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Barriers to access: availability and affordability of essential drugs in a retail outlet of a public health center in south western Ethiopia

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ABSTRACT

Essential drugs (EDs) satisfy the priority health care needs of a population and their availability and affordability at all times is crucial for provision of complete health service. The study aimed to assess availability and affordability of treatment cost for common diseases in Jimma Health Center (JHC). A cross sectional study was conducted using structured data abstraction form for exit interviews and checklists. Only 128 (55.65%) EDs were available. The average price for commonly used drugs per recommended dose for an individual patient in JHC Pharmacy, Ethiopian Red Cross (ERC) Pharmacy and Private Pharmacies were $0.65, $0.62 and $0.94 respectively. Affordability of medications was significantly associated with age, marital status, occupational status, gross monthly income and number of economically dependent family members ($p<0.005$). 58.07% of the respondents bought drugs from JHC pharmacy, while the rest bought drugs from ERC pharmacy and private retail outlets. In this study 47.83%, 33.54% and 18.63% of the respondents said that the drugs are not affordable, fairly affordable and affordable respectively. Low availability of EDs forced patients to purchase drugs from private pharmacies, go to informal sector or forgo treatment. Considering proportion of total household income spent on health care, costs of treatment seem unaffordable.

INTRODUCTION

One-third of the world's population does not have a regular access to full and effective treatments with the medicine they need. Lack of access to Essential Drugs (EDs) is still a serious global public problem, despite considerable progress made since introduction of ED concept (DACA, 2002; WHO, 2004; WHO/HAI, 2008).

In developing counties medicines account for 25-70% of over all health care expenditure, compared to less than 10% in high income countries. Moreover, up to 90% of the population in low and middle income countries pay for medicines out of pocket. Therefore, medicines are unaffordable for large sectors of the global population and major burden of government (Watal, 2010). In addition, supply systems in developing countries frequently face problems regarding efficiency and reliability (Hafele-Abah, 2010). The situation is even worse in Africa and Asia where as much as 50% of the population lack access (WHO, 2004). A study conducted by WHO in 36 developing and middle income countries shows that, average public sector availability of generic medicines ranges from 29.4% to 54.4% (Cameron *et al*., 2009). A survey in Bangladesh, Brazil, Malawi, Nepal, Pakistan and Sri-lanka indicates that in all countries except Brazil and Sri-lanka, less than 7.5% of EDs are available in public sector (Mendis *et al*., 2007). A study conducted in Malaysia also indicates that 25% of generic medicines are available on average through public sectors and many of the medicines studied are not affordable (Babar *et al*., 2007). Reports from primary health care facilities in Nigeria shows that average of 15.3 essential drugs are available (Uzochukwu *et al*., 2002).

Contrary to other studies, in Sudan 80.6% of selected essential medicines are available at public pharmacies (Elfatih *et al*., 2010). In Ethiopia, there are frequent drug shortages in public health facilities, a national survey estimates that only 70% of essential medicines are available in the public sector (Carasso *et al*., 2009). Access to medicines is a complex construct because health services require regular availability of relevant medicines of proven safety, efficacy and quality at an affordable price (Cameron *et al*., 2009; Robertson *et al*., 2009; FMHACA, 2010). The availability of EDs is found to significantly reduce morbidity and mortality;

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and impact of procurement system on price and availability of EDs is heavy and wider, therefore it needs to be addressed (WHO, 2004; DACA, 2004). Studies indicate that around 44% and 81% of the Ethiopian population earn less than $1 and $2 per day, respectively.

It is also reported that only 3.6 % of the total household income is spent on medical care, transport, communication, education, recreation and entertainment (MOFED/UN, 2004; IBRD/WB, 2004; CSA, 2002). In 2008/09 the potential health service coverage by health centres was 43.8 % and the recurrent national health expenditure was $182.2 million (MOH, 2010). In 2001/02, the total government drug budget was about $12.1 million, which was approximately 19% of the recurrent government health budget and represented a per capita drug budget of $0.18. The total annual drug expenditure was estimated at $30 million out of which $12.3 million was donation (MOH/WHO, 2004).

