Document heading doi: 10.21276/apjhs.2019.6.2.13 **Research Article**

A Simulated Patients Survey on Antibiotic Dispensing Practice among Medicine Retailer: A Pilot Study

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Abstract

Introduction: In developed countries, half of the antibiotics consumed in community are considered to be based on incorrect indications and most common indications are viral infections. Antibiotic dispensing practice without prescription by the community pharmacies staff are inappropriate. An antibiotic is a prescription only medicines which can not be bought without prescription from various community pharmacies and drug store in many countries **Objective:** To study about dispensing practice of antibiotics among medicine retailer in Butwal and Bhairahawa cities. **Method:** The simulated patient method was used in this study. Purposively selected 18 pharmacies 9 from each city were enrolled in this study. Dispensing and counselling practice of antibiotics were assessed. **Result:** Most common therapeutic categories drugs dispensed by medicine retailers were antihistamine 24 (35.29 %), NSAIDs 17 (25%), ANS 14 (20.58%) and antimicrobial 12 (17.64 %). Average numbers of drug per prescription was 3.77. Similarly, Average numbers of antibiotic per prescription was 0.66. None of the patient receive complete drug information of a drug like name of medicine, strength, how to take, drug-drug interaction or food-drug interaction and storage condition of individual drug given to patient. However, drug information like duration of drug and frequency of dose of individual drug were given to all patients. **Conclusion:** Antibiotic is easily available as OTC in the market. The medicine information given to simulated patient by medicine retailer to the simulated patient was insufficient. Implementing policy and strict monitoring required to this overcome. In addition, Department of drug administration initiatives like work shop, training about drug information and counselling of medicines to medicine retailer may improve the situation.

Keywords: Antibiotic utilization, Community pharmacy services, Dispensing practice, Simulated patient.

Introduction

As per the World Health Organization (WHO), Rational drug use means that patients receive right medicine to their clinical requires, in doses that meet their own individual requirements for sufficient period of time, and at the lowest prices to them and their community.

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Inappropriate use of medicines can lead to therapeutic failure, adverse drug reaction and poor outcomes etc.[1] According to World Health Organization (WHO), drug utilization as the marketing, distribution, prescription and use of drugs in a society, considering it consequences. Either medical, social and economic. [2] In developed countries, half of the antibiotics consumed in community are considered to be based on incorrect indications and most common indications are viral infections. [3] In Sri Lanka, antibiotic dispensing practice without prescription by the community pharmacies staff are inappropriate.[4] In Tanzania, antibiotic dispensing without prescription by the

community pharmacies and drug stores were common practices. Since the antibiotic was frequently available as over the counter,the over uses of antibiotics can leads to antibiotic resistance in the community.[5] Similarly, study conducted in Spain suggested that dispensing of antibiotic without prescription was very high.[6] An antibiotic is a prescription only medicines which can not be bought without prescription from various community pharmacies and drug store in many countries.[7-12] In Nepal, 4-year pharmacy course after 12 years schooling is graduate pharmacist and 3-year pharmacy course after 10 years schooling is diploma in pharmacy and they are registered as pharmacist and assistant pharmacist in Nepal pharmacy council respectively. In the past, there were lack of pharmacist and assistant pharmacist in Nepal. So, to fulfil the requirement of retail pharmacy in the country, the government of Nepal started short orientation training course for person who has completed 10 years schooling as orientation training and those were given licence to start retail pharmacy. But those cannot be registered in Nepal pharmacy council.[13,14,15]

Similarly, to meet the requirement of health care service at primary health care facilities started. Health assistant (HA) and community medicine auxiliaries (CMA) both are paramedical personnel to manage community pharmacy in Nepal who has complete medical training 36 months and 18 months.[16,17] Theywere sent to remote area to manage minor illness and prescribe a few selected medicine. According to drug act of 1978, they do not have legal right to dispensed medicine independently. Drugs are classified into three categories ie group Ka, group Kha and group Ga (Over-the-counter). Drugs in group Ka and Kha are prescriptive drugs which can be only obtained by prescription of registered medical practitioner. The drug in group Ga is over-the-counter drug which can be dispensed without prescription for managing of minor illness. Antibiotic is a Kha group drug or prescriptive drug. It can be dispensed only with prescription. [18]Despite that in practice antibiotic are easily accessible as OTC in Nepal.[19]Thisincreases the over use of antibiotic can caused antibiotic resistance, drug adverse effect and unnecessary increase health cost of patient. There are scare of evidence or study on antibiotic dispensing practice of retailer. Hence researcher planned this study as pilot to main study on dispensing practice and controlling system of antibiotics among medicine retailer in Butwal city and Bhairahawa - interventional study.

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Objective

To study about dispensing practice of antibiotics among medicine retailer in Butwal and Bhairahawa cities

Material and Method

Study site: The study was carried out in two cities i.e. Bhairahawa and Butwal.

