Original Research Article

Study of good pharmacy practice in community pharmacy of three districts of Kathmandu valley, Nepal

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ABSTRACT

Background: Medicines are an essential component of health-care services. The community pharmacies have great value in terms of providing medicinal services in developing countries. Good Pharmacy Practice (GPP) assesses whether the medicines are safe, effective, available, and accessible and are used correctly. The objective of the study is to assess the good pharmacy practice among community pharmacy of Kathmandu, Bhaktapur and Lalitpur districts.

Methods: This was a cross-sectional prospective study. A quota sampling approach was adopted to sample 94 community pharmacies. Data on the premises, storage, prescription handling and dispensing, pharmacy services and rational use of drug were collected using pre-tested questionnaire.

Results: The overall compliance with GPP indicators for Kathmandu, Bhaktapur and Lalitpur districts were found to be 12.81 (55.69%), 11.13 (48.39%) and 12.99 (56.48%). On structure wise study, the GPP compliance was higher in others category (Metropolitan city, Sub-metropolitan city and Municipality) i.e. 13.49 (58.65%) and 11.9 (51.74%) in VDC. The studies showed the declining involvement of pharmacists or pharmacy assistants in community pharmacy for more than eight hours a working day i.e. Lalitpur (65%), Bhaktapur (56%) and Kathmandu (59%). Antibiotic dispensing without prescription was highly practiced in Lalitpur 50% compared to Bhaktapur (44%), Kathmandu (34%).

Conclusions: It was found that all districts miserably failed to comply with the standards set by GPP particularly Bhaktapur. Pharmacies seemed to have established their place in the society more as a business entity rather than healthcare establishment.

Keywords: Community pharmacy, Good pharmacy practice, Kathmandu valley

INTRODUCTION

Medicines are an essential and critical component of health-care services.[1] In low socio‑economic countries, community pharmacies have great value in terms of providing medicinal services, while very little literature is available regarding the standard of community pharmacy practice in developing countries.[2]

In Nepal, the majority of community people visit community pharmacies for getting medicines and its related services, which was found to be operated by people having only training course.[3] Pharmacy practice was sub-optimal in the Low and Middle-Income Countries including Nepal.[4]

The Good Pharmacy Practice (GPP) guideline was developed by International Pharmaceutical Federation (FIP)as a reference to be implemented by the pharmacist while imparting services to patients in pharmaceutical organisations.[1] GPP assess whether the medicines are safe, effective, available, and accessible and are used correctly.[5] GPP is concerned to facilitate good therapeutic outcomes with medicines.[6]

A pharmacist not only enlightens the patient about proper use of medicines, but is also responsible for maintaining the quality of medicines that will be used dispensed to patients.

The Pharmacist has a key role to maintain the quality service of the community pharmacy. The real indicators for demonstrating quality in pharmacy services include storage, facilities, personnel, rational drug use.[1]

A study conducted among community pharmacies of Kathmandu and Kaski districts revealed a substandard compliance with GPP with regards to the physical environment, facilities, and storage.[7] Poor pharmacy practices will directly lead to patients for receiving inferior quality medicines that lead to therapeutic failure and even worse deterioration of health of the patients. Moreover, irrational drug use in Nepal has been a major problem over the past few years.[5]

The aim of this study is to assess the pharmacy practice in community pharmacies of Kathmandu valley and it's compliance with the GPP. Assessment studies become important as it points out to the deficiencies seen in the pharmacy practice and also the need for interventions to improve the current practice.

METHODS

Design and setting

This was a cross-sectional prospective study carried out in the Kathmandu valley (Kathmandu, Bhaktapur and Lalitpur district) of Central Nepal in 2017.

Study population

The study was carried out in 94 community pharmacies of Kathmandu, Bhaktapur and Lalitpur district.

