

*Originalni članci/  
Original articles*

ASSESSMENT OF LABELING AND PATIENT  
KNOWLEDGE OF DISPENSED DRUGS AT  
SHENEN GIBE DISTRICT HOSPITAL  
OUTPATIENT PHARMACY, JIMMA  
SOUTHWEST ETHIOPIA

PROCENA ZNAČAJA OBELEŽAVANJA I  
ZNAJANJA PACIJENATA O IZDATIM  
LEKOVIMA U SHENEN GIBE DISTRICT  
VANBOLNIČKOJ APOTECI U ETIOPIJI

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*Ključne reči*

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*Abstract*

**Background:** The rational use of medicines is crucial for treatment outcome. Dispensing and information provided during dispensing determines use of medicines by patients. Therefore, the purpose of this study is to assess labeling and patient knowledge of dispensed drugs at Shenen Gibe District Hospital Outpatient Pharmacy.

**Method:** A cross sectional study was conducted at Shenen Gibe District Hospital Outpatient Pharmacy from February 09-20/2015 G.C. The pattern of labeling was assessed by calculating the mean labeling scores by evaluating individual packages of dispensed drugs examined using previously prepared check list. The patient knowledge scores were obtained from patient recall of knowledge indicators of dispensed drugs.

**Result:** From a total of 290 respondents, most of them recalled the reason for prescription (96.3%) and frequency of administration (95.2%) of drugs dispensed to them. The mean patient knowledge score of dispensed drugs was found to be 4 which represents(66.7%) of the total score on 6 scales .The mean labeling score was found to be 3.46 which represents 49.43% of the total score. The mean dispensing time was found to be 124 seconds which was too short.

**Conclusion:** This study shows that there was poor labeling practice by the dispensers in the pharmacy during dispensing. But generally, it was concluded that patients served at Shenen Gibe District Hospital Outpatient pharmacy have a fair knowledge on dispensed drugs in spite of the short dispensing time.

*INTRODUCTION*

The rational use of medicines is the cornerstone in determining treatment outcomes of different ailments and has been promoted by World Health organization (WHO). [1, 2] The rational use of medicines requires that patients obtain medications indicated to their health problem, in correct doses, for sufficient duration, and lower cost. However, knowledge about drugs by patients and quality of dispensing has been disregarded. [3, 4, 5]

Dispensing is preparing medicines and/or medical supplies and issuing to users with appropriate counseling. Dispensing ensures medicines are correctly identified, labeled, and packaged and that patients are clearly instructed on medicine use. [2, 6] It is a key step in drug use process

and can be used to prevail over irrational use of medicines. The dispensing protocol and items of information provided during dispensing determines the way medicines are used by patients and final treatment outcome. [2, 7, 8]

Patient knowledge about the dispensed medicine affects patient compliance with treatment. Drug information on labels and inserts serves as a source of knowledge for patients.[9, 10] Thus, each dispensed medicine must be labeled appropriately. Minimum drug label information should include the following: patient name; generic name, strength and dosage form of the medicine; dose, Frequency and duration of use of the medicines; quantity of the medicine dispensed; how to take or administer the medicine and storage condition. [2]

The quality of dispensing is affected by dispensing time and percentage of drugs adequately labeled. Appropriate advice and counseling by the dispenser can encourage patient compliance through a better understanding by a better understanding of the medication by the patient, thereby improving therapeutic efficiency and the patients' well-being. [5]

Dispensed drugs without a label, incomplete label or illegible label are common in Ethiopia. The paper envelope size does not allow to write the required information on it in most situations. [2] Worldwide more than 50% of all medicines are prescribed, dispensed or sold inappropriately, while 50% of patients fail to take correctly. [11] Therefore, this study aims to assess labeling and patient knowledge at Shenen Gibe District Hospital, Southwest Ethiopia.