Given the above facts, in order to take policy actions and negotiate cheaper prices so as to make medicines available and affordable to consumers, which improve access to ED, reliable information is needed. Therefore, the goal of this study is to find out the availability and price of selected medicines as well as affordability of cost of treatment for common diseases in Jimma Health Center (JHC) pharmacy.

MATERIALS AND METHODS

Study area and period

The study was conducted in JHC, located in Jimma, 350 kms south west of Addis Ababa in Oromia Regional State. The town has a latitude and longitude of 7°40′N 36°50′E. Based on the 2007 census conducted by the Central Statistical Agency of Ethiopia (CSA), it has a total population of 120,960. The study was conducted from January 20-26, 2011.

Study design

A cross sectional study was conducted in JHC using structured data abstraction form for exit interviews with patients or their relatives visiting the pharmacy and checklists were used to assess the availability of EDs in the health center drug store and dispensary room during the study period. Prices of selected drugs were also collected from Ethiopian Red Cross (ERC) Pharmacy and three Private Pharmacies to compare it to the price in JHC Pharmacy.

Sample size and sampling technique

Sampling size was determined by using single population proportion formula and systematic random sampling technique was used select samples among the patients who came to the health center pharmacy during the study period. A total of 384 patients who came to JHC during the study period were included in the study.

Data collection and management

Pre-tested structured data abstraction form and checklist were used to collect the information on socio-demographic characteristics, affordability, price and availability of ED. The questionnaires were translated into *Amharic* and *Afan Oromo* and were back-translated into English to check for accuracy. Data was collected by trained final year undergraduate pharmacy students who had excellent writing, reading, spoken production and interaction ability in *Amharic*, *Afan Oromo* and *English.*

The data collection was supervised and coordinated by supervisors. At the end of each day the data abstraction forms and the checklists were checked by supervisors for omission and completeness.

The collected data was, cleared, categorized, coded and it was entered into SPSS (Windows v 19.0; SPSS Inc, Chicago, IL). Descriptive statistics were generated and Chi-Square test was used to correlate test proportions to meet the objectives of the study. $P<0.05$ was considered statistically significant

Ethical consideration

The study was conducted upon the ethical clearance of Jimma University Ethical Board. Formal letter was written from Jimma University to the health center and support of JHC administration and the pharmacy staff was obtained. Verbal consent of participants was obtained prior to study initiation.

RESULTS

Demographic characteristics

Among 384 respondents involved in this study, 64.06 % were males and 35.94% were females; 35.67 % of the respondents were in the age range of 30-44 years and only 11.2 % of them were in the range of 65 years or more. The majority of the respondents (58.59 %) were married while 5.47% were widowed. 21.09 % of the respondents were laborers, while the least were students (5.21%). The gross monthly income of the majority of the respondents (50.52 %) fall in range of $10-$50 and only 2.6% of them had a gross monthly income of $225 or more. Moreover, 73.18% the patients/attendants had more than one family member being economically dependent on them as shown in Table 1.

Availability, price and affordability of EDs

Among 230 EDs checked for availability based on the list of drugs for health centers, only 128 (55.65 %) drugs were available. According to this study, the average price of the most commonly used drugs per recommended dose for an individual patient in JHC Pharmacy, ERC Pharmacy and Private Pharmacies were $0.65, $0.62 and $0.94 respectively, as shown in *Table 2*.

Affordability of medications to clients was significantly associated with age, marital status, occupational status, gross monthly income and number of economically dependent family members ($p<0.005$), but there was no association with sex.

Table. 1: Socio-demographic characteristics of patients/ attendants visiting JHC outpatient pharmacy, January 20-26, 2011.

