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### PATIENT MEDICATION COUNSELLING PRACTICE ON DISPENSING OF MEDICINES AND ASSOCIATED FACTORS IN OUTPATIENT PHARMACIES OF BAHIR DAR CITY, NORTHWEST ETHIOPIA

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#### ABSTRACT

Dispensing drugs with appropriate counseling is a critical part of the drug use process. Proper counseling will result in an improvement in patient compliance and its therapeutic outcome. Regardless of the modern facilities, extensive education, and careful diagnosis, in reality, inappropriate or incorrect dispensing results in all the benefits of the health care system valueless and contributes for the raise of drug resistance to a dangerously high level. Despite this, globally more than half of all medicines are dispensed or sold inappropriately. This study was aimed at assessing patient medication counseling practice on dispensing of medicines and its predictors in outpatient pharmacies of Bahir Dar city, 2020. A cross-sectional study was employed using an observational checklist and interviewer-administered questionnaire to all outpatient pharmacies of Bahir Dar city with considering only one dispenser as a participant from each outpatient pharmacies. The data were analyzed using SPSS version 20.0. Out of 123 dispensers, only 59.3% of them have good patient counseling practice and no one delivers complete medication counseling for the patient in Bahir Dar city outpatient pharmacies. The most frequent drug information give to clients were unit dose (93.5%), frequency of administration (92.7%), and duration of therapy (76.4%). Whereas, drug storage places at home, what patients do if they miss a dose, and not sharing drugs with others were least frequently counseled. Educational qualifications, workload, and years of work experience affect medication counseling practice significantly. Patient medication counseling is still unacceptably low in Bahir Dar city outpatient pharmacies and it was significantly affected by patient load, educational qualification, and work experience. So, to come up with better improvement in patient medication counseling practice these factors need special focus by the concerned bodies.

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## INTRODUCTION

Dispensing refers to the process of preparing and giving medicine to a named person based on prescription (order for medication) [1]. A Proper medication dispensing practice encompasses; the delivery of the correct medicine to the right patient, ensuring the required dosage and quantities, maintaining a package that preserves the potency and quality of the drugs for the specified period, clear medication counseling, and appropriate follow-up [2]. Patient medication counseling is a means of providing medication-related information orally or in written form to the patients or their representatives, on topics like the direction of use, advice on side effects, precautions, storage, diet, and lifestyle modifications. It should include an assessment of whether or not the information was received as intended and that the patient understands how to use the information to improve the probability of positive therapeutic outcomes [3].

Patient counseling has become an integral and vital component of pharmaceutical service delivery. Properly implemented and consistently maintained Patient Medication Counseling (PMC) during dispensing of pharmaceutical products will result in improvement in the patient understanding about medication, improve patients compliance and its therapeutic outcome, minimize waste of resources, improve job satisfaction for pharmacists, improve patient loyalty, and aware the clients about the significance of pharmacy professionals in the area of the health care system. It also protects drug consumers from unnecessary drug adverse reactions [4]. Dispensing with appropriate counseling is a critical part of the drug use process. However, globally more than 50% of all medicines are prescribed, dispensed, or sold inappropriately while 50% of patients fail to take the prescribed drugs correctly. This situation is worse in developing countries [5].

Irrational drug use from inappropriate counseling leads to a reduction in the quality of drug therapy, wastage of resources, increased treatment cost, increase risk of adverse drug reactions, and the emergence of drug resistance which is rising to dangerously high levels in all parts of the world; threaten our ability to treat common infectious diseases; and it leads to longer hospital stays, higher medical costs, and increased mortality. Where antibiotics sold for human use without proper medication counseling, the emergence and spread of resistance is made worse [5]. Therefore the need and potential for counseling the patients regarding their drug therapy have been an important part of the pharmacy practice and pharmaceutical care [6]. Despite this, in Ethiopia, it seems that health planners have often overlooked dispensing when they develop a health care delivery system. Dispensing is hence regarded as less important than diagnosis, procurement, inventory control, and distribution. In reality inappropriate or incorrect dispensing results in all the benefits of the health care system valueless. Regardless of the modern facilities, extensive education, and careful diagnosis, the proper medication must be dispensed to patients with appropriate information and the patient must comply with therapy for the health care system to have accomplished its task [4].