## METHOD and PARTICIPANTS

### Study area and study period

This study was conducted at Shenen Gibe District Hospital; Outpatient Pharmacy, found in Jimma Town and located 352 km to south west from Addis Abeba, the capital city of Ethiopia from February 09-20 / 2015 G.C.

### Study design

A cross sectional study was conducted at Shenen Gibe Hospital Outpatient pharmacy.

### Sample size and sampling techniques

Simple population proportion formula was used to calculate the sample size. The final sample size, including non-respondents (5%) was 290 patients and/or caregivers. Systemic sampling technique was used to select the study unit. In cases of non-respondents the next patient was interviewed

### Data collection

Structured questionnaire was used to collect information on patient knowledge of dispensed drugs and check list for assessing the labeling on dispensed drugs. To assess the patients' understanding of the information they received, an exit interview was made as they left the pharmacy using structured questionnaire. The total dispensing time for each patient was recorded. The questionnaire was tested on similar study population of study unit and similar environment to evaluate its appropriateness for use. They were not included in this study as study units.

### Score calculation

The quality of the labeling was recorded by assigning a score to each of the 7 essential dispensing attributes: name of the drug, strength, dose, duration, storage condition, name of the patient, and frequency of the administration. Correct labeling was given a score of 1 per attribute and incorrect labeling or no labeling was given score of 0, and the total dispensing score for each drug were calculated. The patient knowledge score of the dispensed drugs was calculated by assigning a score to their recall of the name of the drug, dose, frequency, and reason for prescription, duration of treatment and storage condition. For each attribute a positive (yes) answer was assigned score of 1 and negative (no) answer assigned score of 0.

### Data analysis and presentation

The collected data was analyzed manually by tallying, scientific calculator and Microsoft excel. P-value less than 0.05 were considered to be significant. Findings were presented by tables and text.

### Ethical consideration

Ethical clearance was obtained from Jimma University, College of Health Sciences. Official letter stating the purpose of the study was written to Shenen Gibe District Hospital to get permission. In addition patients were also asked for their verbal consent. Patients' names were not written on the data collection tool for keeping the confidentiality of the information obtained. The data obtained from the record cards were used only for research purpose.

## RESULTS

### Socio-demographic characteristics of the Respondents

A total of 290 respondents were included in this study; from this 148(51%) were males and 142(49 %) were females. Most of respondents included in his study were in age group of 18-25 (29.3%) and 26-44(31.3%). Most of them were illiterate (35.86%) (Table 1).

**Table 1:** Socio demographic characteristics of the patients at Shenen Gibe District Hospital, Outpatient Pharmacy from February 9-20 /2015, Jimma, Southwest Ethiopia.

Ser. No.	Socio-demographic characteristics	Number of encounters	Percentage
1	Sex		
	male	148	51
	Female	142	49
	Total	290	100
2	Age		
	<18	26	8.97
	18-30	94	32.41
	31-44	98	33.79
	45-65	40	13.79
	>65	32	11.03
	Total	290	100
3	Religion		
	Muslim	113	39
	Orthodox	110	38
	Protestant	67	23
	Total	290	100
4	Educational level		
	Illiterate	104	35.86
	Read and write	70	24.14
	1-6	52	17.93
	7-8	38	13.1
	9-12	17	5.86
	12+	9	3.1
	Total	290	100

*Assessment of labeling of dispensed drugs*

For 290 patients, a total of 455 drugs were dispensed. Patient name, drug name ,dose, strength, frequency of administration ,duration of treatment and storage conditions were written on the label in 0(0%), 432(95%), 305(67%), 419(92%), 182(40%), 28(6%) and 164(36%) drugs respectively. However, there was no drug with full labeling attributes. So; none of the drugs were appropriately labeled (Table 2).

**Table 2:** Labeling pattern of dispensed drugs at Shenen Gibe District Hospital, Outpatient Pharmacy February 9-20 /2015, Jimma, Southwest Ethiopia.