S. No	Socio-demographic characteristics	Patients/attendants	Number (%)	Affordability (X^2 test)
1	Age	15-29	109(28.39%)	x^2 =13.9 p=0.001
		30-44	137(35.67%)	
		45-64	95(24.74%)	
		>65	43(11.20%)	
2	Marital status	Single	100(26.04%)	x^2 =17.9 p=0.001
		Married	225(58.59%)	
		Divorced	38(9.9%)	
		Widowed	21(5.47%)	
3	Occupational status	Farmer	42(10.94%)	x^2 =13.9 p=0.001
		Merchant	77(20.05%)	
		Student	20(5.21%)	
		Housewife	36(9.38)	
		Government employee	71(18.49%)	
		Laborer	81(21.09%)	
		Others	57(14.84%)	
4	Gross monthly income (USD)	10-50	194(50.52%)	x^2 =21.7 p=0.000
		51-115	100(26.04%)	
		116-170	42(10.94%)	
		171-225	38(9.90%)	
		>225	10(2.60%)	
5	Number of economically dependent family members	None	50(13.02%)	x^2 =17.9 p=0.001
		One	53(13.80%)	
		Two	71(18.49%)	
		Three	67(17.45%)	
		Four	96(25.00%)	
		More than four	47(12.24%)	

Table. 2: Price of most commonly used EDs in retail outlets in Jimma, January 20-26, 2011.

S. No	Generic name, strength, dosage form	Total price (USD) per recommended dose per individual		
		JHCP	ERCP	PP
1	Paracetamol 500mg tab	0.11	0.12	0.22
2	Amoxicillin 500mg cap	0.96	0.8	1.68
3	Ciprofloxacin 500mg tab	0.98	0.9	1.11
4	Diclofenac 50mg tab	0.07	0.07	0.2
5	Mebendazole 100mg tab	0.07	0.07	0.16
6	Co-trimoxazole 480mg tab	0.06	0.06	0.4
7	Albendazole 200mg tab	0.12	0.11	0.27
8	Metronidazole 500mg cap	0.45	0.5	0.9
9	Doxycycline 100mg cap	0.42	0.45	0.58
10	Cloxacillin 500mg cap	1.22	1.3	2.4
11	Ibuprofen 400mg tab	0.15	0.1	0.23
12	Paracetamol syrup	0.55	0.5	0.68
13	Phenobarbitone 100mg tab	1.3	1.1	1.5
14	TTC eye ointment	0.19	0.2	0.36
15	Amoxicillin syrup 250mg/5ml	1.24	1.3	1.58
16	Benzathine penicillin 1.2million IU	0.56	0.6	0.36
17	ORS	0.1	0.11	0.16
18	TAT 3,000 IU	2.5	2.4	3.25
19	Vitamin B complex tab	0.9	0.8	1.25
20	Co-trimoxazole syrup 240 mg/5ml	1.1	1.0	1.5

*At the time of study 1 USD= 8.8844 ETB
JHCP- Jimma Health Center Pharmacy
ERCP- Ethiopian Red Cross Pharmacy
PP- Private Pharmacies

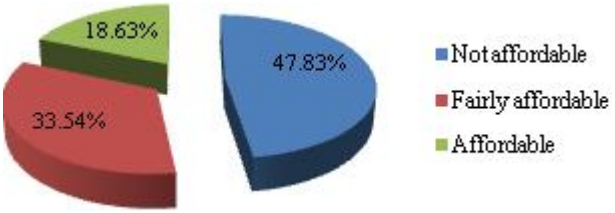

Fig. 1: Perception of patients about affordability of drugs in JHC, January 20-26, 2011.

Consumers' perceptions

58.07% of the respondents bought drugs from JHC pharmacy. Out of which 34.08%, 43.95%, 18.38% and 3.59% stated that their reason for purchasing drugs from JHC pharmacy were availability, cheap price, effectiveness of drugs and prescription from the health center respectively. While 45.6%, 45.7% and 8.7% of those who didn't bought drugs from JHC stated that drugs were not available, drugs are expensive and drugs are not effective as their reason for not purchasing.

As a result they bought drugs from ERC Pharmacy (60.25%) or private retail outlets (27.95%) or resorted to informal sectors /forwent treatment (11.80%). In this study 47.83% of the respondents said that the drugs are not affordable; while 33.54% and 18.63% respond that the drugs are fairly affordable and affordable respectively as depicted in *figure 1*.

