The book that was edited by Fathelrahman, Mohamed Ibrahim, and Wertheimer (2016), explored the pharmacy practice in 19 developing countries in Asia, Africa and Latin America and provided an excellent overview of pharmacy practice. The book also provides us with gaps, challenges and possible solutions for various pharmacy stakeholders in the developing countries. There is a great deal of work that needs to be done by the pharmacy stakeholders in order to improve the pharmaceutical health services for fulfilling the needs of the society. It is understood that under the sustainable development goals (SDGs), every country is in need for development (United Nations, 2017). Yet unfortunately, the weak global economy has hindered progress toward the SDGs, especially for countries with lower economic level. Development is everyone’s problem and everyone’s dream.

There is no clear definition of the terms “developed and developing countries” or no consensus on how to categorize these countries. Developing countries include, in decreasing order of economic growth or size of the capital market: newly industrialized countries, emerging markets, frontier markets, and least developed countries. List of developing countries according to the [United Nations \(2014\)](#) can be classified into three categories: developed economies, economies in transition, and developing economies. Geographical regions for developing economies are as follows: Africa, East Asia, South Asia, Western Asia, and Latin America and the Caribbean. According to the [O’Sullivan and Sheffrin \(2003, p. 471\)](#), a developing country is a country with a relatively low standard of living, undeveloped industrial base, and moderate to low Human Development Index. This index is a comparative measure of poverty, literacy, education, life expectancy, and other factors for countries worldwide. For the sake of the discussion, the book will consider the classification of countries based on per capita gross national income (i.e., low- and middle-income countries (LMICs)).

The political, economic, and pharmaceutical sector conditions differ between the countries; some have to do much more and work harder to improve their situations than others. There are significant social and economic differences between developed countries and LMICs. Many of the underlying causes of these differences are rooted in the long history of the development of such nations and include social, cultural, and economic variables; historical, political, and geographical factors; as well as international relations.

Furthermore, it is not the intention of the book to indicate the level of the inferiority of an LMIC or an undeveloped country compared with a developed country or between East and West, but rather to trigger and stimulate the mind of the people in the LMICs about the challenges and problems the societies are facing for decades. No country in this world is free from problems and challenges, but people in the developing world suffer relatively more. The focus of this book is to highlight, discuss, and document policy issues in LMICs and about having best practices in the pharmaceutical sector. So far, to what extent is the contribution of pharmacists to this matter?

Health and public health are essentials for development. Around 50% of the world’s population are residing in LMICs and they are still living in poverty with poor health status and inadequate healthcare. In any healthcare system, pharmacy system is one of the core components and pharmacists play a very important role. With the dynamic changes happening in healthcare, disease, information communication technology and regulations, and the roles and responsibilities of pharmacists are becoming more important than before. The expectations on the pharmacists are changing; the societal needs and demands are much greater compared with several decades ago. On the other hand, there are growing problems with medicines, the health system, and human resources, especially in the LMICs. There are countries with high prices of medicines, a wide prevalence of nonquality medicines (i.e., substandard and counterfeit), lack of access to medicines, and absence of a national medicines policy (NMP) even with strong encouragement from World Health Organization (WHO). Poor health and pharmaceutical sectors in a country will increase the vulnerability of the country toward several critical problems at micro- and macrolevels and leaves the society at risk. In the medicines supply system, to ensure access to medicines, the following aspects are critical:

- reliable health and supply systems;
- sustainable financing;
- rational selection; and
- affordable prices of medicines.

The importance of a healthcare system must be looked from three angles: the institutions, organizations, and resources; resources include workforce, financial, and infrastructure. To achieve universal health coverage, the system must function well. The three elements, i.e., institutions, organizations, and resources must be brought together to deliver quality health services to meet the demands of the society. Unfortunately, according to [Mills \(2014\)](#), the goals of universal health coverage in LMICs could not be achieved, child and maternal deaths are still high, financial protection is lacking, and people do not seek care because of lack of financial support.