Sample size and sampling procedure

The nonprobability quota sampling method was adopted because of not getting an exact number of community pharmacies. The possibility of pharmacy availability was found to be low below 5000 population in village development committee (VDC) area during pre-study. Therefore, VDCs with less than 5,000 populations were excluded from the study. The community pharmacy was chosen proportionately: one community pharmacy from VDC population below 50,000; two from population 50,000 to 1,00,000 and similarly sample number increases with 50,000 population. The sample community pharmacy was selected conveniently from the pharmacies of VDC or Municipality (MU) or Sub-metropolitan city (SMC) or Metropolitan city (MC) (Table 1). The population data collected from Central Bureau of Statistic, Nepal.[8]

Instruments and instrumentation

The research questionnaire was developed by studyingJoint FIP/WHO guidelines on Good Pharmacy Practice and additional literature review with senior consultation.The reliability test by Kuder Richardson 20 coefficient was found to be 0.769. The questionnaire was categorized into various parts as Premise, Storage, Services, Dispensing and prescription handling and Rational use of drug. The questions were mostly dichotomous and unit weighed. The mean score obtained under each category were converted to percent scale for each district which was reported as poor (<50%), average (50-75%) and good (>75%).[9]

The interviews were conducted in the Nepali language. The consent of community pharmacy representative was taken before collecting the information.

Data analysis

The data were expressed as score and percentage. For the statistical analysis of the quantitative data, the Microsoft Excel 2010 was used.

RESULTS

The overall compliance with GPP indicators for Kathmandu, Bhaktapur and Lalitpur districts were found to be 12.81 (55.69%), 11.13 (48.39%) and 12.99 (56.48%). None of the community pharmacies of all three districts were fully compliant with GPP. The storage facility was poor with a score of 1.91(47.75%), 1.77 (44.25%) in Kathmandu and Bhaktapur whereas average in Lalitpur with 2.1 (52.5%). The premises facility was average with a score of 3.01 (60.2%) 2.67 (53.4%) and 3.15 (63%) over other facilities in Kathmandu, Bhaktapur, and Lalitpur respectively. Altogether Lalitpur and Kathmandu, districts have GPP compliance above average 55.69% (Kathmandu) and 56.48% (Lalitpur). The pharmacy practice seemed quite similar between Kathmandu and Lalitpur compare to Bhaktapur. Significant variation between Kathmandu and Lalitpur was seen in the case of prescription handling and dispensing, with Kathmandu dominating the score with an average score of 3.09 compared to Lalitpur's 2.78. Bhaktapur on the other hand, scored the least with 2.1 (Table 2).

In Kathmandu, except storage 1.91 (47.75%) facility all other facilities were average i.e. premises 3.01 (60.2%), services 2.7 (54%), prescription handing and dispensing 3.09 (61.8%) and rational use of drug 2.1 (52.5%). The Kathmandu was found to involve longer time in dispensing (0.64, 64%) to patient compare to Lalitpur (0.33, 33%) and Bhaktapur (0.22, 22%).

Bhaktapur has three components belonging to poor compliance with below average percentage e.g.

prescription handling and dispensing 2.1 (42%), storage 1.77(44.25%) and rational use of drugs 1.94 (48.5%). Premises and service were average with compliance percent of 53.4%, 53% and average scores of 2.67, 2.65 respectively (Table 2).

The Lalitpur district has higher GPP compliance 56.48% comparatively. The entire components have average compliance i.e. premises, storage, services, prescription handling and dispensing, and rational use of drugs were 3.15 (63%), 2.1 (52.5%), 2.71 (54.2%), 2.78 (55.6%) and 2.25 (56.25%) respectively (Table 2).

Table 1: Distribution of sample.

Districts	VDC*	MU**	SMC***	MC****	Total
Kathmandu	34	2	0	20	56
Lalitpur	15	0	5	0	20
Bhaktapur	8	10	0	0	18
Total Sample	57	12	5	20	94

*Village Development Committee **Municipality ***Sub-metropolitan city ****Metropolitan city

Table 2: Pharmacy practice in Kathmandu, Lalitpur and Bhaktapur districts (n=94).

Pharmacy practice (score)	District wise average score (%)			Structure wise average score (%)	
	Kathmandu	**Bhaktapur**	**Lalitpur**	**VDC***	**Others****
Premises (5)	3.01 (60.2)	2.67 (53.4)	3.15 (63)	2.79 (55.80)	3.24 (64.80)
Storage (4)	1.91 (47.75)	1.77 (44.25)	2.1 (52.5)	1.74 (43.50)	2.22 (55.50)
Service (5)	2.70 (54)	2.65 (53)	2.71 (54.2)	2.56 (51.20)	2.91 (58.20)
Prescription handling and dispensing (5)	3.09 (61.8)	2.1 (42)	2.78 (55.6)	2.79 (55.80)	2.90 (58)
Rational use of drug (4)	2.1 (52.5)	1.94 (48.5)	2.25 (56.25)	2.02 (50.50)	2.22 (55.50)
Total (23)	12.81 (55.69)	11.13 (48.39)	12.99 (56.48)	11.9 (51.74)	13.49 (58.65)

