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Editorial

Can Pharmacy Doctors act as valuable assets in rural areas with a physician shortage?

The emerging burden of communicable and noncommunicable diseases has led to a shortage of primary care physicians in rural areas in both developed and developing countries.[1] Currently, according to the estimates provided by the World Health Organization (WHO), nearly 57 countries are facing an alarming shortage of trained healthcare professionals.[2] Many Asian countries have the needed doctor-patient ratio. For every 1000 patients, Japan has the doctor-patient ratio of 2.1, South Korea has a ratio of 2, Singapore has a ratio of 1.8, and China has a ratio of 1.4.[1,3] On the other hand, India has a very low ratio of 0.69 for every 1000 people residing in its rural communities and a comparatively higher ratio of 1.33 for every 1000 people residing in its urban areas. For 70% of the Indian rural population, the patient-physician ratio is extremely low and amounts to a mere 0.39 per 1000 people.[4] These numbers provide evidence of the chronic shortage of trained healthcare professionals such as physicians, dentists, nurses, pharmacists, etc., Nearly 50% of physicians in UK and 20% physicians in the US have procured their medicine degrees from India and yet India, itself will be able to achieve the patient-physician ratio of 1 per 1000 people only in 2028, according to WHO report.[1] In 2011, an article published in Lancet stated that the current healthcare workforce, upon adjusting for qualification gaps, amounts to only a quarter of the WHO's actual needed number.[4] Not only there is an uneven rural-urban distribution of healthcare professionals, but also there is discrimination based on prestige among the healthcare professionals. Physicians often tend to undermine the contribution of other healthcare professionals such as physician assistants, nurses and pharmacists.

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On the November 14, 2013, the English daily newspaper reported that the Union Cabinet of India issued an approval allowing the creation and implementation of a 3½ years course in state universities based on delivery of quality care in rural India. The course was named Bachelor of Rural Medicine and Surgery at first, then was named Bachelor of Rural Health Care and now is finally being named as Bachelor of Science in Community Health. This course will train the students in basic anatomy and physiology, and diagnosing and treating basic ailments.

The introduction of a new medical degree program, though perceived as "unnecessary" by the medical community, can be an important step towards fulfilling the healthcare needs of the rural areas. Similar to the developed countries such as USA, UK, New Zealand, Canada, and Australia,[1] medical graduates in India prefer to practice in profitable urban areas as well. "Prescribing" comprises of providing oral or written instructions for preparing and administering medications for treating ailments. Prescribing entails the following four steps: Gathering patient history, assessing appropriateness of the medications, communicating the therapy to other healthcare professionals and monitoring patient's drug regimen. Even though the process of prescribing seems simple, choosing the most appropriate medication therapy for the patient often requires a sound judgment on the part of the healthcare provider.[5]

India has an agrarian economy. However, many physicians focus on providing and expanding their services among the urban populace since many rural regions are lacking in adequate transportation, lacking of house, power supply, basic health care facilities, water supply, no sanitation and toilet facility, inadequate financial support, no security and no schooling for their children. Healthcare facilities in rural India are extremely poor due to factors such as power cuts for long periods affecting operation of autoclaves for surgeries, hand pump driven water supply, poor vehicle connectivity preventing access to rural dispensaries,

lack of generators affecting storage of vaccines, poor salaries, and infrastructure violating the legal principles of the Clinical Establishments Act and lack of hygiene.[6]

Patients in rural India have far worst health outcomes compared with people residing in urban India. They are illiterate and face language barriers that might make medication adherence a challenging process. These patients are in special need for the medication therapy management provided by Doctor of Pharmacy (PharmD) professionals for improving their disease outcomes.[5] Pharmacists can also benefit these rural populations by applying their knowledge toward building patient medical histories, reviewing and monitoring medication regimen for patients with chronic conditions, performing drug evaluations, preventing medication errors, reporting about adverse drug reactions to regulatory agencies and educating patients, building a medication formulary and providing poison prevention and control services.[7]

The PharmD curriculum content focuses on courses such as Pathophysiology, Pharmacology, Community Pharmacy, Microbiology, Pharmacotherapeutics, Forensic Pharmacy, Hospital Pharmacy, Clinical Pharmacy, Pharmacokinetics, Clinical Toxicology, Clinical Pharmacokinetics and Pharmacotherapeutic Drug Monitoring, Pharmacoepidemiology and Pharmacoeconomics and Clinical Research. These courses are taught with practical training in hospitals and provide a sound background about human body and its physiology to the students. The PharmD program (6 years regular program after 12th standard and 3 years postbaccalereate program after 4 years Bachelor of Pharmacy [B.Pharm] degree), 5 years regular study with practical training in hospital from 2nd year onwards plus 1 year rotational internship, 6 months compulsory training in general medicine ward and remaining 6 months in three different departments like Surgery, Pediatrics, Obstetrics and Gynaecology etc.). It also might be more logical to provide graduates with a Diploma in Pharmacy (D. Pharm) or B.Pharm degree with 1-2 years of additional training under the tutelage of qualified PharmD professionals, given their theoretical expertise about allopathic medications. Rather than introducing more workforce with skill set similar to that already available in the job market, focus should be placed more on existent workforce and their ability to provide a much-needed care.