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## PUBLIC HEALTH PHARMACY IN LOW- AND MIDDLE-INCOME COUNTRIES: ISSUES AND CHALLENGES

Even though the rational use and quality use of medicines are worldwide issues, but they are particularly pertinent to LMICs. Access to medicines is still crucial, as 400 children suffering from tuberculosis worldwide die daily, largely because of low access to appropriate treatment ([WHO, 2016a, 2016b](#)). [Ranganathan and Gazarian \(2015\)](#) reported that there are several key challenges for delivering rational use of medicines (RUM) to children in the developing countries. Among the problems are as follows:

- lack of coordinated NMP to support RUM;
- availability, affordability, and accessibility to medicines' issues;
- inappropriate standards of quality, safe, and efficacy of medicines;
- lack of independent, unbiased, and evidence-based information;
- lack of information, knowledge, and skills among healthcare practitioners who are dealing with medication use process among children;
- lack of proper devices and tools (e.g., calculator and weighing machine) used when deciding on the appropriate dosage for the children; and
- retailers selling prescription medicines extensively over the counter.

[Dowse \(2016\)](#) reported that the likelihood of poor health literacy in developing countries is prevalent. Health literacy is fundamental to the effectiveness of health programs and improvement to the quality of life. The United Nations Educational, Scientific and Cultural Organization Institute for Statistics found that around 7% of countries (13/180) indicate an adult literacy rate below 50%. All these countries are from sub-Saharan Africa, and the lowest adult literacy rate is in Mali with a 26.2% ([United Nations, 2009](#)). Another issue is corruption. Corruption (e.g., misinformation, bribery, theft, and bureaucratic corruption) is a global problem and negatively affects the medicines supply chain and the overall healthcare system. The backbone of the health system is formed by well-functioning supply chains that deliver various pharmaceutical products ([Yadav, 2015](#)). The Corruption Perception Index 2016 illustrated that none of the LMICs listed top 10 of the transparent (i.e., clean) ranking. On the scale of 0 (highly corrupt) to 100 (very clean), over two-thirds of the 176 countries and territories in this index fall below the midpoint ([Transparency International, 2016](#)). People also faced with issues related to substandard medicines, counterfeit drugs, nutrition, tobacco consumption, maternal and child health, and environmental hazards ([WHO, 2017](#)). [WHO \(2014\)](#) reported that the environmental hazards such air pollution caused around 7 million premature deaths a year. Most areas affected were densely populated LMICs. The conditions in the developing countries become worse when people suffer from various turmoil conditions such as war, humanitarian conflict, and public health crisis, which further

collapse completely the healthcare system. These aspects make working in the healthcare system and the practice of pharmacists more challenging.

In short, the LMICs are facing social, economic, environmental, human capital, political, and infrastructure issues that directly or indirectly affecting the health and pharmaceutical health services. Much needs to be done in LMICs. The following are important elements for functioning global supply systems and availability of safe and effective medical products at prices equitable to all: effective and innovative health and medicines policies, coordinated approaches, international cooperation, and effective oversight. Especially for the pharmacy regulators, policy makers, and practitioners, they must appreciate the complexity of the healthcare system and human life. What is considered fine or rational in one country and society might not be fine or considered irrational among other societies with different cultures, beliefs, and backgrounds. Regulators, policy makers, and practitioners in countries of the developing world should evaluate thoroughly health- and pharmaceutical-related issues in their country and find solutions that are appropriate and relevant according to the environment.