Ser. No.	Labeling Indicators	Number of Drugs	Percentage
1	Patient name	0	0
2	Drug name	432	95
3	Dose	305	67
4	Strength	419	92
5	Frequency	182	40
6	Duration of treatment	28	6
7	Storage condition	164	36

*Labeling Score*

The majority of the dispensed drugs had labeling score of 3. The average labeling score was found to be 3.46 which represents 49.43% of the total score (Table 3).

**Table 3:** Labeling score of dispensed drugs in Shenen Gibe District Hospital, Outpatient Pharmacy February 9-20 /2015, Jimma, Southwest Ethiopia.

Labeling score	Number of drugs	Average labeling score
0	0	3.46
1	0	
2	60	
3	225	
4	100	
5	70	
6	0	
7	0	
Total	455	

*Patient Knowledge of Dispensed Drugs*

In this study, the name of the dispensed drugs was recalled for 60 (13.2%), dose of the drugs was recalled for 419(92%) by the patients. Duration of treatment 296 (65%), frequency of administration for 438(95.2%) and storage condition that is place out of rich of children and away from sun light was 424 (93.2%). However, almost all of the respondents did not have any special information. (e.g.: -side effects, drug –drug (food) interactions) about specific drugs they received (Table 4).

**Table 4:** The number of drugs in which knowledge indicators recalled by the patients or patients' care givers at Shenen Gibe District Hospital, Outpatient Pharmacy from February 9-20 /2015, Southwest Ethiopia.

Ser. No	Patient knowledge indicators	Numberof drugs encountered	Percent
1	Name of the drug	60	13.2
2	Reason for the prescription	438	96.3
3	Dose	419	92
4	Frequency	433	95.2
5	Duration of the treatment	296	65
6	Storage condition	424	93.2
Total		455	100

*Knowledge score*

The average knowledge score was found to be 4 which represent 66.7% of the total score (Table 5).

**Table 5:** Patient knowledge scores for dispensed drugs in Shenen Gibe District Hospital, Outpatient Pharmacy from February 9-20 /2015, Jimma, Southwest Ethiopia.

Patient knowledge score	Number drugs	Average knowledge of score
0	0	4
1	7	
2	40	
3	82	
4	130	
5	110	
6	86	
Total	455	

*Factors influencing patient knowledge*

As far as factors influencing patient knowledge is concerned, educational status of the respondents was associated with a knowledge score value (p-value <0.005). In the same manner, the age of the patient was also associated with the knowledge score (p value <0.005) (Table 6 and Table 7).

**Table 6:** Patient's knowledge score versus age at Shenen Gibe hospital, Outpatient Pharmacy from February 9-20 /2015, Jimma, Southwest Ethiopia

Knowledge score	Number of drug dispensed in each patient age group						P- value
	<18	18-30	31-44	45-64	Over 65	Total	
0	0	0	0	0	0	0	<0.005
1	0	0	3	0	0	3	
2	0	0	10	7	10	27	
3	0	4	28	15	16	63	
4	8	23	11	8	6	56	
5	12	31	14	6	0	63	
6	6	36	32	4	0	78	
Total	26	94	98	40	32	290	

**Table 7:** Patients knowledge score versus their educational level at Shenen Gibe District Hospital, Outpatient Pharmacy from February 9-20 /2015, Jimma, Southwest Ethiopia.

Knowledge Score	Number of drugs dispensed for each educational level						P- value
	Illiterate	Read and write	1-6	7-8	9-12	12+	
0	0	0	0	0	0	0	<0.005
1	6	3	0	0	0	0	
2	56	17	2	0	0	0	
3	42	26	3	0	0	0	
4	0	20	16	11	0	0	
5	0	4	25	19	5	2	
6	0	0	6	8	12	7	
Total	104	70	52	38	17	9	

#### Dispensing time

Mean dispensing time, which is the most important component of the dispensing indicators, was conventionally used as a core dispensing indicators. The mean dispensing time spent to patients was found to be 124 seconds which is too short for the dispenser to pass the essential information to the patients or patients' care givers (Table 8).