Study design: Cross- sectional

Operational

Purposively selected 18 pharmacies 9 from each city was enrolled as pilot study of project. Simulated patient survey was conducted where researcher visited the medicine retail as patient requesting for medicine as simulated client with case of flu. The self-developed data collection form was used by the researcher to record the data. The detailed information regarding medicine retailer demography and other details information werememorized and latter recorded in data collection form.

Scenario presentation

The simulated client approached retailer for medicine with a fictitious case scenario of acute sore throat, common cold and fever. The simulated client 38 years old was presented himself as patient with symptom of dry cough, runny nose, low grade fever, breathing in difficulty, no chronic illness, no history of drug allergy and no history of medication.

Ethical approval

The study was approved by the Nepal Health Research Council (NHRC). Informed consent from each medicine retailer were taken one week prior to data collection.

Result

Demography of Medicine retailer

All together 18 community pharmacies were including in this study. Overall 9 community pharmacies were visited by one simulated patients in each city. Among them, 17(94.44%) medicine retailers were male and 1 (5.55 %) was female. Most of medicine retailer 12 (66.66%) were from age groups of 21-30 years, followed by 31-40 years 5 (27.77%). We also found that Brahman race was more in number 9 (50%), followed by other race 7 (38.88%). Medicine retailers working in community pharmacy were assistant pharmacist 10 (55.55%), followed by CMA 05 (27.77%). The demography all detail was given in the table 1

Table-1: The demographic details of Medicine retailers

	No. of community pharmacist	% of community pharmacist
Age distribution of community pharmacist (n=18)		
Age group (Yrs)		
21-30	12	66.66
31-40	5	27.77
41-50	1	5.55
Gender distribution of community pharmacist		
Gender		
Male	17	94.44
Female	1	5.55
Racial distribution of community pharmacist		
Races		
Brahman	9	50
Chhetri	2	11.11
Other	7	38.88
Educational Status		
Education		
CMA	5	27.77
HA	2	11.11
D.Pharm	10	55.55
B.Pharm	1	5.55

Therapeutic classification and common drugdispensed by Medicine retailer (n= 68): The most common therapeutic categories drugs dispensed by medicine retailers were antihistamine 24 (35.29 %), followed by the drug NSAIDs 17 (25%), ANS 14 (20.58%) and antimicrobial 12 (17.64 %) respectively.Total 68 drugs dispensed by medicine retailer in both cities. The most common one was paracetamol accounting for 15 (22.05%). Azithromycin account for 8 (11.76%). Details are given in table.2.

Table-2:Therapeutic category of common drugs dispensed by medicine retailers were given in table 2

Therapeutic classification	Name of Drugs	No. Of Drugs	No. of drugs	% of drugs
Antihistamine	Chlorpheniramine	14 (20.58%)	24	35.29
	Levocetrizine	4 (5.88%)		
	Cetirizine	3 (4.41)		
	Fexofenadine	2 (2.94%)		
	Loratidine	1 (1.47%)		
Antimicrobial	Azithromycin	8 (11.76%)	12	17.64
	Amoxicilline	1 (1.47%)		
	Cefixime	1 (1.47%)		
	Cefpodoxime	1 (1.47%)		
	Ofloxacin	1 (1.47%)		
NSAIDs	Paracetamol	15 (22.05%)	17	25
	Ibuprofen	1 (1.47%)		
	Nimesulide	1 (1.47%)		
ANS drugs	Phenylephrine	14 (20.58%)	14	20.58
Respiratory	Dextromethorphan	1 (1.47%)	1	1.47

Number of Drug/Antibiotic per prescription (n=18): Total 68 drugs dispensed by medicine retailer to simulated patients. Average numbers of drug per prescription was found to be 3.77. Similarly, Average numbers of antibiotic per prescription was found to be 0.66.

Information given by Medicine retailer to Simulated Patients: The main duty of medicine retailer was not only dispensing medicine but also giving proper medicine information to the patients. In our study, medicine retailers neither asked about prescriptions nor informed about name of medicine, strength, how to take, drug-drug interaction or food-drug interaction, and storage condition. The detail information by medicine retailer is given in table-3.

Table-3: Proper information given by medicine retailer to the patients

Description		
	Yes	No
Medicine retailer ask about prescription		18 (100%)
Medicine retailer tell about name of drug (brand or generic)		18 (100%)
Medicine retailer inform about the strength of medicine		18 (100%)
Medicine retailer inform about the duration of therapy	18(100%)	
Medicine retailer inform about how to take drug		18 (100%)
Medicine retailer inform about how many time to take a day	18(100%)	
Medicine retailer inform about the side effect of drug		18 (100%)
Medicine retailer inform about the drug–drug interactions or food–drug interaction		18 (100%)
Medicine retailer instruct to keep store the remaining drug		18 (100%)

