

Using the potentials of community pharmacies to promote rational drug use in Pakistan: An opportunity exists or lost?

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Abstract

Keeping in view the importance of community pharmacies and their outreach to the patients, many developing countries have used their potential to promote safe and effective treatments by building their dispensing practices. This article discusses the importance of community pharmacies in the context of healthcare delivery system, and the potentials and opportunities which exist to promote the rational use of medicine in developing countries, especially Pakistan. A systematic inventory of published research work, was conducted for which the general search engine Google was utilised by using key terms 'community pharmacies,' 'dispensing practices,' 'drug sellers,' 'developing countries,' 'pharmacist,' 'Pakistan,' 'quality of pharmacies' and 'rational drug use' were employed. Internet databases, like Science Direct, Medline/Pub Med using available access, were used to find full-length articles. Private drug outlets have virtually turned into first-line source of prescribing and dispensing medications without any restrictions by the drug sellers. Innovative approaches are needed to achieve better services from these community pharmacies without significantly increasing costs to the society and healthcare system. The opportunity exists, but needs to be utilised accordingly.

Keywords: Community pharmacies, Dispensing practices, Drug sellers, Developing countries Pakistan, Pharmacist, Quality of pharmacies, Rational drug use.

Introduction

Community pharmacies act as major healthcare site throughout the world. Diversity in their distribution and operational setups make them an easily accessible and economical source for healthcare delivery.¹ Personnel working at pharmacies are consulted for health advice on problems of all kinds and remedies are sold or dispensed. Some of the remedies are safe and effective when used correctly, but others are dangerous.² Community pharmacies are seen as a quick source of advice, referral, medicines and information by the patients.³ The way drugs are procured,

stored and dispensed and the information given by the dispensers dictates the quality of their use, thus leading to rational or irrational use of medication.² Perhaps rational use of medicine could be a challenge in these settings.

According to World Health Organisation (WHO), rational use of drugs necessitate that patients receive 'medicines appropriate to their clinical needs, in doses, that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community'.⁴ The perspective of a patient is to get less number of drugs in few doses with minimum cost to cure in the shortest possible time. From business perspective, community pharmacies should always generate profits. This inherent conflict of interests among the stakeholders makes the promotion of rational drug use extremely complex. It is also difficult in countries where laws and ethics are not properly implemented.

The major factors which contribute to irrational drug use can be tagged as originating from patients, prescribers, dispensers, the place of work, the medicine supply system including influence of industry, pharmacies, information on drugs, regulation and combination of all these factors.⁵

Community pharmacies can be considered one of the important players affecting drug use owing to their scale of operations and placement in the healthcare delivery system. Keeping in view the importance of community pharmacies and their outreach to the patients, many developing countries have used their potential to promote safe and effective treatments by enhancing their dispensing practices. In Pakistan, this sector seems to be ignored by the policymakers as well as health authorities. This article discusses the importance of community pharmacies in the context of healthcare delivery system, and the potentials and opportunities which exist to promote the rational use of medicine.

Methods

A systematic inventory of published research work since 1990 was undertaken to identify studies which

focused on different aspects of community pharmacies in promoting rational drug use through drug-sellers/dispensers and/or drug-outlets/pharmacies.

A community pharmacy is any outlet selling allopathic medicines solely or alongside allopathic medicines selling homeopathic or herbal medicines irrespective of the type of license it holds.

Annals and computerised databases of International Network for Rational Use of Drugs (INRUD) and WHO were screened for relevant journal articles, research reports and newsletters. To expand and fortify the search process, the general search engine Google was utilised by using key terms 'community pharmacies,' 'dispensing practices,' 'drug sellers,' 'developing countries,' 'pharmacist,' 'Pakistan,' 'quality of pharmacies' and 'rational drug use.' Thirty studies published in peer reviewed journals were identified which related to different developing countries, including Pakistan. Internet databases — the Science Direct, Medline/PubMed using available access — were used to access full-length articles of these identified studies. All eligible papers reported the findings of empirical research and employed a scientific approach. The analysis of these studies focused on the quality of services offered by these pharmacies, knowledge of drug sellers and dispensing practices.

Results

A total of 20 studies were identified. These related to countries in different regions of the world. In Asia, studies had been undertaken in Vietnam (1), India (1), Lao PDR (2), Nepal (1) and Pakistan (6). In Africa, countries included Nigeria (1), Kenya (3), Ghana (1) and Chile (1). In developed countries there were 3 studies: USA (1), Australia (1) and South Africa (1).