**Table 8:** Dispensing time in seconds at Shenen Gibe Hospital, Outpatient Pharmacy from February 9-20 /2015, Jimma, Southwest Ethiopia

Dispensing time (in seconds)	Number of patients served	Total
75	6	450
80	9	720
85	14	1190
90	19	1710
105	23	2415
115	27	3105
120	54	6480
130	80	10400
145	26	3770
175	20	3500
180	12	2160
Total	290	35,900 seconds.
Average dispensing time	124 seconds	

#### DISCUSSION

The patients' knowledge of dispensed drugs is one of the essential prerequisites for patient compliance with the treatment. In this study, the mean patient knowledge was 4 (66.7% of total score) out of 6 selected patient knowledge indicators. The value is lower than the value obtained from Black lion and Saint Paulos Hospitals which is 3.03 representing 75.8% of the total score on 4 scales [12]. However, the value is greater than the score of patient knowledge found in Botswana which is 2.5 per 4 attributes representing 63% of the total score. A score of 2.4 (60% of total score) and above was regarded as a satisfactory level of knowledge [1]. Therefore, the value obtained from this study, 4 representing 66.7% was regarded as a satisfactory level of knowledge in spite of the shortage of dispensing time (124 sec-

onds).

In this study, dose of the drug was recalled for 419 (92%) drugs. This figure is much greater than the figure obtained by the study conducted in rural Burkina Faso (68%), in Botswana (83%) and in Jordan (77.7%) [13, 14, 15]. This may be due to the fact that most study participants are literate (64.14%).

Name of drugs was recalled in 60 (13.2%) of drugs encountered in this study, which is less than that of the result found from primary health care in Botswana (31%) [13]. The reason may be the patients were not told the name of the drug or difficulty in remembering the name of drugs. On the other hand, the storage condition of medication was recalled for 424 (93.2%) drugs which was much higher than the study done on two selected hospitals of Addis Ababa which is 50% [16].

The educational back ground of the patients is an important factor in conversation with the pharmacist and counseling instructions. As shown in the result of this study, significant percentage of patients were illiterate (35.86%); and it was observed that patient Knowledge score and educational level have statistically significant association ( $p < 0.005$ ). Thus, it is important that patients in this group should get verbal instructions in detail about the drug to make sure that they don't forget basic information. The result of this study also shows that many elderly patients didn't get the best of their medication. It was also shown in the study conducted in Botswana that patients mean knowledge score was significantly lower in those higher age groups [13]. It was also observed that the patient's knowledge score and age of the patient have statistically significant association ( $p < 0.005$ ). Elderly patients of age  $> 65$  had a low knowledge score compared to other age groups. This indicates, patients in these age groups are unable to understand counseling instructions and age related difficulties to memorize given information.

Regarding the percentage of the labels with name of the patient, name of the patient was written in none of the drugs dispensed. In a study conducted in Krakjuvec, the name of the patient was included in only two of the drug labels [17] and in two selected hospitals of Addis Ababa; all the labels did not include the name of the patient [16]. If the name of the patient is not indicated on the label, it results in use of medicines by another individual. But, when the percentage of the labels with the dose and frequency of administration of the drug is considered; a low result was obtained in this study compared to other study. For instance, in two selected hospitals of Addis Ababa 50% of the labels contain frequency of administration. Name of the drug, strength, dose, frequency of administration, duration of treatment, and storage conditions were written in 95%, 92%, 67%, 40%, 6%, and 36% of drugs respectively.

The percentage of labels containing frequency of administration, duration of treatment and storage condition of the medications are 40%, 6% and 36% respectively. This implies, the majority of the patients would not have any reference when they forgot information given how to use the drug verbally. As a result, the probability of using the drug incorrectly is high; specifically this would be true for the patients when more number of drugs were dispensed at a time.

