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Der Pharmacia Lettre, 2018, 10 [12]: 9-20
[http: //scholarsresearchlibrary.com/archive.html]

Scholars Research Library
ISSN 0975-5071
USA CODEN: DPLEB4

Assessment of Good Dispensing Practice Among Drug Stores in Mizan Aman Town, South West Ethiopia

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ABSTRACT

Background: *Good dispensing practice refers to the delivery of the correct drug and medical supply to the right patient in the required dosage and quantities in the package that potency and quality for a specified period and clear drug information. The role of such practice in realizing rational drug therapy is enormous. In this regard, although the major contribution is expected from pharmacists rational drug therapy requires the concerted efforts of all health care professionals towards the goal.*

Objective: *To assess good dispensing practice of drug stores in Mizan-Aman town, bench Maji zone, SNNPR, South west Ethiopia*

Results: *The study was conducted on a total of 15 drug stores each of which are headed by a druggist. To this effect, a total of 422 clients of the drug stores were studied. Out of 15 drugstores the availability of cold storage facilities and sufficient lighting in their environment were in 14 (93.3%) of the drugstores followed to this the number of lockable cabinet and adequate number of shelves were recalled in 13 (86.6%) and 12 (80%). in all drugstores the arrangement the medicines were pharmacologically which is 100%. the highest percentage of drug libeling information that were written by the druggist were frequency in 12 (80%) of the drugstores. during this studies in seven patient counseling activities frequency of the drug counseled in 13 (86.6%). in this study 88.1% of POMs were dispensed without a prescription among those drugs 76.3% were non OTC drugs and 42.6% of the clients were didn't get as they needed its b/c of couldn't pay for the drugs and in some cases unavailability of the drugs. of the 15*

drugstores 35.5% of the druggist asked for whom the needed is for self or someone else and age 23% were the most commonly requested questions.

Conclusion and Recommendations: *Dispensing POMs without a medical prescription was major practice in each drugstore; dispensers often didn't ask further questions when requested for specific drugs. Assessment of the cases was far from the optimum practice and responses or recommendations are inappropriate. The health bureau of Mizan Aman town should establish tighter control over the dispensing practice of drugstores and Training on responses of symptoms should be provided to the druggist by pharmacy departments in the local university.*

Keywords: Good, Dispensing, Practice, Mizan-Aman

Abbreviations: ADR: Adverse Drug Reaction, OTC: Over the Counter, FMHACA: Food, Medicine and Health Care Administration and Control Authority, POM: Prescription Only Medicine, MTU: MizanTepi University, SNNPR: South Nations Nationalities and Peoples Region.

INTRODUCTION

A prescription is an order for medication, therapy or therapeutic device given by properly authorized person, who ultimately goes prescription, is usually in written form, can be emailed from a secure encrypted computed written system, phoned or faxed. Prescription writing is a science and an art, as it conveys the message from the prescriber to the patient. Rational prescribing implies using the right drug for the right time in the right dose and manner of administration as affordable cost with right information [1]. Good prescribing is prescribing the right medicine for the right patient, in the right dosage of the right information and for the right length of time. It also includes not prescribing medicine if no need. It requires detailed knowledge of path physiology of the disease and clinical pharmacology of the medicine [2].

Dispensing refers to the process of preparing and giving medicine to a named person on the basis of prescription. It involves the correct interpretation of the wishes the prescriber and the accurate preparation and labeling of medicine for use the patient. This process may take place in a public or a private clinic, health centers, hospitals, a shop or community pharmacy setting. It is carried out by many different kinds of peoples with a variety of trainings and back grounds [3]. Good dispensing practice refers to the delivery of the correct drug and medical supply to the right patient in the required dosage and quantities in the package that maintains acceptable potency and quality for a specified period and clear drug information the role of such practice in realizing rational drug therapy is enormous. In this regard, although the major contribution is expected from pharmacists rational drug therapy requires the concerted efforts of all health care professionals towards the goal [4].