Eight studies documented the scope of interventions on drug-sellers to improve the services provided by the community pharmacies. Further five assessed the quality of a range of activities, including pharmacies' legal requirements (e.g. cleanliness and storage), labelling of drugs and provision of advice. The availability and/or supply of medications with or without a prescription and dispensing practices were investigated in three studies. Knowledge of drug sellers and case management at the community pharmacies were investigated in three of the studies. While perceptions of prescribers regarding role of community pharmacists were explored in one study (Table).

Discussion

Private drug outlets have virtually turned into first-line source of prescribing and dispensing medications without any restrictions by the drug-sellers. Considering the scale of their operations and the impact of private drug sellers, it seems likely that the private pharmacies will

continue as the overriding source of healthcare in developing nations. In resource-constrained settings, community pharmacies can play a crucial role in dispensing and prescribing drugs to the community. Evidence is available that these outlets have the potential to significantly contribute to rational drug use whenever targeted for interventions.

Many studies across the world have highlighted the potential of community pharmacies in promoting safe and effective use of drugs.^{3,6,7} Major reasons behind this is their unique position in the healthcare delivery system, high magnitude of operation, irrationalities cropped up there, and evidence for improvement.

Community pharmacies have a quite distinct and unique position in a healthcare delivery system, being the first and/or final contact between patient and drug in majority of the cases.⁸ This puts them as the most important influencing link on how drugs are being used. This importance is augmented by their large extent and magnitude of operations, thus serving to millions of patients in a day. However, important to consider is that these outlets are working mainly as business entities and not as healthcare providers. All over the world, community pharmacies act as a business model, but they are regulated by health laws. The problem is not of a business but the regulation of this business.⁹ Inherent with their unique characteristics, many irrational drug use problems have cropped up at these outlets, including self-medication, antibiotic prescribing, inappropriate use of anti-diarrhoeals and steroids, sale of less-than-prescribed quantity of drugs specially antibiotics, poor drug storage practices. Some of the other problems include limited counselling, attempt to diagnose and treat almost all conditions despite having no expertise. Adding to this is their confidence in doing all this and there is high patient load and demand.^{3,7,8,10} The persons who are dealing with these patients are normally pharmacy assistants, dispensers and those with lower secondary-school qualifications with no formal training.⁷ However, they feel confident while dealing with patients, and patients also show trust on their suggestions and seek medical advice directly from these community pharmacies because they are faster and less expensive than the physicians.³

Global research experience provides evidence that it is possible to improve the practices at community pharmacies through a combination of interventions, thus achieving the goal of promoting rational drug use.¹¹ Though changing their knowledge and practices can be a slow and difficult process, improvements are possible to achieve even in the most resource-deprived settings. Two broad intervention focuses can be identified from literature; one being the general dispensing practices, and other focusing

Table: Summary of studies assessing services at community pharmacies.