A labeling score of 3.78 and above was regarded as satisfactory score of labeling representing 54% of the total score [1]. But the average labeling score in this study was found to be 3.46 which represent 49.43% of the total score. The result shows significant deviation from the ideal value of 100%. However, this labeling score was greater than the labeling score of dispensed drugs in Botswana which was 2.75 representing 45.83% of the total score [13]. It was comparable with the labeling score of dispensed drugs studied in Black Lion and Saint Paulos hospital which was 3.48 on 6 scale representing 49.71% of the total score [17].

Despite recommendation of WHO, stating that a pharmacist should spend at least 3 minutes during dispensing to provide adequate pharmaceutical orientation [18], the average dispensing time obtained in this study (124 seconds) was found to be short. The average dispensing time obtained in this survey (124 seconds) is almost comparable with the value obtained in the study on drug retail outlets in selected Towns, North West Ethiopia which are 1.86 minute and 1.7 minutes in pharmacies and rural drug shops respectively. However, it is much higher than the values in Jordan 28 seconds, Serbia 25 seconds, and Tanzania 84 Seconds. But, it is much low when it is compared with the Niger which is 3.4 min [19]. This outcomes have an effect on the patients' treatment outcome, on patients' satisfaction with medications they received. Dispensing time also includes counseling

time; obviously this is too short for the patients or by the caregiver to understand the instructions given by the dispenser, as a result the patient may fail to get the required benefit from the medication dispensed to them.

### CONCLUSION

This study shows that; there was poor labeling practice by the dispensers in the pharmacy during dispensing. The mean dispensing time in this study was hundred twenty four seconds which was too short to allow for optimal information to be given on drugs and for answering questions from the patients. But, generally patients or patients' care givers have fair knowledge on dispensed drugs in spite of the shortage of dispensing time. The age and educational level of the respondents were identified as the two main factors associated with the clients' understanding of the dispensed drugs and the patient load during dispensing was identified as one of the factors affecting labeling of drugs while dispensing.

### Conflict of interest

The authors assert there is no any conflict of interest.

### Acknowledgement

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### Sažetak

**Uvod:** Racionalna upotreba lekova je od presudnog značaja za ishod lečenja. Izdavanje i informacije dobijene u toku izdavanja leka određuju način primene leka od strane bolesnika. Cilj ovog istraživanja je da proceni značaj obeležavanja leka i znanje bolesnika o izdatim lekovima u Shenen Gibe District vanbolničkoj apoteci.

**Metod:** Primenjena je studija poprečnog preseka u Shenen Gibe District vanbolničkoj apoteci u period od 9-20.02.2015.godine. Uticaj načina obeležavanja leka je procenjen na osnovu izračunavanja srednjeg skora obeležavanja dobijenog evaluacijom individualnog pakovanja izdatog leka uz korišćenje prethodno napravljene kontrolne liste. Skor o znanju bolesnika o lekovima je dobijen na osnovu pokazatelja znanja o izdatim lekovima koje bolesnici poseduju.

**Rezultati:** Od ukupno 290 ispitanika, najveći procenat njih je znao razlog zbog čega je lek propisan (96.3%) kao i učestalost uzimanja (doziranje) (95,2%) lekova kojisu im izdati. Srednji skor znanja bolesnika o izdatim lekovima je bio 4 što predstavlja 66,7% od ukupnog skora na skali do 6. Srednji skor obeležavanja leka je bio 3,46 što je 49,43% od ukupnog skora. Srednje vreme izdavanja leka je bilo 124 s, što je veoma kratko.

**Zaključak:** Ovo istraživanje pokazuje da je postojala loša praksa obeležavanja leka odstrane farmaceuta prilikom izdavanja. Međutim, generalno gledano, zaključeno je da bolesnici kojisu usluženi u Shenen Gibe District vanbolničkoj apoteci imaju solidno znanje o izdatim lekovima uprkos kratkom vremenu izdavanja lekova.

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