*Village Development Committee, **Metropolitan city, Sub-metropolitan city and Municipality,
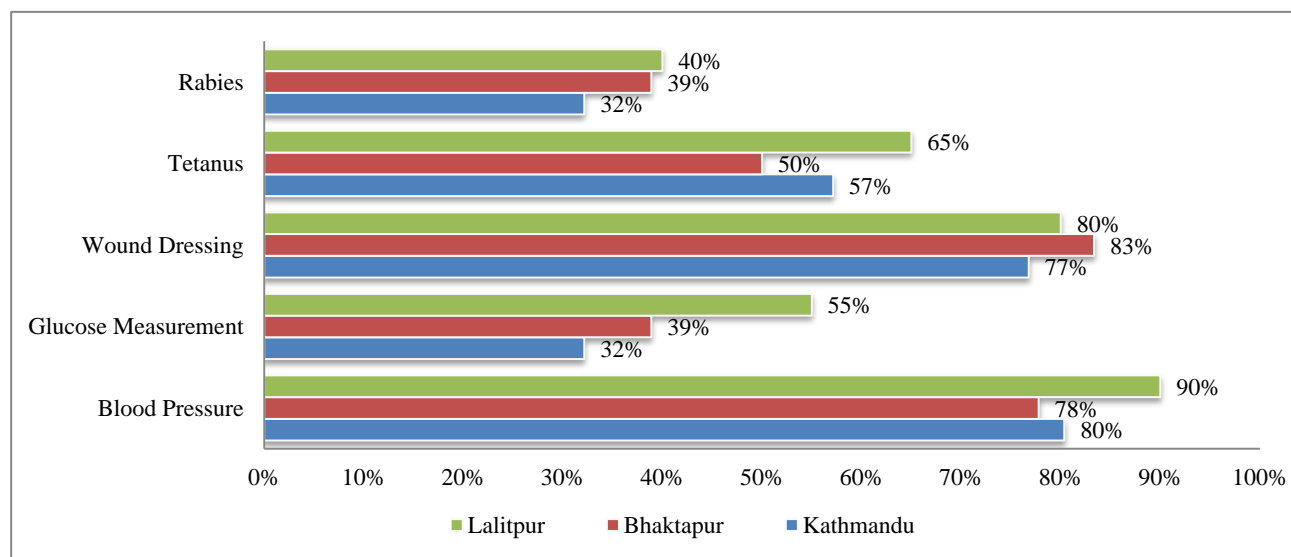
Figure 1: Additional community pharmacy services.

On structure wise study, the GPP compliance was higher in others category (Metropolitan city, Sub-metropolitan city and Municipality) i.e. 13.49 (58.65%) and 11.9 (51.74%) in VDC. Similar to district wise study, the premises facility was average VDC: 2.79 (55.80%), others: 3.24 (64.80%) and storage facility was poor in

both VDC: 1.74 (43.50%), others: 2.22 (55.50%) over other facilities of GPP (Table 2).

The studies showed the declining involvement of pharmacists or pharmacy assistants in community pharmacy. On comparison, Lalitpur clearly was the better

district with 65% of pharmacies having pharmacists or pharmacy assistants for more than eight hours a working day, while Bhaktapur being the lowest with just 56%, Kathmandu in second rank with 59% (Table 3).

Antibiotic dispensing without prescription was highly practiced in Lalitpur 50%, Bhaktapur is the second highest with 44%. Kathmandu district comparatively showed the better utilization of antibiotic where only 34% of the pharmacies sold it without prescription. 1 out of 2 pharmacy openly sold antibiotics without prescription in Lalitpur. The full course antibiotic use promotion was highly done in Lalitpur 70% than Kathmandu 68% and Bhaktapur 50% (Table 3).

Table 3: Indicator and components of Pharmacy practice assessment in Kathmandu, Lalitpur and Bhaktapur districts (n=94).

