Original article

Assessment of drug utilization from prescribers and dispensers perspectives in selected towns of Amhara region, Ethiopia

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Abstract

Background: Access to essential drugs and up-to-date information related to drugs are critical for optimal provision of health care, particularly in developing countries. However, the situation of drug utilization in Ethiopia is less than optimum and the scarcity of information about it has prompted the undertaking of this study.

Objective: To assess the views of health professionals concerning the utilization of drugs in hospitals and retail drug outlets in some selected towns of north west Ethiopia.

Methods: Structured questionnaires consisting of open- and close- ended questions on the availability, marketing and usage of drugs and related information were prepared and distributed to drug- prescribers and drug-dispensers.

Forty Physicians and 20 drug-dispensers have responded to the questionnaires and their responses were analyzed.

Results: The results demonstrated that availability of essential drugs and accessibility to up-to-date drug information was low. Cephalosporins were the most demanded but hardly available drugs. The view of most health professionals towards the usage of drugs was appropriate but the application of the code of Ethics by some drug dispensers, while dispensing and marketing pharmaceuticals was found to be unacceptable.

Conclusion: Improving the availability of and accessibility to essential drugs as well as alternative drugs and up-to-date drug information with an application of the professional code of Ethics particularly in pharmacy profession are found to be crucial for optimal and rational phamacotherapy. [*Ethiop.J.Health Dev.* 2003;(3):231-237]

Introduction

Drug utilization has been defined as the marketing, distribution and use of drugs in a society with special emphasis on the resulting medical, social and economic consequences (1).

Availability of an appropriate selection and regular supply of affordable drugs that are efficacious, safe and of good quality, is a prerequisite for any operative health care system. Drug availability, however, does not ensure rational prescribing, dispensing or appropriate patient use. Developing countries confront a lot of problems in their efforts to ensure the availability and rational use of safe and effective drugs (2).

The compilation and adoption of an essential drugs list has been found to significantly improve the availability and rational use of essential drugs in many developing countries (3,4). Ethiopia adopted a list of Essential drugs in 1987 as part of the National drug Policy that specifies national pharmaceutical goals in order to overcome the problems mentioned above (5). Nevertheless, there are still shortages of basic essential drugs and irrational use of drugs (irrational prescribing, irrational dispensing and inappropriate use by patients) in Ethiopia (6).

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Considering the distribution of the health service budget including drug budget, which is skewed in favor of the urban centers of Ethiopia (6), the situation in drug distribution and marketing in the rural areas is expected to be worse.   Added to this, irrational use of drugs would complicate the shortage of drugs in the country compounded with low budgetary expenditure.

It has been described that most people have no confidence in a health care system which can not deliver medicines(7); and not surprisingly, from the huge contribution of drugs to global reductions in mortality and morbidity, making drugs available should be given top priority in the health agenda of every country.   The importance of providing basic information about drugs to physicians, other health professionals and the community has been reported for the rational use of drugs (8).

In this regard, information about the availability of essential drugs, marketing of drugs and access to basic information about drugs in the health care system of Ethiopia is scanty. The objective of this study was to assess the views of prescribers (physician) and dispensers about drug utilization in selected towns of Amhara region, Ethiopia.

Subjects and Methods
This is a referral hospital -and private pharmacy-based survey conducted between October to December 2001 in selected towns of the Amhara region, the second largest region (in terms of population) in Ethiopia. The selected towns were Bahir Dar, Dessie, and Gondar; all of them have both hospital and pharmacy services as they are relatively large towns (with more than 100 000 inhabitants). The selected towns have one referral hospital each and majority of physicians working in these hospitals. According to the information obtained from the hospital administration offices of the respective hospitals, the total number of physicians was 46 out of which 40 responded within the given time (48hours). The reasons for failure to respond are not known. Other potential prescribers such as nurses were not included in this study because physicians mainly do prescribing in the referral hospitals.

