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# Research Article

# Assessment of Pharmaceutical Service Quality Provided in Bishoftu General Hospital and Community Pharmacies at Bishoftu, Eastern Shoa, Ethiopia

[1]Kibru Sime Kebede, [2]M.N.S.V.V.R.M. Vijaya, [2]Magharla Dasaratha Dhanaraju and [2]Thirumurugan Gunasekaran

[1]Department of Pharmacy, College of Medicine and Health Sciences, Ambo University, Ambo, Ethiopia
[2]Laboratory of Research, GIET School of Pharmacy, Chaitanya Nagar, Rajahmundry, Andhra Pradesh, India

## Abstract

Activities of pharmacists and quality of pharmaceutical services given in Bishoftu General Hospital (BGH) and 13 Community Pharmacies (CP) in Bishoftu town, Ethiopia were assessed. A cross-sectional study was conducted to all pharmacists working in Bishoftu town, Oromia State, Ethiopia during March 15 to April, 30 2014 by interview through self- structured questionnaires and participation observations of the dispensing process. A Total of 55 (100%) pharmacists were participated. Out of which 13 (23.6%) of respondents were from BGH and 42 (76.4%) were from CP. Computer 13 (100%) and leaflets 23 (54.8%) were the main sources used for updating drug information. Most of pharmacists made discussion with prescribers 10 (76.9%) and simply dispense 32 (76.2%) and 6 (46.2%) and 7 (16.7%) of pharmacists made a correction to occur errors in hospital and CP, respectively. The availability of drug information updating sources was rarely found in CP and the number of pharmacists in CP was little number when compared to hospital pharmacy. The main causes for a dispensing error for both hospital and community pharmacists were unclear prescription from the prescriber.

**Competing Interest:** The authors have declared that no competing interest exists.

**Data Availability:** All relevant data are within the paper and its supporting information files.

## INTRODUCTION

Dispensing refers to the process of preparing drugs and distributing them to their users with provision of an appropriate information[1]. It may be based on a prescription or an oral request of users (patients or care providers) depending on the type of drugs to be dispensed. The dispensing process involves the correct interpretation of the prescription or oral request, accurate preparation and labeling of drugs with provision of appropriate information. The drug should be dispensed in a safe and hygienic manner, making sure that the patient or care provider understands and appreciates the value of taking specific drugs for specific indications[2].

Rational drug use is a tool through which safe, effective and economic medication is provided. It is promoted by the collaborated efforts of prescribers, dispensers and drug consumers. Rational prescribing ensures adherence to treatment and protects drug consumers from unnecessary drug adverse reactions. Rational dispensing on the other hand, promotes the safe, effective and economic use of drugs[3].

Traditionally, pharmacist's primary responsibility has been the correct dispensing of drugs and the pharmaceutical quality of the drugs dispensed. Now a days, their role has increased to involve advising the physician and other health professionals about drug therapy, counseling patients about drugs and monitoring drug use. They bridge the gap between the physician and the patient and serve as the gatekeepers of the drug supply system[1].

Globally, more than 50% of all medicines are prescribed, dispensed or sold inappropriately while, 50% of patients fail to take the prescribed drugs correctly. Moreover, about one-third of the world population lack access to essential medicines[4]. In Ethiopia, poor understanding about medications leading to non-adherence is a common phenomenon indicated by different studies[3].

Irrational dispensing practice like dispensing of prescription only drugs at partial dose and even without a prescription, poor labeling of the dispensed drugs, lack of patient counseling, incomplete compiling and recording of prescriptions and charging patients unreasonably high price for dispensed items are common in developing countries[5].

The aim of the study was to ensure the availability of facilities including equipments and materials in the dispensary room, the drug information updating sources for pharmacists and to identify the main problems encountered during dispensing practices. Moreover, the current study evaluated the quality of pharmaceutical services provided in Bishoftu General Hospital (BGH) and Community Pharmacies (CP) at Bishoftu, Eastern shoa, Ethiopia.