There are several significant initiatives to ensure health for all and RUM in LMICs that were advocated by organizations such as Health Action International Asia Pacific (HAIAP), People Health Movement (PHM), Third World Network (TWN), International Network for Rational Use of Drugs (INRUD) and WHO, just to name a few. [Chowdhury \(2017\)](#) noted that “Since the 1985 Nairobi Conference on the Rational Use of Drugs, for every two steps we have advanced we have gone one step backward. A progressive agenda for people-centred, rational and affordable healthcare continues to be undermined by powerful vested interests.” We are getting closer and closer, but are not there yet. The PHM’s member developed the People’s Charter for Health in 2000. It was established after realizing that vision and goals of Alma-Ata Declaration that was established in 1978 failed to ensure “Health for All by the Year 2000.” PHM felt that the health status of the LMICs has not improved as aimed, but instead worsened further. Health crisis happened everywhere, especially in the LMICs. There are significant inequalities between and within countries. New threats to health are continually developing ([PHM, n.d.](#)).

According to International Monetary Fund (IMF) ([2014](#)), “the world is a healthier place today but major issues continue to confront humanity.” The world has improved greatly with eliminating and controlling few of the communicable diseases such as smallpox and polio. Quality and better medicines have been produced to improve the health conditions. People have better sanitation and accessible to clean water. Even with the innovations and cost-effective interventions in healthcare, individuals continue to experience and suffer from health threats such as malaria, dengue, typhoid, chikungunya, severe acute respiratory syndrome, middle east respiratory syndrome-related coronavirus, Ebola virus crisis. In addition, the prevalence of mental disorders and noncommunicable diseases continues to increase. Chronic diseases such as cancer, cardiovascular diseases, and diabetes cause serious ill health and millions of premature death. It is reported that 85% of them are in LMICs. All these threats and disorders negatively affect the public health system and infrastructure, cause disability, and ruin businesses, workforce, and productivity of the affected country ([IMF, 2014; WHO, 2011](#)).

Thanks to pharmaceutical industries, which have produced antibiotics to fight against infectious diseases. The practice of medicine has been transformed. But, unfortunately due to the irresponsible and irrational used of antibiotics by healthcare providers and public, it has resulted in an increase in resistance and caused a worldwide decline in antibiotic effectiveness. The primary healthcare sectors failed to play their roles in containing these threats. The primary healthcare providers failed to perform their responsibilities. Pharmacists have a responsibility regarding antibiotic stewardship to help contain

or reduce amount of unnecessary antibiotic use especially against viruses and in trivial diseases. We need cost-effective, affordable, and practical interventions. The use of health technology assessment tools becomes helpful at this point.

Where are the pharmacists when the nations are crippled by these threats? Do the pharmaceutical policies fail to curb these problems? The lack of adequate, resilient public health surveillance systems, infrastructure to effectively deploy resources, and a health workforce to provide accessible, quality care where needed leaves us vulnerable to regional and global spread. Despite the progress that has been made in the last two decades, more needs to be done to create enabling regulatory environments. Understanding the social and cultural contexts that may contribute to these problems, plus effective solutions, is also crucial. Health communication often receives less attention and fewer resources than medical, scientific, or policy areas. There is an urgent need for society to value and invest more in evidence-informed public health strategies. The multifactorial nature of broader global health issues poses an enormous challenge to all stakeholders (WHO, 2016b). Effective public health action depends on understanding the scale and nature of threats to health (WHO, 1986). According to the Ottawa patient charter, the public health community has a duty to make the invisible visible. They must measure and assess the burden of diseases, health status, and risk factors including the protection factors. The public health community must make the best use of data to promote health. Public health interventions should be evaluated, using rigorous research methods, and the results disseminated. The public health community must ensure that evidence is used to give voice to those who would otherwise be unheard. Research findings must be disseminated effectively to the different stakeholders in the health sectors, including public, policy makers, practitioners, and (social) media. Findings at times are complex and this information should be delivered in ways that are comprehensible and in a timely manner (Lomazzi, 2016).