Indicator for good pharmacy practice	Score maximum	Kathmandu n (%)	Bhaktapur n (%)	Lalitpur n (%)
A. Premises				
Is the environment around the pharmacy neat and clean? Y=1, N=0	1	0.59 (59)	0.56 (56)	0.65 (65)
Is periodic cleaning schedule followed and necessary measures taken for pest and rodent control when appropriate? Y=1, N=0	1	0.45 (45)	0.50 (50)	0.50 (65)
Is there provision of filter for provision of drinking water? Y=1, N=0	1	0.66 (66)	0.61 (61)	0.70 (70)
Is the pharmacy spacious enough for comfortable dispensing also having appropriate seating facilities? Y=1, N=0	1	0.63 (63)	0.56 (56)	0.70 (70)
Does the pharmacy have neat, well placed shelves for the provision of storage of medicines and other items in a neat manner? Y=1, N=0	1	0.68 (68)	0.44 (44)	0.60 (60)
B. Storage				
Is there separate storage area for initial quarantine of all incoming medicines? Y=1, N=0	1	0.36 (36)	0.39 (39)	0.45 (45)
Are all medicines stored in a way protected from sun-light, dust? Y=1, N=0	1	0.61 (61)	0.61 (61)	0.50 (50)
Does the pharmacy dispense narcotic drugs? If so then are medicines and dosage forms under group "ka" stored under lock and key system? Y=1, N=0	1	0.30 (30)	0.33 (33)	0.45 (45)
Are medicines which have already expired stored separately in another area? Y=1, N=0	1	0.64 (64)	0.44 (44)	0.70 (70)
C. Services				
Total number of working hours per day. Less than 8 hour=0.5, More than 8 hour=1	1	0.73 (73)	0.61 (61)	0.65 (65)
Does the pharmacy open on? Weekends=0.5, public holiday=0.5	1	0.66 (66)	0.67 (67)	0.53 (53)
Additional services provided by the pharmacy. Blood measurement=0.2, Blood glucose measurement=0.2, wound dressing=0.2, TT Injection=0.2, Rabies Injection=0.2	1	0.54 (54)	0.59 (59)	0.66 (66)
What qualification does the personnel working in pharmacy hold? Bachelor in Pharmacy=0.7, Diploma in Pharmacy=0.2, Personnel recognized by DAC to run medical store=0.1	1	0.18 (18)	0.22 (22)	0.22 (22)
Is the pharmacist or pharmacy assistant accessible to public for information and counselling? Y=1, N=0	1	0.59 (59)	0.56 (56)	0.65 (65)
D. Dispensing and prescription handling				
Upon receiving the prescription, does the pharmacist confirm for identity of the client? Y=1, N=0	1	0.61 (61)	0.44 (44)	0.50 (50)
Does the pharmacist review the prescription for completeness of legal requirements? Y=1, N=0	1	0.64 (64)	0.50 (50)	0.7 (70)
Average dispensing time per patient? Less than 1 minute=0, 1-4 minute=0.5, More than 4 minute=1	1	0.64 (64)	0.22 (22)	0.33 (33)
Is labelling properly done before the medicine gets dispensed? Y=1, N=0	1	0.54 (54)	0.44 (44)	0.65 (65)
Is the final review of prescription and corectness of dispensed medicines made ? Y=1, N=0	1	0.66 (66)	0.50 (50)	0.60 (60)

Continued.

Indicator for good pharmacy practice	Score maximum	Kathmandu n (%)	Bhaktapur n (%)	Lalitpur n (%)
E. Rational drug use				
Is generic substitution practiced and is it explained? Y=1, N=0	1	0.63 (63)	0.61 (61)	0.60 (60)
Would the pharmacy sell antibiotic without prescription? Y=0, N=1	1	0.34 (34)	0.44 (44)	0.50 (50)
Is there emphasis to dispense full course antibiotic? Y=1, N=0	1	0.68 (68)	0.50 (50)	0.70 (70)
Does the pharmacy adopt non-pharmacological management without necessarily dispensing medicines? Y=1, N=0	1	0.45 (45)	0.39 (39)	0.45 (45)
Total Score	23	12.81 (55.69)	11.13 (48.39)	12.99 (56.48)

Non-pharmacological management practice was best exhibited by Kathmandu and Lalitpur with 45% comparison to Bhaktapur 39%. Majority of Community Pharmacies were comparatively less willing to adopt non-pharmacological management (Table 3).

Among the varieties of services that a Community Pharmacy would impart Blood Pressure Measurement was seen as the most common one. And the others services that pharmacies have provided were declining in the order of wound dressing, tetanus injection, Glucose detection and finally Rabies for all three districts. The 90% of Pharmacies of Lalitpur provide Blood pressure measurement service, while 80% of Kathmandu and 78% of Bhaktapur. Lalitpur district was superior on additional pharmacy service as depicted in the graph except for wound dressing service which was lead by Bhaktapur district with 83% (Figure 1).