## MATERIALS AND METHODS

A cross-sectional study was conducted in Bishoftu town, Ethiopia. Bishoftu town has three government health care institutions BGH and two health centers), 18 private clinics, 13 CP and more than 10 drug stores. The study was conducted during 15th March to 30th April 2014. All pharmacists working at BGH and CP during the study period were included in the study and pharmacist's not available and closed pharmacies were excluded from the study. The independent variables were age, sex, religion, ethnicity and dependent variables were access to facilities including refrigerator, thermometer, potable water, ventilator, phone, Standard Treatment Guideline (STG), formulary, computer, type and nature of dispensing error, access to drug information, possible cause of dispensing error, dispensing time. The questioner format was adapted after reviews of different literatures and pretested on the study health care institutions. The format was further modified after a pretest was conducted. The survey was conducted by interviewing the pharmacist through self structured questionnaires. In addition, participation observations of the dispensing process were conducted.

Ethical clearance was obtained from the ethical review board of Ambo University, College of Medicine and Health Science (Ref: CMHS/PHAR/R/EC1017, 2014). Letter of permission was presented to BGH and CP in Bishoftu town. Descriptive analysis was used to describe the percentages and number distributions of the respondents by socio-demographic characteristics, the percentage and number distributions of variables in the study.

## RESULTS

A total of 55 pharmacists were participated in the study, giving a response rate of 100%. Out of which 13 (23.6%) of respondents were from BGH and 42 (76.4%) were from 13 CP. The pharmacist's socio-demographic characteristics were found in the Table 1.

According to this study, three drug information updating sources were assessed comparatively in two selected health facilities (BGH and CP). The study revealed that computer 13 (100%) and leaflets 23 (54.8%) were the main sources used by pharmacists for updating drug information in hospital and CP, respectively. However, leaflets were the least sources used by pharmacists serving in HP (Fig. 1).
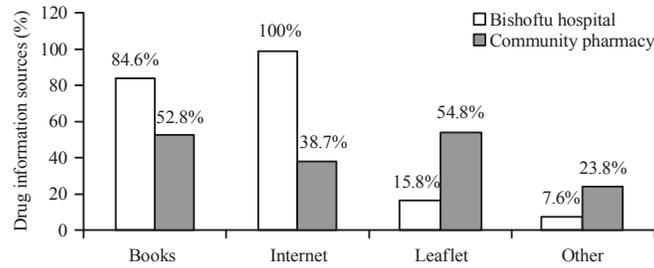
Fig. 1: Distribution of drug information updating sources in health care institutions in Bishoftu town, Other: Information distributed about drugs from manufacturing companies and from media

Table 1: Socio-demographic characteristics of pharmacists among BGH and CP in Bishoftu town

| Socio-demographic characteristics of pharmacists | Category | No. | % |
|---|---|---|---|
| Sex | Male | 30 | 54.5 |
| | Female | 25 | 45.5 |
| Age | 20-29 | 30 | 54.5 |
| | 30-39 | 19 | 34.5 |
| | 40-49 | 5 | 9.1 |
| | >49 | 1 | 1.8 |
| Religion | Orthodox | 20 | 36.4 |
| | Protestant | 18 | 32.7 |
| | Muslim | 8 | 14.5 |
| | Other££ | 9 | 16.4 |
| Ethnicity | Oromo | 26 | 47.3 |
| | Amhara | 17 | 30.9 |
| | Tigre | 8 | 14.5 |
| | Other*** | 4 | 7.3 |
| Experience | 1-4 | 18 | 32.7 |
| | 5-9 | 31 | 56.4 |
| | >9 | 6 | 10.9 |

| | Health care institutions | | | |
|---|---|---|---|---|
| | BGH | | CP | |
| Qualification | No. | % | No. | % |
| Pharmacist | 9 | 69.2 | 15 | 35.7 |
| Druggist | 4 | 30.8 | 20 | 47.5 |
| Pharmacy technician | 0 | | 5 | 11.9 |
| Other* | 0 | | 2 | 4.8 |

*Nurse, Accountant, ***Gurage, Silte, ££-Katholic, Adventist, BGH: Bishoftu general hospital, CP: Community pharmacies

As the current study depicts health facilities, hospital and all community pharmacies had refrigerator and thermometer 12 (92.3%). More than half of community pharmacies had phoned 9 (53.8%) in the dispensing room but not in HP. Regarding the source of information, all mentioned sources were available in the dispensary room of HP (Table 2).