Discussion

Community pharmacy remain first point of contact for patient especially in remote areas where pharmacist plays an important role in healthcare system. In our study, we found most numbers of drugs was dispensed by assistant pharmacist (55.55%) and CMA (27.77%). According to drug act of Nepal in 1978, assistant pharmacist was legally dispensing prescriptive and non-prescriptive medicine. However, CMA are not legally authorised to dispense medicine.[18] Our study 12 (17.64%) simulate patients receive antibiotic from medicine retailer. Similarly conducted in Brazil and Saudi Arabia found 58% and 77.6% of community pharmacist dispense antibiotic without prescription. [20,21] Later both study found higher use of antibiotic as compared of our study. This might be due to small sample size in our study 18 compared to 107 and 327 respectively. The use of antibiotic in common cold, running nose and fever are highly irrational. Irrational uses of antibiotic in community to develop resistance of antibiotic, increase of health cost, morbidity and mortality in community.[22] Thecommon therapeutic categories drugs dispensed were antihistamine 24 (35.29%), followed by the drug NSAIDs 17 (25%), ANS 14 (20.58%) and antimicrobial 12 (17.64 %). Most common one was paracetamol accounting for 15 (22.05%), followed by chlorpheniramine (anti histamine) 14 (20.58%) and azithromycin 8 (11.76%). A study conducted in India found the pharmacist dispensed antibiotic without prescription in 66.7 % case to simulated patient.[23] Another study conducted in Jordan found the pharmacist dispensed antibiotic without medical prescription from 150 (74.3%).[24] Paracetamol and antihistamine are the choice of drug which treats seasonal allergy such as runny of nose, common cold, fever with cough. However antibiotic do not have any role to treat above medical condition. Total 68 drugs dispensed by medicine retailer to simulated patients. Average numbers of drug per prescription was found to be 3.77. Similarly, Average numbers of antibiotic per prescription was found to be 0.66. We did not find the similar literature on community setting. However a study conducted in Nigerian tertiary hospital found that the average number of drugs per encounter was 3.04.[25]Similarly, another study conducted in Ethiopia found that the average number of drugs prescribed per encounter was found to be 1.89.[26]A study conducted in Kathmandu Valley found that the average number of drugs per patient was 5.01±1.36 and antibiotics per patient was 2.41±1.02.[27] In our study, average number of drug per prescription was more than 3 as compared to Ethiopia and Nigerian studies but less than Kathmandu valley study. Our study points toward polypharmacy. As per WHO reports polypharmacy directly affects the cost of prescription, chance of drug interaction, adverse drug reaction and non-adherence patients to the drug therapy.[28] This could be due to the influences of the pharmaceutical companies in the hospital where their representatives have direct influence to the prescriber.[29]

Patient counselling is the process where patient counselled by the pharmacy professional to the patient. The process effects directly to the patient compliance, therapeutic success and failure. Therefore, complete counselling is used to measure the degree to which dispensers communicate vital information to patients on dispensed drugs.[30]The pharmacy professional have duty to provide drug information about name of medicine, strength, how to take, drug-drug interaction or food-drug interaction, storage condition, about duration of therapy, how many time to take a day of drug to the patients. In our study, medicine retailers neither asked about prescription nor counsel about name of medicine, strength, how to take, drug-drug interaction or food-drug interaction, and storage condition. Our study reports that drug information on the individual drugs like name of medicine, strength, how to take, drug-drug interaction or food-drug interaction and storage condition was not given to the patient. However, drug information of individual drug like duration of drug and frequency of dose given to the patient. One study from Qatar applied simulated patient method (acute gastroenteritis management) found that the drug information of individual drugs like adverse effect, precaution, contraindication, effect and allergies of drug was not given to patient.[31]Which was similar finding to our study. This might may be due to over- load of patient at community pharmacy and lack of skilled man power for counselling and dispensing. Medicine retailer did not adherence good dispensing standards, manuals and code of ethics for medication counselling at pharmacy counter. A study conducted in Turkish Republic of Northern Cyprus found the pharmacist provide insufficient drug related information to the simulated patient.[32]A study conducted in Romania suggested 58.5% of pharmacists did not give drug information on OTC medication to patient.[33]Similarly, study conducted in Bahir Dar (Ethiopia) found 40.8% of Pharmacists counsel patients about the major side effect of OTC medication. [34]However, the present finding was high as compared to a study done in Romania and similar to Qatar. Medicine retailer hardly participate in refresher training and workshop relating dispensing practice and counselling of drug.

Conclusion

Simulated patient study suggested that antibiotic is easily available as OTC in the market. The people can purchase antibiotic without prescription. The common antibiotic dispensed by medicine retailer to simulated patients were azithromycin, amoxiciline, cefixime, cefpodoximeand ofloxacin. The medicine information given to simulated patient by medicine retailer to the simulated patient was insufficient. Implementing policy and strict monitoring required to overcome this. In addition, Department of drug administration initiative like work shop, training about drug information and counselling of medicines to medicine retailer may improve the situation.

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