Dispensing is one of vital element of the rational use of medicines programs to improve rational use have often been concentrated on ensuring rational prescribing habits overlooking dispensing the patient use of medicines [3]. According to WHO (world health organization) more than 50% of all medicines are not correctly prescribed and dispensed and more than 50% of patients takes their drugs incorrectly. This situation is worse in developing countries. Irrational drug use leads to reduction in quality of drug therapy, wastage of resource, increased treatment cost, increase risk of adverse drug reactions and emergence of drug resistance

[5]. Dispensing practice plays a major role in the provision of rational drug therapy. It begins with interpretation of prescription followed by preparation and labeling of medications, advice and counseling, handing over of medicines to patients for use as per directions and concludes when appropriate records are made. Several reports from both developed and developing countries indicate that incorrect dispensing, self-medication and use of sub therapeutic dose to be a major cause of irrational drug use [6].

In Ethiopia also there are irrational drug dispensing practice like other developing countries and poor understanding about medicines leading to non-adherence is a common phenomenon indicated by different studies. A study conducted in Jima university specialized hospitals shows that, patient and factors influencing includes name of the drug, dosage, duration of and reason for prescription were recalled by 39%, 79%, 89%, and 76% of the clients respectively [7].

Irrational dispensing can seriously affect the care of the patient mainly with medical and economic impacts. One consequence is the risk of antimicrobial resistance. A higher frequency of antimicrobial resistance is reported in communities with high nonprescription of antimicrobial use. Safety issues such as adverse drug reaction (ADR) and masking underlying infection process are also associated [8]. POM (prescription only medicines) anti-microbial can be purchased without prescription from various drug stores in a range of countries around the world [9]. Lack of regulations, lack of enforcement of existing regulation, lack of professionals and/ or knowledge among pharmacists and pharmacy staff, demand from customers, financial intensities and business orientation of pharmacies, influence of pharmaceutical industries, pharmacists familiarity with treatment options and their belief that doctors would prescribe the same medication are some suggested reasons for this irrational dispensing especially in developing countries [10]. Thus irrational drug dispensing leads to poor quality of drug therapy, wastage of resource increased treatment cost, increased risk of ADR and emergence of antimicrobial resistance [11,12]. Moreover, no similar studies were conducted in Mizan Aman town and the results of this study will fill the gap of knowledge on the issue in the area.

RESEARCH METHODOLOGY

Study area and period

The study was conducted in Mizan Aman town from April to June Mizan Aman town is located in SNNPR bench Maji zone which is 561 km from the capital city Addis Ababa and 835km from regional capital Hawassa. The town has one general hospital, one health center and nine private clinics. There are a total of nineteen drug stores; 18private drug stores and one Red Cross drug store.

Study design

Cross sectional study design was employed.

Source population

All drug stores in Mizan Aman and their clients

Study population

Fifteen randomly selected drug stores in Mizan Aman town that consented with the study and their clients.

Sample size and sampling technique

All drug stores in Mizan Aman town were requested for their consent and all the fifteen drug stores that consented to the study were included. Then 422 patient encounters were included by using random sampling technique.

Sample size determination

Sample size is determined by using the formula:

$n= Z^2 \times p\ (1-p)/d^2$

Where, n= A minimum sample size

Z= Reliability coefficient at 95%=1.96

P= Proportional of drug stores who are in good dispensing practice= is taken as 50% to calculate the minimum sample size

d=Precision or margin of the error as 5%

$n= (1.96)^2 \times 0.5\ (1-0.5)/\ (0.05)^2=384$

Contingency=384 × 10%=38

Total=38+384=422

Data collection tool

Data was collected by observational method by using checklist that prepared after reviewing FMACA guideline and making modification. Patient related data was then collected using questionnaire-guided interview.

Data collectors

Data were collected by three data collectors who trained for two days on data collection procedures and the objectives of the study before the actual data collection time.