Even though certain medication counseling assessments have been conducted in different parts of Ethiopia, there, still, exists variation in terms of the methodologies employed, the study populations considered and, the contexts in which these studies were done. Accordingly, an assessment that combines both observation checklists and interviews of dispensers was sought to address pharmacy practices in medication counseling. The objective of this study was, therefore, to assess patient medication counseling practices during the dispensing of medicines by pharmacy professionals and its predictors in the outpatient pharmacies of Bahir Dar city, Northwest Ethiopia. In turn, it provides information about the scope of problems of patient medication counseling and its associated factor in Bahir Dar city which will awaken pharmacy professionals to take the responsibility of medication counseling to their patients and policymakers/other concerned bodies to focus on the specific factors to improve patient medication counseling practice.

## METHOD AND MATERIALS

### Study area and period

The study was conducted from June 15 to 30, 2020 in outpatient pharmacies of Bahir Dar city, North West Ethiopia which is located 565kms from Addis Abba, the capital of Ethiopia. The population is 319, 471 projects from the 2007 census. The city has 3 governmental and 4 private hospitals, 10 health centers, and 47 private clinics (44 private medium clinics and 3 mild clinics). There are also 65 pharmacies and 50 drug stores that are out of institutions.

### Study design

A facility-based cross-sectional study was conducted

### Population

The source population for this study was all dispensers who work at Drug Retail Outlets (DRO) (either community, institutional, private, or governmental) in Bahir Dar town; they were also being our study population. While the sample population was all selected drug dispensers from whom the data was actually collected.

### Sample size determination and sampling technique

One dispenser from all community and institutional DRO in Bahir Dar town was involved. So, no sample size and sampling technique were used. But if there were more than one dispenser in one DRO, simple random sampling was used to select one dispenser. Therefore, since there are 3 governmental hospitals, 4 private hospitals and 10 health centers (each with one institutional outpatient pharmacy) and 65 pharmacies and 50 drug stores at the community in the town; a total of 132 dispensers were involved in the study.

### Data collection tool and technique

The study was conducted by using an observation checklist and interviewer-administered questionnaire which was prepared by the principal investigator after a meticulous literature review. The questionnaire was filled by observing the dispenser while dispensing medicines to assess their patient medication counseling practice and asking other questions which used to assess factors that affect their counseling practice.

### Ethical consideration

Ethical approval to conduct the study was obtained from the Gamby College of Medicine and Health Science. Moreover, after explaining the objectives of the study in detail an informed verbal consent was sought from all study participants.

## RESULT

### Socio-demographic characteristics of dispensers

A total of 132 dispensers were included in the study, of which 123 dispensers were eventually participated, giving a response rate of 93.2%. The majority of the dispensers were females 68(55.3%). The age of participants was ranged from 22-65 with a mean and standard deviation of  $33 \pm 9.1$ (table 1).

**Table 1: Distribution of socio-demographic characteristics of the dispensers in outpatient pharmacies of Bahir Dar city, North West Ethiopia, June 2020.**

Socio-demographic characteristics	Frequency(N=123)	Percentage (%)
Age		
<30	66	53.7
30-50	53	43.1
>50	4	3.3
Sex		
Male	55	44.7
Female	68	55.3
Marital Status		
Single	55	44.7
Married	68	55.3
Educational Qualification		
Pharmacist	40	32.5
Druggist	60	48.8
Pharmacy technician	23	18.7
Monthly Income		
<2000	35	28.5
2000-5000	54	43.9
>5000	34	27.6

### Descriptive frequency of other factors related to PMC

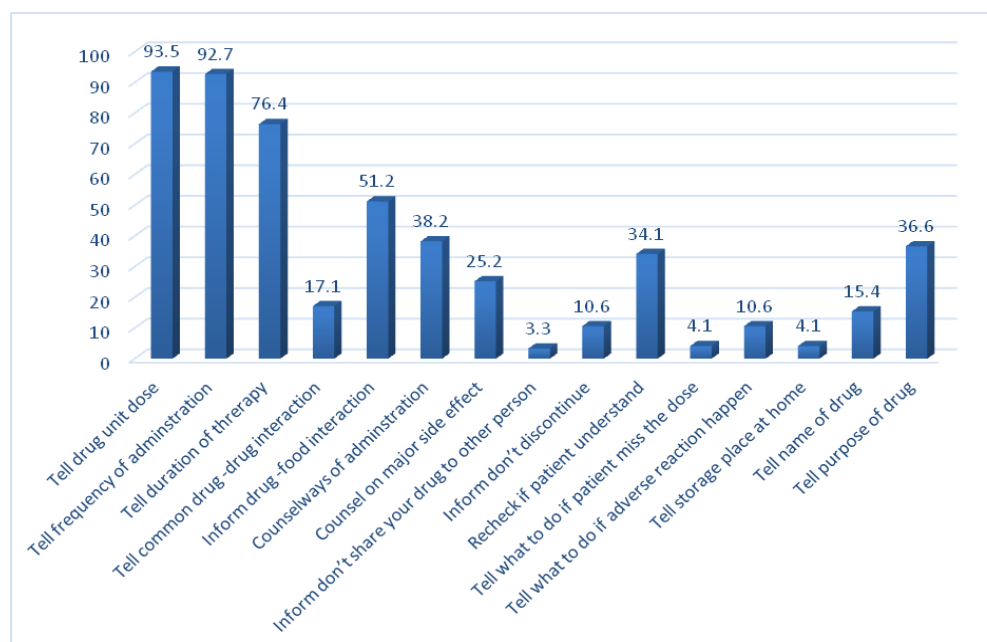
From the total 123 dispensers, 66 (53.7%) of them have work experience of less than or equal to 5 years. The majority of the dispensers 102(82.9%) were private workers and 99 (80.5%) worked under community pharmacy.