DISCUSSION

Compared to the other components, pharmacies scored highly in premise, but the practice was observed to be pretty average. The study conducted in Kathmandu and Kaski districts in 2016, rated poor to the physical premises of community pharmacy.[7] While observing these present and previous studies, it shows the limitation of community pharmacy towards improvement in pharmacy premises.

The study found lowest score in storage facilities among the rest. The separate area for incoming goods, separate narcotic storage and separate arrangement for expired were not practiced much. The reason might be low inventory in community pharmacy. The similar study done in Srilanka and Kathmandu both rated inadequate poor storage facilities.[7,10]

The community pharmacy has seen to involve in various healthcare services beyond medicine dispensing which one is a good practice. The most common service provided by the pharmacies of Kathmandu valley districts were blood pressure measurement and wound dressing which was similar to the result of a research conducted to check the community pharmacy practice in Pokhara.[11]

Regarding the service component, None of three districts showed full access to pharmacy assistant or pharmacist and, pharmacy service on weekends, public holiday and, more than eight hours of access to general public. Being a central developed district of Nepal, the partial service of these districts can also reflect the poor community pharmacy practices of other districts. Only 59% in Kathmandu, 56% in Bhaktapur and 65% of Lalitpur community pharmacy have access of the public to the pharmacist or pharmacy assistant for medicine information and counselling, while rest of pharmacy of three districts were run under the presence of other professional. The study done in Bara and Parsa district of Nepal showed 62.1% of pharmacies are registration under orientation trainer.[12]

Dispensing and prescription handling practice of Kathmandu valley districts were average. The studied showed some personnel working in the pharmacy opting to extract patient information from the prescription. Labelling seemed to be a dying art, only a few personnel agree to label majority of the dispensed product. The study done in Bara and Parsa districts found 91.4% dispensing practice being done by non-pharmacists.[12] The poor dispensing practice in community pharmacy is due to lack of qualified assistant pharmacist and pharmacist in community pharmacy service and, probably due to more focused on earning than service.

The previous study found that the majority of pharmacy operation was carried by a professional person who only took training and registered.[3,13] Many pharmacies were operated by professionals or nonpharmacy professional and in case of pharmacy professionalism most of them were working for the short period of less than eight hours. The study signifies lower influence of registered pharmacists in a community setting which may be due to the discouraging provision in the Drug Act of Nepal, which permits pharmacists, assistant pharmacists and "professionalists" to run pharmacies without taking into consideration of the differences in their qualifications.[14]

The unnecessary antimicrobial use was found higher around 97% in diarrhea patient by drug retailer in the previous study did in Kathmandu.[15] Irrational antibiotic use was seen in all districts, whereas full course antibiotic

use promotion was found in Kathmandu and Lalitpur comparatively. The probable factors leading to such results may be due to lack of stringent policies regarding antibiotic use, lack of awareness and knowledge in the dispenser regarding the negative effects of the irrational use of antibiotics. The antibiotic dispensing without prescription was zero in the study done in Ethiopia, Uganda, while dispensing antibiotics without prescription was common (66.5%) without advice on completion of a full course of therapy (80%) in the study done in Bara and Parsa district of Nepal.[5,12]

Overall the performance of all districts was seen mediocre at best, with Lalitpur outperforming the remaining two. The GPP compliance was seen higher in Urban area compares to VDC which probably due to lack of resources and knowledge. Pharmacies were abundant in the urban areas more than the rural ones in all three districts, and there were more chances to find qualified and experienced dispensers in urban areas. However the presence of a pharmacy professional authorized to dispense medicines was usually absent. Most of them rent their licenses to the owners, the issuance of license is to sell and distribute medicines.

CONCLUSION

It was found that all districts miserably failed to comply with the standards set by GPP particularly Bhaktapur. Pharmacies seemed to have established their place in the society more as a business entity rather than healthcare establishment. Insufficient infrastructures, lack of qualified dispenser, irrational use of drugs, unsatisfactory dispensing practices were seen as the characteristics of pharmacy practice in Kathmandu valley districts.

Recommendations

- Need to develop a stringent drug policy program and periodic investigations to ensure full phase implementation.
- Need to develop and encourage qualified professionals in community pharmacy.

ACKNOWLEDGEMENTS

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