DISCUSSION

Essential medicines save lives and improve health, when they are available, affordable, of assured quality and used rationally (Cheraghali *et al*., 2004). They are intended to be available within the context of functioning health systems at all times in adequate amount, appropriate dosage forms with assured quality and adequate information (FMHACA, 2010).

According to this study the availability of EDs in JHC was 55.65%. An investigation conducted by WHO on medicine price, availability and affordability in 36 developing and middle income countries indicates that the availability of generic medicines in public sectors ranges form 29.4% to 54.4% (Cameron *et al*., 2009).

Compared to this the availability of drugs in JHC pharmacy it is slightly higher. Another study done on availability and rational use of essential drugs in primary health care facility in south-east Nigeria reported that 35.4% of essential drugs are available (Uzochukwu *et al*., 2002). But a national survey in Ethiopia estimated that 70% of the key essential medicines are available (Carasso *et al*., 2009). Despite this the availability of essential drugs in JHC was low, implicating problems in procurement and stock management.

Provision of promotive, preventive curative and rehabilitative health services require regular availability of relevant medicines of proven safety, efficacy and quality at an affordable price (FMHACA, 2010).

According to this study the average price of commonly used medicine in JHC Pharmacy, ERC Pharmacy and Private Pharmacies were $0.65, $0.62 and $0.94. The average price of commonly used medicine in Private Pharmacies was 1.45 times and 1.52 times the price in JHC Pharmacy and ERC Pharmacy respectively. In relation to portion of the monthly income spent or health care (3.6 % of the total household income is spent on medical care, transport, communication, education, recreation and entertainment) (CSA, 2002) the prices of drug seem expensive. Furthermore, affordability of medications to clients was significantly associated with age, marital status, occupational status, number of economically dependent family members and gross monthly income ($p<0.005$). Moreover, 47.83% of the respondents said that the drugs are not affordable at JHC; while 33.54% and 18.63% respond that the drugs are fairly affordable and affordable respectively.

When drugs are unaffordable patients resorted to traditional medicine and religious remedies which can be obtained with a lesser price than conventional medicines. Similarly a research done in Malaysia showed that 56% viewed medicine as expensive while 28% of the consumers thought that drugs are cheap and affordable and 26% considered drug prices reasonable and fairly affordable (Baber *et al.*, 2003).

Even though 58.07% of patients preferred JHC pharmacy due to drug availability (34.08%), low cost of the drugs (43.95%), effectiveness of the drug (18.38%) and prescription from the health center (3.59%); the rest of the respondents did not purchase drugs from JHC stating that the drugs were not available (45.6%), drugs were expensive (45.7%) and drugs are not effective (8.7%). A study in Malaysia indicated that 56% of the consumers viewed medicines as expensive and 57% of the consumer believed that drug prices would influence their decision to purchase medicine or not (Baber, *et al*., 2003).

In this study unavailability and price were the main reasons for not purchasing drugs from JHC pharmacy. Unavailability of medicines in the public center compels patients to revert to the private sector where drugs can take up more than half of the actual cost of visit (Robertson *et al*., 2009). In this study patients resorted to ERC Pharmacy where they thought drugs available and affordable or private retail outlets; while few inclined to informal sector or forwent treatment.

Overall availability of medicines in JHC was very low. Consequently, patients were forced to purchase drugs at higher prices in private pharmacies or go to informal sector or forgo treatment. Given the low-income level, number of dependants and proportion of total household income spent on medicines, costs of treatment of common disease were unaffordable to the majority of the people visiting JHC.

The causes for low availability of medicines in JHC need to be investigated. Generic policy implementation in the procurement of medicines needs to be maintained. To increase affordability different strategies such as: development of a pricing policy which could contain aspects of price control and incentives to reduce prices; revision of different financing options such as Revolving Drug Fund and community health insurance schemes and introduction /revision of exemptions or differential fee system to ensure access of the poor need to be implemented.

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