**Table 2: Frequency distribution of factors associated with PMC among dispensers in outpatient pharmacies of Bahir Dar city, North West Ethiopia, June 2020.**

Variables		Frequency(N=123)	Percentage (%)
Working experience (Yrs)	0-5	66	53.7
	6-10	37	30.0
	>10	20	16.3
Working sector	Private	102	82.9
	Governmental	21	17.1
Type of pharmacy	Community	99	80.5
	Institutional	24	19.5
Employment status	Full time	113	91.9
	Part-time	10	8.1
Working hour per day	<=8hr	60	48.8
	>8hr	63	51.2
Patient attendance per day	<=20	28	22.8
	>20	95	77.2
Ownership status	Owner	47	38.2
	Employee	76	61.8
Presence of assistant	Yes	95	77.2
	No	28	22.8
Private counseling room	Yes	20	16.3
	No	103	83.7
Special training on PMC	Yes	7	5.7
	No	116	94.3
Is PMC a professional duty?	Yes	84	68.3
	No	39	31.7

### Descriptive frequency of PMC practice

All the dispensers in the study were assessed by 15 observation checklists regarding their PMC practice. Out of 123 dispensers, only 59.3% of them rated as having good patient counseling practice which means more than 7 counseling practice checklists were checked yes for them. Only 2(1.6%) give counseling for the patient on 13 points from expected of giving counseling on 15 points (unit dose, frequency of administration, duration of therapy, drug-drug interaction, drug-food/drink interaction, ways of administration, major side effects, not sharing drug with others, the effect of drug discontinuation, check patient understanding by asking to repeat back, what to do if dose missed, what to do if an adverse reaction happens, storage place at home, name of the drug, and the purpose of the drug). This implies the patient medication counseling delivered by professionals was not complete (Figure 1).

**Figure 1: Percentage of dispensers who counsel the patient concerning each PMC practice checklists in outpatient pharmacies of Bahir Dar city, North West Ethiopia, June 2020.**

### Factors associated with PMC practice

A comparison of variables that were statistically significant with PMC practice on crude analysis was adjusted using the enter method multiple logistic analysis models (Table 3). The variables that showed significant association with PMC practice in the bivariable logistic regression model with P-value of < 0.2 were sex, marital status, educational qualification, special training on PMC, average patient served per day, presence of an assistant, type of pharmacy they work, year of experience and employment status. But according to the multiple logistic regression; only the educational qualification of being a druggist [AOR: 4.45, 95% CI: 1.67-12.53], educational qualification of being a pharmacy technician [AOR: 5.42, 95% CI: 1.85-19.34], serving twenty and fewer patient per day on average [AOR: 4.82, 95% CI: 1.23-14.12], having five and fewer years of work experience [AOR: 5.82, 95% CI: 1.96-22.53] and having work experience of six to ten years [AOR: 6.45, 95% CI: 1.82-28.48] were significantly positively associated with PMC practice of dispensers in outpatient pharmacies of Bahir Dar city (Table 3).