Effective public health interventions can save hundreds of millions of lives in LMICs, as well as create broad social and economic benefits. According to Frieden and Henning (2009), it is often assumed that public health interventions applied in developed countries are not appropriate in developing countries. Main public health functions are similar regardless of a country's income level. Many basic public health measures achieved decades ago in developed countries are urgently needed, highly appropriate, extremely cost-effective, and eminently attainable in LMICs today. Further according to Frieden and Henning (2009), a progress of public health in developing countries is possible but will require sufficient funding and human resources; improved physical infrastructure and information systems; effective program implementation and regulatory capacity; and, most importantly, political will at the highest levels of government. Most change is due to money. For instance, robotics, automation, and technicians are widely used to save money. In the hospital setting, unit dose, unit-of-use, etc. are done to save cost. Similarly, medication therapy management is done to save money and that is why most other changes are accepted, provided if they are cost-effective.

Pharmacists are dedicated and in a strategic position to preserve and advance public health. Their efforts enhance the quality of individual's lives by helping people to live as free as possible from disease, pain, and suffering (Jandovitz & Brygider, 2005). With respect to their relationship with the public, pharmacists are often portrayed as an underused resource for health- and medicines-related advice and information. Furthermore, the practice of pharmacy involves both pharmacist and public and can be conceptualized as a social process (Harding & Taylor, 2009, p. 395). Don't we need something about the efforts to locate new pharmacy roles, e.g., in relation to immunizations, patient advisor, educator and advocator for wellness, screening and prevention activities, birth control promotions, and

other population health initiatives? Pharmacists have an obligation to educate the public in LMICs, for example, teaching poor rural women about birth control and safe sex especially if their partner has HIV, etc. The other one is to encourage immunizations. In certain places, some cult leader and religious groups discourage their followers not to be immunized and then we end up with local epidemics of preventable conditions such as polio. Hence, understanding the concepts and principles behind social pharmacy disciplines is important and useful. There is a need to apply a socioecological model to public health issues that are impacting the health of the population.

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## SOCIAL PHARMACY

What is social pharmacy? Social pharmacy is a discipline driven by social needs (Fukushima, 2016) and more focus on the society at large. It is interdisciplinary subject, which helps to understand the interaction between drugs and society. Experts have defined social pharmacy as a discipline concerned with the behavioral sciences relevant to the utilization of medicine by both consumers and healthcare professionals (Wertheimer, 1991). Sørensen, Mount, and Christensen (2003) defined social pharmacy as studying "...the drug/medicine sector... from the social scientific and humanistic perspectives. Topics relevant to Social Pharmacy consist of all the social factors that influence medicine use, such as medicine- and health-related beliefs, attitudes, rules, relationships, and processes."

Almarsdottir and Granas (2016) also agree that social pharmacy is a discipline where there is use of the social sciences in pharmacy to add its usefulness to the society. It is also known as "pharmacy administration" or "social and administrative pharmacy." It has two components: the social sciences and the administrative sciences. The social sciences component includes demography, anthropology, psychology, social psychology, sociology, political sciences, and geography (Mount, 1989), while the administrative sciences component includes areas such as management, marketing, finance, economics, organizational behavior, law, policy, ethics, information technology, and statistics. Social and administrative pharmacy is the integration and application of the social and administrative sciences disciplines in pharmacy, i.e., education and practice. Social pharmacy scientists utilize both sciences to improve clinical practice, enhance the effectiveness of pharmaceutical regulations and policy, advocate political awareness, and promote improvements in pharmaceutical health services and healthcare delivery. Social pharmacy applied a biopsychosocial or socioenvironmental method to understand health and illness conditions (Claire, 2008). Many types of research use either the quantitative or qualitative or a mixed method approach, from simple to complex statistical methods and modeling in pharmacy practice to make changes and improvement in the healthcare system, quality of care, and patient's quality of life. In addition, there are many useful tools from the social and behavioral sciences literature that researchers could use, for example, in helping with patient-pharmacist communication and compliance enhancement efforts.