Variables

Dependent variables

- Good dispensing practice

Independent variables

- Qualification of dispenser
- In-service training
- Work experience
- Class of the drug
- Ownership (private/public)
- Age of patient
- Sex of patients
- Patient assessment

Pre-test

The data collection tool was pretested to check whether it could enable an appropriate data collection process. It was done on five drug stores.

Data quality assurance

The quality of the data was assured by proper training of the data collectors on the tool and process of data collection before starting gathering data. Confusion and problems faced during the actual data collection were identified and solutions were devised for the next visits. The data collected in each day was checked for omissions, incomplete answer and amendments were done for next visits.

Data processing and analysis

The data was analyzed manually proportion were used to summarize the data.

Ethical clearance

Ethical clearance was obtained from MTU College of health science department of pharmacy before data collection is started. The confidentiality of the data collected from the participant's was kept. The right of not responding was respected; the consent was taken from the owners of the drug stores and the individual participants.

RESULTS

General information and the facilities of the drug stores

The study was conducted on a total of 15 drug stores each of which are headed by a druggist. To this effect, a total of 422 clients of the drug stores were studied. Out of 15 drugstores the availability of cold storage facilities and sufficient lighting in their environment were in 14 (93.3%) of the drugstores followed to this the number of lockable cabinet and adequate number of shelves were recalled in 13 (86.6%) and 12 (80%). in all drugstores the arrangement the medicines were pharmacologically which is 100%. the highest percentage of drug libeling information that were written by the druggist were frequency in 12 (80%) of the drugstores.

Drug this studies in seven patient counseling activities frequency of the drug counseled in 13 (86.6%). in this study 88.1% of POMs were dispensed without a prescription among those drugs 76.3% were non OTC drugs and 42.6% of the clients were didn't get as they needed its b/c of couldn't pay for the drugs and in some cases unavailability of the drugs. of the 15 drug stores 35.5% of the druggist asked for whom the needed is for self or someone else and age 23% were the most commonly requested questions.

According to this study most drug stores had sufficient lighting and cold storage facilities in 14 (93.3%) each, adequate number of shelves (86.6%), and lockable cabinet (80% (Table 1).

Table 1: The facilities of drug stores in Mizan Aman town, Bench Maji Zone SNNPR of Ethiopia may 2015.

Environment specific items	Values		Total
	Yes Number (%)	No Number (%)	N=15
Lockable cabinet	12 (80%)	3 (20%)	15 (100%)
Cold storing facility	14 (93.3%)	1 (6.6%)	15 (100%)
Adequate no of shelves	13 (86.6%)	2 (13.3%)	15 (100%)
Sufficient lighting	14 (93.3%)	1 (6.6%)	15 (100%)

The arrangement of medicines

All of the 15 drugstores arranged their medicines after their pharmacological categories.

Dispensing aids

Sufficient no of spoons was available in 11 drugstores when visited, for the purpose of dispensing aids and others labeling and packaging materials were found in 10 drugstores (Table 2).

Table 2: Dispensing aids among drugstores in Mizan Aman town, Bench Maji zone SNNPR, of Ethiopia May 2015.

Dispensing aids Specific items	Values		Totals
	Yes Number (%)	No Number (%)	N=15
Labeling materials	10 (66.6%)	5 (33.3%)	15 (100%)
Packaging materials	10 (66.6%)	5 (33.3%)	15 (100%)
Sufficient no of Spoons	11 (73.3%)	4 (26.6%)	15 (100%)

Labeling

Among drugstores where drug libeling information. Frequency of the drug was written in 12 (80%), and overall the drugstores only one drugstores libeled the precaution of the drugs (Table 3).

Table 3: Drug labeling information among drugstores in Mizan Aman town, Bench Maji zone SNNPR, of Ethiopia May 2015.