The physicians of the referral hospitals and the pharmacy workers (dispensers) of 20 private pharmacies in the selected towns were the subjects of this study.

The referral hospitals and pharmacies are supposed to render health services of high standard and are assumed to provide accurate and reliable information which is required for our study. We attempted to reach the maximum possible number of physicians working in the referral hospitals and dispensers of the private pharmacies (one responsible person from each pharmacy).

All pharmacies of the selected towns were included in the study.
The hospital directors of the referral hospitals and the responsible worker (dispenser) of the private pharmacies were informed about the purpose of the study which was conducted after securing their permission and co-operation.
Structured questionnaires consisting open- and close-ended questions about the distribution and use of drugs and related information were distributed to physicians, and their responses were obtained after 48 hours. The physicians were also asked to list down scarcely available but very essential drugs or class of drugs. Forty physicians responded by filling the questionnaires appropriately.

Similarly, structured questionnaires consisting of open and close-ended questions about the distribution, marketing and dispensing practices were administered to pharmacy workers (dispensers) at the time of the visit. All pharmacy workers co-operated to give information. In most Pharmacies we found only one dispenser.

Data were analyzed by using EPI INFO 2000 statistical Package.

Statistical significance of the price differences between the imported and locally manufactured pharmaceuticals was tested by Wilcoxon signed rank sum test with level of significance of 0.05.

Results

The response of 40 physicians to various questions related to drugs and pharmacotherapy is shown in table 1.

Table 1: **Response of physicians about matters related to drugs (n=40), selected towns of Amhara region, 2001**

Response	Number	Percent
Availability of essential drugs:		
Yes	6	15
No	34	85
Access to up-to-date drug information :		
Yes	8	20
No	32	80
Follow standard treatment guidelines*:*		
Yes	36	90
No	4	10
Consider Price of drugs while prescribing:		
Yes	35	87.5
No	5	12.5
Compliance of patients to treatment regimens:		
Very good	2	5
Good	18	45
Moderate	17	42.5
Bad	3	7.5
Success of Pharmacotherapy*:*		
Successful in >70% of Patients	14	35
Successful in 50-70%of patients '	23	57.5
Successful in < 50% of patients	3	7.5
Preferred drugs:		
Locally manufactured	1	2.5
Imported	17	42.5
No difference	22	55

Thirty four (85%) physicians were with the opinion that essential drugs were not available most of the time; and almost the same number of physicians also mentioned poor access to up-to-date information about drugs.

About Eighty seven percent of the physicians do consider the price of drugs while prescribing and 90 percent of the physicians follow standard treatment guidelines, when available.

When asked to estimate the compliance of patients to the treatment regimens, the majority of the physicians rated the compliance of their patients with the therapeutic regimens as good or moderate.

More than half of the respondents replied that there was no difference between locally manufactured and imported drugs in terms of efficacy and safety. A considerable percentage (42.5%) of physicians, however said that imported drugs are preferable to domestic products.

The majority of the physicians agree that most patients benefit from pharmaco-therapy.

The response of physicians to list down highly demanded but hardly available drugs or class of drugs is shown in table 2.

Table 2: **Top-15 highly demanded but hardly available class of drugs or individual drugs (freq=192), selected towns of Amhara region, 2001**

Class of drugs or drug	N	%
Cephalosporins	28	(14.6)
Antineoplastic drugs	18	(9.4)
Dopamine	15	(7.8)
ACE inhibitors	14	(7.3)
Rifampicin and pyrazinamide	12	(6.3)
Insulins	11	(5.7)
Ureidopenicillins	10	(5.2)
phenytoin	10	(5.2)
Opioid analgesics	10	(5.2)
Quinolones	9	(4.7)
Antifungals	8	(4.2)
Glucose 40%	8	(4.2)
Antiretroviral drugs	7	(3.6)
Clarithromycin,	6	(3.1)
Metronidazole, IV	5	(2.6)
Others	21	(10.9)

ACE= Angiotensin Converting Enzyme
IV= Intravenous

Cephalosporins were the most frequently mentioned hardly available drugs followed by anti-neoplastic drugs, dopamine, angiotensin converting enzyme, rifampicin, insulin, etc. in that order. For example, 28 out of 40 physicians listed down cephalosporins to be scarcely available.