Based on the current study the way of managing to a prescription error occurred were varied in hospital and CP. The majority of pharmacists made discussion with prescribers 10 (76.9%) and simply dispense 32 (76.2%) in hospital and CP, respectively. Generally the finding revealed that 6 (46.2%) and

Table 2: Availability of equipments/material and source of information in BGH and CP in Bishoftu town

| | Health care institutions | | | |
|---|---|---|---|---|
| | BGH | | CP | |
| Equipments and materials | Yes | No | No. | % |
| Refrigerator | Yes | | 13 | 100 |
| Thermometer | Yes | | 12 | 92.3 |
| Potable water | | No | 5 | 38.5 |
| Ventilator | | No | 6 | 46.2 |
| Phone | | No | 9 | 53.8 |
| **Source of information** | | | | |
| Standard Treatment Guideline (STG) | Yes | | 4 | 30.8 |
| Formulary | Yes | | 5 | 38.4 |
| Computer | Yes | | 7 | 53.8 |
| **Patient indicators** | | | | |
| Average dispensing time | 1.05 min | | 1.45 min | |
| Average consultation time | 17.5 sec | | 35 sec | |

7 (16.7%) of pharmacists made correction of occurred errors in hospital and community respectively (Fig. 2).

In this study high percentages of pharmacists have written name of drugs (100, 95.2%), dose of drugs (92.3, 97.6%), frequency of administration (92.3, 95.2%) and date of dispensed (76.9, 92.9%) on labeling during dispensing process in both BGH. However, no dispenser had written name of the patient in both health facilities. In general, more information's were written by CP pharmacists than hospital pharmacists (Table 3).

Based on this study unclear prescription (87.3%) was the main cause of dispensing errors for pharmacists (Fig. 3).

**DISCUSSION**

This study denotes a lot of deficiencies and inelegances in equipments/materials and sources of information which are supposed to be offered by the pharmaceutical care department. In this study, the two most available facilities in both health care facilities were a thermometer and
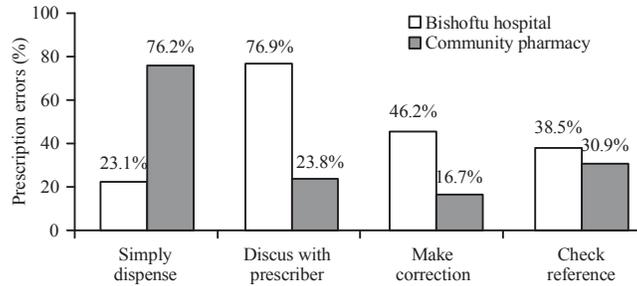
Fig. 2: Prescription errors that managed by pharmacist's intervention in BGH and CP in Bishoftu town
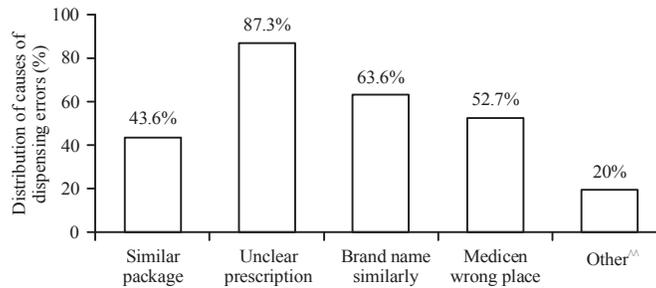


Fig. 3: Distribution of causes of dispensing errors for pharmacists in BGH and CP in Bishoftu town (^^-Carelessness of dispenser, patient behavior)

Table 3: Labeling information written during dispensing practice in Bishoftu town

| Labeled information | Health care institutions | | | |
| | BGH | | CP | |
| | No. | % | NO. | % |
|---|---|---|---|---|
| Name of patient | 0 | | 0 | |
| Name of drug | 13 | 100.0 | 40 | 95.2 |
| Frequency of administration | 12 | 92.3 | 40 | 95.2 |
| Dose of drug | 12 | 92.3 | 41 | 97.6 |
| Route of administration | 1 | 7.6 | 8 | 19.1 |
| Date of dispensed | 10 | 76.9 | 39 | 92.9 |
| Precaution | 2 | 15.4 | 11 | 26.2 |
| Storage condition | 0 | | 1 | 2.4 |

BGH: Bishoftu general hospital, CP: Community pharmacy

refrigerator (100%) and were quite good while compared to study in Iran[6].