Author and reference	Location	Scope	Content of interest	Study design and method	Conclusion
Adepu and Nagavi ¹	India	General practitioners' perceptions about the extended roles of the community pharmacists	Community pharmacists	Survey Questionnaire	Positive opinion about the role of pharmacists but highlighted need for improved knowledge and effective communication skills.
Qadwai et al. ²	Pakistan	Education of private drug sellers in promoting rational use of medicines	Diarrhea	Intervention Simulated visits	The rational use of medicines can be promoted by providing education to private drug sellers.
Sunderland et al. ⁷	Australia	Level and perceived quality of health promotion advice received from rural pharmacists.	Pharmacy services	Survey Questionnaire	Pharmacies are being underutilized with respect to their capacity to deliver health prevention advice
Rabbani et al. ¹⁰	Pakistan	Level of training, knowledge and dispensing pattern of pharmacy attendants	Common ailments	Descriptive cross-sectional Structured questionnaire	In the absence of trained pharmacists existing attendants should be trained
Hafeez et al. ¹²	Pakistan	Existing prescription practices, dispensing practices and patient satisfaction in government health services	Prescribing indicators Patient care indicators Dispensing indicators	Descriptive WHO RDU indicators	Prescription and dispensing practices are not satisfactory in public sector health facilities of Pakistan.
Bufl et al. ¹³	Pakistan	Proportion of pharmacies meeting licensing requirements and associated factors	Licensing requirements	Cross-sectional Structured questionnaire	Most drug sellers had fragmentary knowledge regarding drug dispensing storage and improper dispensing practices are common.
Degnan et al. ¹⁴	Kenya	Knowledge about dehydration and drugs to treat diarrhea among Kenyan pharmacy employees after training	Diarrhea	Randomized controlled design Face-to-face training	Face-to-face training of pharmacy attendants can result in significant short-term improvements in product sales and communication with customers
Wachter et al. ¹⁵	Nepal	Over-the-counter dispensing by drug retailers	Diarrhea	Cross sectional survey Simulated patient visits	Drug retailers did not have adequate understanding of the disease
Ameyaw and David ¹⁶	Ghana	Impact educational interventions on dispensing practices	Drug sellers	Prospective randomized controlled intervention	Posters alone were a cost-effective intervention to improve dispensing practices.
Stenson et al. ¹⁷	Lao P.D.R.	Quality of private pharmacy services	Facility-specific indicators	Interviews with drug sellers and customers	Poor dispensing practices due to lack of information about drugs sold, not being labelled and different drugs being mixed in the same package.
Stenson et al. ¹⁸	Lao P.D.R.	Effectiveness of government regulation of private pharmacy practice	Pharmacy requirements & dispensing practices	Intervention	Regulatory activities are an important factor behind the service quality improvements.
Summers and Kruger ¹⁹	South Africa	Impact of the training on the practice of Drug Supply Management, dispensing and patient knowledge	Drug sellers	Randomized, controlled pre-post intervention Training workshop	DSM training improved drug supply management, patient care and level of use of drugs from EDL.
Chalker et al. ²⁰	Vietnam	Multi-component intervention on knowledge and stated practice regarding ARI, STD and antibiotic/steroid requests	ARI, antibiotic/steroid, STD	Randomized trial multi-component intervention	Multi-component intervention has a significant effect on knowledge and practices of drug sellers.
Marsh et al. ²¹	Kenya	Changing home treatment of childhood fevers by training shop keepers	Fever, malaria	Intervention Training program	Shop keepers and community members strongly supported the aims and outcome of the program.
Bavestrello and Cabello ²²	Chile	Impact of regulatory measures on antibiotic sales	Antibiotics	Retrospective analysis	The regulatory measures of the Ministry of Health had an immediate and great impact on antibiotics sales.
Goodman et al. ²³	Kenya	Cost-effectiveness of improving malaria home management: shopkeeper training	Malaria	Intervention Training program	Training was found highly cost-effective intervention.
Erhun and Osagie ²⁴	Nigeria	Management of malaria by retailers	Malaria	Cross-sectional Questionnaire	The retailers had a fair knowledge of how to diagnose malaria. Suitable educational intervention can improve the knowledge and treatment practices.
Van and Hellerstedt ²⁸	USA	Dispensing practices, knowledge and attitudes of South Dakota Pharmacists	Emergency contraceptive pills	Survey Questionnaire	The education of pharmacists about emergency contraceptive pills must be strengthened.
Bhutta and Balchin ³⁴	Pakistan	Assessing the impact of a regulatory intervention	Diarrhea	Survey Structured observation	The deregistered formulations were being substituted by other irrational therapies, including the misuse of adult formulations. As a regulatory intervention, therefore, deregistration needs to be accompanied by efforts to change patient attitudes and physician prescribing habits.
Ahmed and Bhutta ³⁵	Pakistan	Prescribing and dispensing practices.	Antidiarrheals Multivitamins Brain tonics Appetite stimulants	Survey Questionnaire	95% of the physicians relied upon industry promotional material as their main source of information about drugs. The survey highlights the need to introduce the concept of rational drug use in the undergraduate and postgraduate education.