Table 3 shows the response of drug dispensers (14 pharmacists and 6 health assistants) in 20 private pharmacies(one person from each pharmacy).

Table: 3: **Response of dispensers about drug-related information (n=20), selected towns of Amahara region, 2001**

Response	n	%
Source of drugs:		
Pharmid + Private importers	20	100
Other source	0	0
Request for partial dose of POM:		
Reject the request	12	60
Dispense partial dose	8	40
Access to up-to-date drug information	4	20
Yes	16	80
No		
Source of drug information:		
Inserted leaflets	13	65
Books and inserted leaflets	7	35
Referring patients to Physicians:		
Yes	20	100
No	0	0

POM = Prescription-Only-Medicine

All drug dispensers said that they purchase drugs from pharmid (government organization) and private importers and used to refer patients to physicians when the condition demands.

When asked what measure do they take if a customer can not afford to buy a full dose of a prescription- only medications, 40% of the dispensers said that they dispense partial dose(s) by instructing the customer to collect the remaining dose(s) in some future time. The remaining 60% of the dispensers said that they reject the request of the customer in such cases.
Eighty percent of the dispensers said that they don't get up-to-date information about drugs and most of them are limited only to inserted leaflets as source of drug information.

The price of some selected pharmaceuticals (imported or locally manufactured) such as paracetamol, ampicillin, chloramphenicaol, co-trimoxazole, mebendazole, tetracycline, procaine penicillin, aluminium hydroxide plus magnesium trisilicate and aspirin is shown in table 4.

Table: 4: **Prices of selected imported and/or locally produced drugs, selected towns of Amhara region, 2001**

Drug	Price* of imported product in Birr			Price* of local product in Birr		
	n	x ± SD	Range	n	x ± SD	Range
Paracetamol 500mg Tab*	9	0.315±0.195	0.09-0.55	20	0.091 ± 0.022	0.03-0.15
Ampicillin 500 mg Cap	8	0.971±0.308	0.55-1.53	20	0.563 ± 0.059	0.46-0.75
Chloramphenicol 250mg Cap				20	0.23 ± 0.034	0.15-0.3
Co-trimoxazole 480mg Tab	12	0.65 ± 0.821	0.11-3.29	14	0.192 ± 0.077	0.12-0.5
Mebendazole 100 mg Tab.	10	0.181 ±0.112	0.04-0.5	12	0.153 ± 0.054	0.1-0.5
Tetracycline 250mg Cap				20	0.152 ± 0.025	0.1-0.2
Procaine penicillin 4mill. IU with water for injection, vial				9	3.667 ± 0.262	3.22-4.25
Aluminum hydroxide plus Magnesium trisilicate susp. 200ml.bottle.	13	13.55 ± 0.7	12.5-15.0			
Aspirin 325 mg Tab*	11	0.256 ± 0.144	0.05-05	20	0.082 ± 0.028	0.03-0.5

* Prices are for each tablet, capsule, vial, or bottle
* Statistically significant difference between imported and locally manufactured drug items (P < 0.05)

The prices of imported pharmaceuticals were greater than those of the locally manufactured items of the same dosage form and strength. The difference was statistically significant (P<0.05) in the case of paracetamol and aspirin. Wider range of prices was observed among both imported and locally manufactured items.

Discussion
The study attempted to examine the views of drug prescribers and drug dispensers about drug utilization (distribution, marketing and use of drugs).