According to Wertheimer (1989), "there are very few similarities in the education and practice of pharmacy around the world." Many individuals have an ethnocentric, regiocentric, or geocentric approach in which they believe. For example, pharmacy colleges in a country might be reluctant to accept improvement in the curriculum. The pharmacy educators think that they are superior, and the curriculum developed and used, for example, in the last decades was excellent. In some cases, there is an imbalance of focus between the pharmaceutical sciences courses and the pharmacy practice and administration courses. They consider teaching more of the basic pharmaceutical sciences subjects to



the undergraduate students or just offering pharmaceutical sciences-related research (i.e., lab-based research) at the MSc and PhD level is adequate to provide the pharmacy graduates knowledge and skill to practice. The regiocentric or geocentric phenomenon in pharmacy practice is quite common and could be observed in the middle east region, for example. Further, political struggle and lack of leadership could hurt the dynamic and mission of the pharmacy profession. According to [Morgall and Almarsdóttir \(1999\)](#), the pharmacy profession could lose its monopoly and become weak due to the internal conflicts. Pharmacists need to advocate locally to upgrade the quality of pharmacy education away from massive amounts of chemistry to applied patient care science and practice and to upgrade the level of standards in each country to work with legislators to ban pharmacies not operated by qualified, licensed personnel.

When [Wertheimer and Smith \(1989\)](#) published the first edition of their book in 1974, social pharmacy or social and administrative pharmacy was a very new discipline and possibly not known in the LMICs. The book includes topics such as the contribution of the social sciences; pharmacy, pharmacist, and the professions; the contribution of psychosocial aspects; the contribution of sociology; and behavioral aspects of drugs and medication use, ethics, pharmacist and public health and the future of pharmacists. In the United Kingdom, according to [Harding and Taylor \(2015\)](#), social pharmacy was introduced in the pharmacy curriculum of UK colleges sometime in the early 2000. The Mills Commission Report in 1975 recognized the importance to develop the behavioral and social sciences aspects in pharmacy ([Study Commission on Pharmacy, 1975](#)). But, actually, the social pharmacy components were first experienced in the United States in the 1950s ([Wertheimer, 1991](#)). Then later, the UK and European colleges of pharmacy introduced social pharmacy into their curriculum ([Claire, 2008](#)).

It is doubtful if pharmacy colleges in the LMICs have successfully introduced this discipline in their pharmacy curriculum. Most of the times, the internal politics and a lack of understanding limit or even counteract the collaboration of clinical and social pharmacy, thus weakening both fields ([Almarsdóttir & Granas, 2016](#)). However, there are cases, to name a few, which had reported positive experience such as in Malaysia. School of Pharmaceutical Sciences, Universiti Sains Malaysia that was established in 1972, first introduced a course “Drugs in Developing Countries” ([Mohamed Izham, Awang, & Abdul Razak, 1998](#)) in the early 1990s. After a long struggle, the discipline was established in 2002 ([School of Pharmaceutical Sciences, n.d.](#)). Several important courses (e.g., drug and society, social and public health pharmacy, pharmaceutical management and marketing, and pharmacoeconomics) managed to be included in the pharmacy curriculum. These additions offer a perspective on the pharmacy that balances and complements the behavioral and natural/physical sciences component of the pharmacy curriculum ([Hassali et al., 2011](#)) to produce well-rounded graduates. In addition, the department has also produced hundreds pieces of social and administrative pharmacy-related research generated from more than 150 MSc and PhD students from around 15 LMICs. [Kostriba, Alwarafi, and Vlcek \(2014\)](#) identified large differences in approach and scope of teaching social pharmacy courses as a field of study in the undergraduate pharmacy education worldwide. They also identified regional trends connected with the political, economic, and social aspects of particular regions. [Basak \(2012\)](#) expressed concern with the recent changes in the Indian pharmacy education. According to the author, in the introduction of the PharmD program ([Pharmacy Council of India, n.d.](#)), social pharmacy is the least developed discipline in the curriculum. It called for cooperation in an attempt to develop social pharmacy components in teaching and research in India. There is a drive to incorporate the social pharmacy topics in the Yemeni pharmacy education even with all the challenges and limitations that the country is experiencing



nowadays (Alshakka, Aldubhani, Basaleem, Hassali, & Mohamed Ibrahim, 2015). In Libya, according to Abrika, Hassali, and Abduelekarem (2012), the pharmacy practitioners were supportive with the ideas of inclusion of social pharmacy subjects in the curriculum because it will enhance the pharmacists' professional roles.