Many healthcare facilities in rural areas are not sufficiently supported by physicians. Studies conducted in the US have shown that patients put a lot of trust in their pharmacists.[8] Pharmacists with their clinical expertise can act as perfect partners to reduce the burden of such physicians. Enrollment in medical and pharmacy schools have increased over the years. The pharmacy graduates who earn a PharmD are not getting job opportunities due to the lack of sufficient vacancies. The primary question is whether the creation of an additional course in rural health is a more feasible option to increase the access of care among rural India or is generating job opportunities for thousands of PharmD graduates who have the needed expertise to serve the rural areas.

There is a need for expansion of pharmacy practice in all parts of India. In this country, allopathy is currently practiced illegally by nonallopathic providers (physicians with the basic degree in Ayurvedic, Unani, Siddha, Homeopathic etc.). Pharmacists with B.Pharm (4-year study plus 1 month training in industry necessary for registration as pharmacist, the pharmacist mostly trained for industry but many of them work in hospitals and community pharmacy) or D.Pharm (2-year study and 500 h necessary training in hospital, mostly they trained for hospital and community pharmacy) do not possess the necessary skills to provide pharmacotherapy to the patients but pharmacists with PharmD are especially given the needed training in their expanded curriculum. In a study conducted by Srikanth e*t* a*l*., 2013, among students enrolled in the PharmD program in different Indian pharmacy institutes, the researchers found that a majority of the students were of the belief that there was not only a need of a PharmD course in India (96%) but also upon procuring PharmD, more clinical skills could be acquired compared to conventional degrees such as D.Pharm, B.Pharm and Master of Pharmacy (82%).[9] In another survey study conducted by Ahmad and Patel *et al*., 2013, nearly 65% of the participants believed that if medications were prescribed by PharmD graduates along with physicians, the process of prescribing could be more made safer and beneficial for the patients.[10] Instead of establishing policies that are based on introducing new educational curriculum which is in fact quite similar to the curriculum from different disciplines (medicine, nursing, pharmacy) already in place, focus should be placed on evaluating the existent curriculum as well as on the creation of adequate number of jobs for the passing graduates from hundreds of pharmacy schools all over India.

In addition, the BSc in community health program is also facing criticism from the nursing community due to the presence of the BSc in nursing program already in place and lack of job opportunities for the passing nursing graduates. On July 17, 2014, the state of Uttar Pradesh announced the introduction

of a 45 days capsule course for training pharmacists with D.Pharm or B.Pharm in diagnosing and treating disease conditions so that they can be employed by primary health centers and community health centers that are facing a physician shortage.

In order to ensure that the PharmD graduates are competent supplementary prescribers, the Indian government can introduce prerequisite training for the interested pharmacists. In developed countries like the UK and the US, PharmD graduates can get the authority to prescribe medications after successfully completing a short duration accreditation program. This program involves face to face training sessions and self-directed studies. Pharmacists can be approved for appearing for this accreditation program after providing evidence from an authorized physician about their competence as supplementary prescribers. The prescribing authority can also be assigned given the expertise of the pharmacist in a particular clinical area.

Indian government has time and again launched schemes for improving preventive care. This is India's first attempt to introduce an education based policy in the form of the BSc in Community Health program, to provide its rural population with the much needed healthcare. Improving access to healthcare among the rural populace is a herculean task and will involve a multi-level approach. However, introduction of workforce in rural regions with limited knowledge alone seems a half-baked solution for a problem whose solution lies in corroborating infrastructure with a professional team comprising of Anganwadi workers (in small villages which there is no hospitals, they provide basic health care to the rural population, give contraceptive counseling and supply, nutrition education and supplementation, oral rehydration salts and basic medicines etc), nurses, pharmacists and physician assistants in case of absence/shortage of physicians.

Akram Ahmad[1], Isha Patel[2], Muhammad Umair Khan[1], Jongwha Chang[3]

[1]Department of Clinical Pharmacy, UCSI University, Cheras, Kuala Lumpur, Malaysia

[2]Department of Biopharmaceutical Sciences, Shenandoah University, Winchester, VA, USA

[3]Department of Pharmaceutical, Social and Administrative Sciences, Samford University, Birmingham, USA
E-mail: akrampharma67@gmail.com

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