**Table 3: Association of independent variables associated with patient medication counseling practice of dispensers in outpatient pharmacies at Bahir Dar city, North West Ethiopia, June 2020.**

Factors	PMC Practice Status		COR (95% CI)	AOR (95% CI)
	Good	Poor		
Sex				
Male	29	26	1.00	
Female	44	24	1.64(0.79-3.40)	
Marital status				
Single	37	18	1.83(0.87-3.82)	
Married	36	32	1.00	
Educational qualification				
Pharmacist	14	26	1.00	1.00
Druggist	42	18	4.33(1.85-10.17)	4.45(1.67-12.53)
Pharmacy technician	17	6	5.26(1.69-16.37)	5.42(1.85-19.34)
Average patient served per day				
<=20	24	4	5.63(1.82-17.48)	4.82(1.23-14.12)
>20	49	46	1.00	1.00
Presence of assistant				
Yes	62	33	2.90(1.22-6.92)	
No	11	17	1.00	
Type of pharmacies				
Community	64	36	2.77(1.09-7.02)	
Institutional	9	14	1.00	
Special training on PMC				
Yes	6	1	4.39 (0.51-37.63)	
No	67	49	1.00	
Year of experience				
0-5	44	22	8.00(2.39-26.81)	5.82(1.96-22.53)
6-10	25	12	8.33(2.28-30.39)	6.45(1.82-28.48)
>10	4	16	1.00	1.00
Employment status				
Full-time	71	42	6.76(1.37-33.35)	
Part-time	2	8	1.00	

PMC: Patient Medication Counseling

### DISCUSSION

Patient medication counseling is an important means to alleviate the problem of patient non-compliance with drug therapy which may lead to therapeutic failure and drug-resistant, which is a major global problem now a day. The pharmacists are at highly visible and readily available positions to answer patients' concerns and enquire about their medication and alternative treatments they may read about or hear from others. It is the pharmacists' role to significantly improve medication safety and patient compliance by the way of counseling at the point of delivery [6].

In the present study, the drug unit dose, frequency of administration, and duration of therapy were the most commonly told information to patients. These findings were also similarly reported from a study conducted in Tikur-Anbessa specialized hospital [7]. A study in North West Ethiopia reported, the most frequent drug information that dispensers respond as they are giving always were, route, dose, and frequency of administration of drugs [8]. Similarly, a study in Mekele and Jimma town also indicated that dispensers spend more time counseling on the dose, frequency, and route of administration [8, 9].

According to research conducted in Nigeria, about 75% of dispensers have a good practice of patient counseling [10] which is relatively comparable to our finding; that is 59.3%. However, the find from this study is greater than a finding in Dessie, Mekelle, and Jima [8, 9, 11] where only 33% and 18.37% of them rated as having good patient counseling practice respectively. This difference could, possibly, be attributed to contextual variation in terms of the study setting and populations considered in the two studies. A study from Pakistan and Dessie documented that completely counseling about medication was provided in 3.1% and 3.8% of the cases respectively [11, 12] while no one provides complete medication counseling in this study.

In this study, educational qualification, number of the patient served per day and work experience were significantly associated with PMC practice of dispensers in outpatient pharmacies in which these who serve less number of patient per day, have a higher educational qualification and have less year of work experience counsel the patient more while they dispense pharmaceutical products. Similarly, a study conducted in Dessie town also indicates, there was a strong association between patients' counseling practice and educational qualification and average patient attendance per day. In contrast, it also says ownership status, type of pharmacy, and the working sector significantly affect the practice of medication counseling which is not founded in this study [11]. Many other studies (a study from Mekelle, Jimma, and Northwest Ethiopia) [8, 9, 13] agreed with the significant effect of patient load on the practice of medication counseling. However, major barriers to medication counseling were identified as doctor dispensing, lack of knowledge, non-legalization of patient counseling, no professional fee, poor response from patients, and inadequate continuous professional development programs from the study conducted in India [14, 15] which is completely different from the finding of this study.

## CONCLUSION

Although PMC practice shows some improvement from studies conducted earlier on another part of Ethiopia, this remains unacceptably low. Almost more than one-third of the dispensers have poor counseling practice. Drug information on dose, frequency of administration, and duration of therapy were the most frequently delivered information to patients. High patient load, low level of educational qualification, and many years of work experience were barriers to patient medication counseling by drug dispensers.

## Recommendation

- ➔ Decrease pharmacy professionals' workload by building more outpatient pharmacies and employing additional professionals is recommended for the regional health bureau and Federal Minister of Health (FMOH).
- ➔ Improve educational qualification through giving in-service training, Continuous Pharmaceutical Education (CPE), and giving chance to upgrade their education level for these already employed professionals is also recommended for the above organizations
- ➔ Further research should be done with a strong design to dig out how these factors affect patient medication counseling practice

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## ABBREVIATIONS

CPE	: Continuous Pharmaceutical Education
DRO	: Drug retail outlet
FMOH	: Federal Minister of Health
PMC	: Patient medication counseling
WHO	: World health organization

## Competing interests:

We declare that we have no competing interests

## Funding:

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## Ethical Approval:

The study was approved by the institutional Ethics committee

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