Drug libeling information Specific items	**Values**		**Total**
	Yes Number (%)	**No Number (%)**	**N =15**
Patient name	5 (33.3%)	10 (66.6%)	15 (100%0
Dosage	11 (73.3%)	4 (26.6%)	15 (100%)
Frequency	12 (80%)	3 (20%)	15 (100%)
Duration	6 (40%)	9 (60%)	15 (100%)
Precaution	1 (6.6%)	14 (93.3%)	15 (100%)

Patient counseling

Most of the drugstores in the study were not focused on drug food interaction, side effects and also contraindicating and drug handling and storage (Table 4).

Table 4: Patient counseling among drugstores in Mizan Aman town, Bench Maji zone SNNPR, of Ethiopia, May 2015**.**

Patient counseling Specific items	**Values**		**Total**
	Yes Number (%)	No Number (%)	N=15
Drug handling and storage	4 (26.6%)	11 (73.3%)	15 (100%)
Route of administration	7 (46.6%)	8 (53.3%)	15 (100%)
Frequency	13 (86.6%)	2 (13.3%)	15 (100%)
Duration	12 (80%)	3 (20%)	15 (100%)
side effects	2 (13.3%)	13 (86.6%)	15 (100%)
Contraindicating	4 (26.6%)	11 (73.3%)	15 (100%)
Drug food interaction	2 (13.3%)	13 (86.6%)	15 (100%)

Client's response

Dispensing of non OTC drugs in most drugstores was very high. Most dispensers where dispense the drug if there is availability and almost all of them handed out without prescription 88.1% (Table 5).

Table 5: Client responses about dispensing practice Mizan Aman town, Bench Maji zone SNNPR of Ethiopia, May 2015.

Questions	Response category	Values		Totals
		Frequency	Percentages	
Do you want to get drugs?	A. Yes	400	94.70%	422 (100%)
	B. No	22	5.21%	
What is the drug category?	A. OTC	100	23.60%	422 (100%)
	B. Non OTC	322	76.40%	
Do you have a prescription?	A. Yes	50	88.10%	422 (100%)
	B. No	375	11.80%	
If yes, who prescribed it?	A. Medical Doctor	10	20%	50 (100%)
	B. Health Officer	15	30%	
	C. Nurse	25	50%	
Have you been given the drug you need?	A. Yes	18	57.30%	422 (100%)
	B. No	242	42.60%	

Patient assessments

Of drugstores assessment of for different cases 10 drugstores asked at list one questions whether the needed is for self or someone else 150 (35.5%), age 100 (23%) and patient condition 46 (10.9%) were the three most commonly requested question. Only two dispensaries asked whether the patient was taking medications for other purpose 12 (2.8%) and allergy enquired 22 (5.2%) of the drugstores. other 4.7% dispensary asked the patient there symptoms persists, how long the symptoms and presence of fever (Table 6).

Table 6: Questions asked by the druggist in response to cases among drugstores in Mizan Aman town, Bench Maji zone of Ethiopia, May 2015.

Questions	Response Category	Values		Totals
Did the dispenser asked you about		Frequency	Percentage	
Whether the needed is for self or someone else	A. Yes B. No	150 272	35.5% 64.4%	422 (100%)
Age	A. Yes	100	23%	422 (100%)
	B. No	322	76.3%	
Patient condition	A. Yes	46	10.9%	422 (100%)
	B. No	376	89.1%	
Disease condition	A. Yes	42	9.9%	422 (100%)
	B. No	380	90%	
Allergy	A. Yes	22	5.2%	422 (100%)
	B. No	400	94.7%	
Whether the patient is taking other medications for other purpose	A. Yes	12	2.84%	422 (100%)
	B. No	410	97.15%	
Whether the patient is taking medications to relive from the current problems	A. Yes	42	9.9%	422 (100%)
	B. No	380	90%	
Is there any additional information you were asked by the dispensers	A. Yes	20	4,7%	422 (100%)
	B. No	402	95.2%	
If yes for no 2 specify…..	A. symptoms	11	55%	20 (100%)
	B. how long the symptoms	5	5%	20 (100%)
	C. Presence of fevers	4	20%	20 (100%)