on disease/symptoms management.^{3,12}

Educational interventions with interactive training sessions are proved to be useful in improving general practices at pharmacies like record management, proper drug storage, record-keeping, labelling of drugs, reading doctor's prescription, medication counselling, discouraging sale of antibiotics and steroids without prescription, promoting complete dispensing and defining limitations of their work.¹³⁻¹⁶ Considering the use of pharmacies as a first source for healthcare advice, majority of the interventions were focused on managing the most common diseases like diarrhoea, fever, acute respiratory infections, malnutrition, malaria, guinea worms and Sexually transmitted diseases (STDs).¹⁷⁻²⁰ A combination of educational and managerial interventions with provision of standard treatment guidelines, posters and charts were successfully used to promote rational case management at community pharmacies in Ghana.¹³ The main contents highlighted were history-taking, differential diagnosis, clear referral criteria, medication allowed to prescribe with appropriate dosing regimen and counselling. Most of the studies concluded that regulatory interventions are important to sustain the impact of interventions and also provide a practicing framework for pharmacies.^{21,22} A few studies also targeted patients by using posters to enhance the impact of interventions.^{19,23} Regarding costs of these interventions, economy of scale can be gained if interventions are scaled up. The most encouraging thing to note from all the intervention research is that community pharmacies have a huge potential to contribute to rational use of drugs irrespective of their local, socio-economic, cultural and regulatory contexts.

Currently, the professional role of pharmacist in hospitals and community pharmacies is switching from dispensing and sale of drugs to patient counselling.²⁴ A study in India reported on this evolving role of pharmaceutical care at drug sale outlets in developing countries.²⁵ In the US, two states allow independent prescribing by pharmacists.²⁶ By authorising pharmacists to prescribe over 35 different medications for use in mild, self-limiting medical conditions, the law was designed to reduce consumer healthcare costs associated with medical office and emergency room visits. With scarce resources and easy accessibility of drug sale outlets in developing countries, the role of pharmacist needs to be emphasised for safe and effective use of medication, thus helping in the achievement of the millennium development goals (MDGs).^{25,27}

The scenario in Pakistan:

There are 8,102 pharmacists who are categorised as 'A' category; 31,000 pharmacy technicians categorised in 'B' and 'C' categories in the country.²⁸ There are over 63,000

private pharmacies in the country.⁹ If, theoretically, all these pharmacists and pharmacy technicians are employed by private pharmacies, still a good number of pharmacies are left without a qualified person in the county. According to the Pharmacy Council of Pakistan (PCP), 70 percent of pharmacists are employed in the pharmaceutical industry, while only 10 percent work at community pharmacies in the country.²⁸ The role of pharmacist is not very well recognised as compared to other health professionals in the country. The profession lacks an interface in society and is still seen in its infancy.²⁹

The quality of pharmacies can be seen in terms of the quality of personnel, premises and the process through which the drugs are being given to the patients. To comply with the existing regulations, pharmacies are licensed by the government at federal and/or at provincial level in Pakistan. Although a high percentage of the outlets are registered with the certificate of registration displayed, but the quality of pharmacies in Pakistan has been reported to be poor with only one-fifth of pharmacies meeting licensing requirements in Rawalpindi district.¹⁰ Evaluation of storage practices highlighted the lack of temperature monitoring devices and alternative power supplies for refrigerators with more than half of the pharmacies keeping vaccines irrespective of appropriate storage temperatures.^{7,10} A study in Karachi reported that tetanus toxoid was sold by 76% of pharmacies. However, only 8.9% had a refrigerator.⁷

Pharmacies are managed by diverse types of dispensers in terms of their qualification, knowledge, experience and ages. Despite the licensing requirement, the persons usually found managing pharmacies at the time of researchers' visits were often owners, salesmen, clerks, not the licensees.^{7,14,16} Even if the licensee or pharmacist is there, patients are often unlikely to meet the pharmacist. Instead, they are usually attended by a salesman. In legality, these pharmacies generally are registered by hiring a pharmacist, but in reality, they only rent a pharmacist license.³⁰

Gender of dispensers varied from country to country based on their socio-cultural context, but in Pakistan the dispensers are predominantly males. Their working experience ranges from a few months to more than 12 years. These dispensers are responsible for functions of a dispenser, storekeeper, inventory manager, accountant, prescriber, information provider and patient counsellor.^{7,15,16}

The qualification of dispensers vary from qualified pharmacist, pharmacy assistants, pharmacy technicians, diploma holders in pharmacy, to the persons having no dispensing-related education, and the majority constitutes this group.^{7,14} With this state of qualification and training,

these dispensers not only sell drugs but also diagnose, prescribe, monitor and modify the treatments with confidence and are responsible for patient education and advice.⁷