Regarding availability of sources of information, private pharmacies had fewer amounts of these sources Formulary (38.4%), Standard Treatment Guideline (STG) (30.8%) and Computer (53.8%). This limited availability these facilities indicate that pharmacists lack the key source of therapeutic information they need in daily practice. It is important to ensure improved availability of the STG and formulary to all prescribers and pharmacists in both hospital and community pharmacies, as it serves as an educational tool to guide pharmacists. This study revealed good availability of sources of information when compared to study in India[7] and Kenya[8] but less than Ghana[9].

More pharmacists in HP mainly used the internet (100%) and books (84.6%) as the best information updating sources. However, in CP leaflet (54.8%) preferred the most. The main causes of this were insufficient availability of information sources like books (Formulary, STG) and internet access for the pharmacists in dispensing room. This study is supported by a study done in Addis Ababa on two selected hospitals[10] despite WHO recommendations which do not recommend leaflets as source of drug information due to the fact that leaflets contain manipulated information about a particular drug as they are prepared by drug manufacturing companies and thus are subjected to bias[1].

In this study, the predictor of quality of labeling, average dispensing time (1.05, 1.45 min) and average consultation time (17.5 sec, 35 sec) were assessed in BGH and CP, respectively and the private pharmacies pharmacist spends more time with the clients than the government pharmacies'. The reason for this difference might be explained by the fact that pharmacists in private health facility try to increase clients trust, however, in government hospital there was limited time for patient-dispenser interaction due to the overload of patients at dispensary and shortages of manpower running dispensing process. Generally, the higher average dispensing

time doesn't mean that more information about dispensing drugs was given to the patients because the higher dispensing time observed at both pharmacies is due to the inclusiveness of the time spent for cost estimation of the drug and paying the drug charge. The average dispensing time of both pharmacies is within the range of international standard (13-86 sec)[11]. This study was consistent with a study done in Pakistan[12], Botswana[13] and Malawi[14] but better than study did in Yugoslavia[15] and Jimma[16].

The Present study revealed that more labeling information was written on packages in private than public this might be due to less patient load. Patient name 0, name of drug (100, 95.2%), frequency of administration (92.3, 95.2%), dose of drug (92.3, 97.6%), date of dispensed (76.9, 92.9%) and precaution (15.4, 26.2%) were written on packages but most studies, including the present study didn't write the name of the patient on packages, this may result in confusion of medication between family members, or other groups of people. The WHO drug use indicators stated that the percentages of adequately labeling on dispensed medicines should be 100%. This result is better than the study performed in North West Ethiopia[17] but in line with a study done in Addis Ababa[10] and Jimma[16].

According to this study, less action was done by CP pharmacists than hospital pharmacists on management of errors occurred during the dispensing process. Most of pharmacists in CP simply dispense (76.2%) without analyzing the prescription this is due to poor pharmacist-prescriber interaction, less confident of the pharmacist on the prescription, insufficient availability of references and phone in the dispensing room. The most common causes of errors committed were unclear prescription (87.3%). This could be easily solved by communicating with the prescriber by smooth and good prescriber-pharmacist interaction.

This finding was supported by studies done in USA[18,19] and Denmark[20].

## CONCLUSION

This study showed that the available drug information updating sources was rarely found in a community pharmacy and the number of pharmacists was less when compared to hospital pharmacy. Longer average dispensing and counselling time was taken in the community pharmacy relative to the hospital pharmacy but less than WHO recommendation which is 3 min. Longer average dispensing time does not necessarily mean that proper information is provided to the patient. Average dispensing counselling time, which is directly spent with the patients is a much better quality indicator. Finally, according to this study the main causes for a dispensing error for both hospital and community pharmacists were unclear prescription from the prescriber.

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