In contrast, in the United States, Zorek, Lambert, and Popovich (2013) noted that even though the basic and clinical sciences provide a critical scientific foundation for direct patient care, pharmacists are likely to flounder in the face of social and behavioral challenges without a practical mastery of the relevant principles of modern social and behavioral science. According to the authors, pharmacy education and practice must require greater mastery of social and behavioral science. In the United Kingdom, the incorporation of social and behavioral sciences into the curricula of all schools of pharmacy, reflecting a broad recognition that pharmacy practice does not simply involve supplying medicines and advice to a passive public who take their medicines and follow expert advice without question (Harding & Taylor, 2009, p. 395).

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## WHY DO WE NEED THIS BOOK?

We know a great deal about pharmacy in the developed world but we know very little about pharmacy practice, education, and science in the lesser developed countries. That is unfortunate because if we in the developed countries understood what the major problems and impediments were in the lesser developed countries, we could be in a better situation to offer advice and aid. Very little has been published in the main stream, international literature about the status of pharmacy in the lesser developed countries. It is possible that some more is published in local journals in local languages that may be of limited help to others outside of that country. There are other problems as well. One is that accurate and timely vital health statistics may not be available for any of many possible reasons, such as budget restrictions, and shame in reporting accurate and precise reports that are not flattering to that country's leaders in the healthcare area.

This book sheds light on various topics that individually and in combination determine the status of pharmacy practice in individual countries. The nature of pharmacy characteristics in a country has a great deal to do with traditions and characteristics from colonial times, the wealth of the country, its political and economic systems, the level of capital available for investment, the extent of technical education among the population, the presence of a middle class and the size of an upper class, if there is one, and the extent of a culture of corruption.

There is one other reason why we need this book. When resources are constrained, sometimes clever persons devise exceptional strategies and schemes that require minimal resources. We are never so good that we cannot learn from our less fortunate colleagues, nor should we be too proud to borrow ideas and systems from nonindustrialized countries.

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## WHAT DOES IT ADD TO THE PRESENT KNOWLEDGE?

If one of us wanted to learn about some aspects of pharmacy practice, education, or research in Jordan, for example, it would be a time-consuming, complicated task, extracting various parts of our goal from a large array of journals, textbooks, and websites, and often a doomed task since some of the references

will be missing, unavailable, obsolete, or in foreign languages. Some citations may only be available through the interlibrary loan organization, requiring several weeks.

One may realize immediately that having all or nearly all of the desired data and information in one, easy-to-use source makes data collection and subsequent analysis far easier, and the work may be performed in a fraction of the time required to search here and there. In addition, relying on a single source for primary data can be dangerous. Governmental statistics offices often spin data-related reports to underreport communicable diseases so as not to discourage tourism or so as not to put a country behind its neighboring nations in its effectiveness in combating health problems, childhood immunizations, etc.

This book incorporates multiple data sources and when outliers are discovered, which may be called to the attention of the reader. This book also provides knowledge and understanding about social and administrative aspects of pharmacy in healthcare in LMICs. It also creates awareness among readers, providing ideas and possible solutions to these obstacles. It is hoped that the pharmacists and other stakeholders will be better equipped to tackle any problems and challenges facing them in practice.

If I had one hour to save the world, I would spend the first fifty-five minutes defining the problem and the last five minutes solving it.

Albert Einstein

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