The decision on which drugs are to be selected is highly influenced by the source of information being biased or not. The majority of drug-sellers acquire their current information about drugs from job experience, neighbouring pharmacies, doctors, distributors, books, printed journals, newsletters, magazines, web sources and pamphlets, but industry representatives remain the major source of information.^{14,16}

Different studies have termed knowledge of dispensers differently, but two broad categories are apparent i.e. disease-related knowledge that incorporated the diagnostic questions, referral criteria, drugs selection and dispensing; and the other category, termed general, is quite diverse and incorporates knowledge of the available drug-sellers regarding storage conditions, prescription terminologies and status of drugs as over-the-counter (OTC) or prescription-only, with doses of some common drugs assessed in different studies revealing below par findings. Personnel in the pharmacies knew little about the products they sold.^{14,16}

The regulations regarding prescription drugs are generally not respected and prescription-only drugs are commonly dispensed without prescription and one of the most worrisome issues concerning irrational drug use is the common availability of OTC drugs.³¹ All the drug-sellers not only prescribe and dispense drugs to their customers, but they do it with great confidence.^{7,15} The appropriateness of prescribing by dispensers or self-medication by patients is far from acceptable. Dispensers hardly ever ask questions about the illness, and historical information obtained is inadequate to determine the nature or severity of disease or appropriateness of therapy.^{15,32} A study from Mithi, in rural Sindh, showed that the drug-sellers can be used effectively in the treatment of common ailments like diarrhoea with great success.⁷

Community pharmacies are one of the most easily accessible place to seek healthcare advice and drugs in developing as well as developed world.³³ There are over 63,000 community pharmacies in the country.⁹ These pharmacies are quite diverse in their distribution and operational setups and are the main source for supply of medicines to the ailing community. Community pharmacies are referred as medical or drug stores, chemist shops, drug outlets or pharmacies in Pakistan. These can be found in urban and rural settings, hospitals, and some even exist in the grocery stores. The patients attending these pharmacies usually come without a prescription. These pharmacies and

dispensers are allowed to perform the roles of a doctor, pharmacist, laboratory technicians and nurse.³⁴

Although, dispensing is regarded as an important component of rational use of drugs, yet it has been ignored by researchers in Pakistan. There are very few studies available which focus at the practices of pharmacies in Pakistan in public and private sectors, and there is just one intervention study with a very small sample size.³ Limited dimensions have been explored in the studies, including quality of pharmacy premises, dispensers' basic knowledge and qualifications and prescribing trends at these pharmacies. All literature highlighted the poor conditions of these outlets and identified it as a threat to public health. Building and strengthening their capacity to provide quality services and information is ideally suited for health promotion targets in Pakistan.

Recommendations:

Health system research focusing on current dispensing practices with sound study design is needed to explore the issue to its full extent. This will require multi-stakeholder collaboration in designing and executing a well-thought scientifically-sound study design with quantitative and qualitative tools and provision of ample funding. The National Medicinal Policy of Pakistan promises rational drug use, but lacks the roadmap to achieve it. There is a strong need for developing clear policies on promoting rational drug use by involving the private sector, especially the drug-sellers. The laws and regulations shall also be revised to incorporate such provisions and methods which are essential in promoting safe and effective use of medications in conformity with international standards. The laws thus formulated should be implementable with the provision of gradual scaling up of current practices at these community pharmacies. The shortage of qualified individuals at the pharmacies is cited as a reason for the low number of qualified personnel in the country. There is an urgent need to increase the number of qualified persons by developing more academic institutions for pharmacists, pharmacy technicians and dispensers. The focus should also be laid on the curriculum for these important personnel with specific focus on their evolving roles and responsibilities. Sensitising the consumers on the potential of drug sale outlets in terms of their operations and services will certainly have a positive impact on their services.

According to World Health Organisation, achieving rational prescribing in the private sector is "notoriously difficult" due to influences from patient demand, drug advertising, and profit-seeking behaviour of the drug-sellers.⁴ The research has established that improvements in the practices are possible through appropriate interventions and interventions can be

sustained and are cost-effective if scaled up.

Conclusion

There is a strong need to utilise the important segment i.e. community pharmacies which acts as a first-line treatment source for most of the population. Strategies shall be formed to utilise their potential in promoting rational drug use in line with the experience of other developing countries. Innovative approaches are needed to achieve better private services without significantly increasing costs to the society and the healthcare system. The opportunity exists, but needs to be optimised accordingly.

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