The study revealed that the availability of essential drugs and access to up-to date information are low. The shortage of basic essential drugs in Ethiopia which has been reported some ten years ago (6, 9) has not yet been improved. Since drugs and up-to-date information about drugs are key elements of therapeutics, their shortage would obviously compromise the quality of health care.

It has been pointed out that apart from compiling a list of essential drugs, one must seek means to provide an efficient supply of drugs, correct prescribing procedures and better understanding of patient compliance (10). The whole idea of the essential drugs list for developing country should mean securing the availability of them.

The compliance of patients with therapeutic regimens as estimated subjectively by the physicians in this study was in good conformity with the previous reports which were partly based on objective methods (11,12). It is gratifying to note that most physicians don't overestimate the compliance of patients, do consider the price of drugs while prescribing and follow standard treatment guidelines, all of which contribute to promotion of rational drug use and utilization.

Providing antibiotic cost information to prescribers enabled them to select less expensive antibiotics and found to provide additional economic advantage for the patient (13). Because some patients can not afford to buy a full dose of an expensive drug, and fail to comply with the clinical prescription, providing cost information of drugs for prescribers enables to select affordable drugs.

The views of drug dispensers about drug utilization are appropriate in some aspects and

inappropriate in others. The fact that a health assistant used to dispense drugs in the absence of the qualified pharmacist in some pharmacies makes the rationale for restriction of pharmacy license to pharmacists meaningless. A considerable percentage (40%) of drug dispensers said that they dispense even a partial

dose of prescription-only-medication which is inappropriate professional practice.

These drug dispensers said that they usually advise the patients to collect the remaining dose(s) in some other time. Because some patients stop taking even medications at their hands when they feel a sort of improvement from the ailments (11), dispensing partial dose means inviting the patients for noncompliance to clinical prescriptions with all consequences of non-compliance.

Up-to-date drug information is not accessible to the majority of drug-dispensers (80%) and most of them particularly health assistants use inserted package leaflets as a main source of drug information. Inserted package leaflets may contain manipulated information about a particular drug as they are prepared by drug companies and thus are subject to bias. Although a workshop on rational drug use in Ethiopia proposed strategies to provide objective and unbiased information to prescribers, dispensers and the community some ten years ago (6), no change has yet been seen. Periodical upgrading of the pharmaceutical knowledge of the professionals is important for proper selection, procurement, storage, and dispensing of drugs as well as instructing the patients and the community about the proper use of drugs.

The average prices of locally produced drugs are relatively lower than those of imported ones with the same dosage form and strength. The complaint of some local drug manufacturers not to cope up with market competition of imported pharmaceuticals because they are cheaper (personal communication with a representative

of one local drug company), seems unreasonable. Wider price variations observed among imported drug items may be explained by variability in the source of drugs. Drug retail margins of different drug retail outlets lacks uniformity even for the product of the same source, probably a reflection of varied commercial interest. The availability and appropriate use of carefully selected low-cost pharmaceuticals has been described to substantially reduce a huge burden of illness in developing countries (14). In this line, prescribing and dispensing of low-priced generic products rather than brand drug products has been pointed out to have significant aspect of health care cost reduction (15,16). Because more than half of the physicians included in this study noted that locally produced drugs are equivalent to imported drugs, importing of the expensive drugs is not economical. In this regard, import substitution in the pharmaceutical industry is one important option for the drug policy of the country.

In conclusion, accessibility to both essential drugs and up-to-date information about drugs, which are essential for the provision of optimal health care, was found to be low and calls for an urgent response by the concerned authorities and policy makers.

Since the efficacy and safety of locally produced drugs were found to be comparable to the imported ones but are relatively cheaper than the latter, the performance of local producers should be given due attention. There appears to be a reluctance to conduct professional and ethical dispensing practices in some pharmacies and drug shops for which training programs for the dispensers about their ethical obligations and supervisory visits for the improvement of dispensing skills and application of code of Ethics are recommended.

Finally, large scale studies are required to investigate national trends in drug utilization and reach at a strong conclusion.

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