DISCUSSION

This study revealed 88.1% POMs without prescription which is a major practice in the drugstores. Almost all dispensaries supplied all requested drugs (if available). This value is greater when compared to the drug dispensed in the two towns of Tamilnadu, India [13].but less a study conducted in Saudi Arabia [14] the average number OTC drugs dispensed were 23.6% which is less from other studies done in other countries [13]. But the finding of this study was much higher than Sabry et al. [15-17]. This could be related with increased competition and business orientation of dispensers in recent time, because of increased in number of drugstores. In this study almost all dispensaries gave any medications specially POMs without prescription which in contrast to a study in Gaza strip where most pharmacists dispense a drug without prescription reported high percentage (96%)

[15]. This study also indicates different inappropriate dispensing practice. We found that only 11.8% of the drugs were dispensed with their prescription paper which prescribed from different professionals; this is much less a study conducted Kagash and colleagues [18] out of the client's 42.6% were get a medications as they need others 57.3% were didn't get b/c of unavailability and couldn't pay for the drugs. Competition, not to lose customers and inability of patients to afford a total medical cost almost all dispensaries done inappropriate dispensing practice [14] let alone dispensing drugs, prescribing for indefinite diagnosis and overutilization of drugs can lead to widespread drug toxicities even it may result death. Dispensing medications without any refill instruction may encouraged patients simply collect medications and not to go health facilities to closely monitor their disease status (e.g. glucose level) may increase or decrease significantly and cause different complications. The result of the study revealed that 94.7% of dispensaries handed out medication. Similarly, Hussain and Ibrahim found medication was dispensed in 77.1% of visits it indicates high numbers of drugs are stoked by the druggist.

In our study, only 4.7% of the dispensaries asked the patient so their symptoms of their disease. this is much worse than reported in a study conducted in Mekele town which is 18.37% of the dispensers activities on counseling. this is one indication of the importance of studying on good dispensing practice in the area. The other part of this study was assessment of dispensing practice (patient assessment) I found that while whether the patient is adult or child was 64.4% of drugstores. only 23.6% requested the specific age of the clients this value is much less a study conducted in Pakistan showed that patient age was enquired about in 83.3% of visits to pharmacies [15] surprisingly only 2.84% of drugstores asked whether the patient was taking medications for other purpose. this is an agreement with the study conducted in Pakistan which showed that 7.8% did the pharmacy ask about history of medication use [15]. This indicates pharmacy personal are less interested in medication history and they hardly relate symptoms with drug adverse effects. Whereas should be there major role. Even though allergy is the most sensitive issue for drug selection, 97.7% of the drugstores was failed to ask this overall, the degree of patient assessment is unsatisfactory. Similar studies also found such inadequacies by pharmacists [14].

Most drugstores are dispensed drugs without knowing for whom the drugs are needed, whether the patients are taking any other medications and history of allergy were not asked almost at all drugstores. Studies showed in Saudi Arabia and Tanzania also indicated pharmacists either ask further questions occasionally or not at all when requested for a drug [11,16,17]. This shows dispensaries are acting commodity related instead of profess who counsel on medications. They are also not concerned at all to avoid drug interactions and adverse drug reactions. Only 4.7% of dispensers asked additional information. However this is unnecessary practiced because of many drug contraindications. All drug stores dispense the medications without prescription and all are POMs [18-22].

CONCLUSION

Dispensing POMs without a medical prescription was major practice in each drugstore. Dispensers often didn't ask further questions when requested for specific drugs. most drugs are dispensed without prescription rather than OTC drugs and the druggist didn't gave adequate information about the medications to the clients, specially they ignore about side effects, drug food interaction, contraindications and also drug handling and storage most of the assessment of the cases was far from the optimum practice and responses or recommendations are inappropriate.

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