

Availability, and price of anti-hypertensives and antidiabetics in public and private health facilities in Jos, Plateau State and environs North Central Nigeria

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ABSTRACT

Background: One of the elements restricting access to medicines is high medicine prices. This can have a detrimental effect on patients' health as well as the healthcare system in terms of lack of patient compliance with treatment and subsequent hospitalisation for serious complications. The aim of the study is to evaluate the availability and price of antidiabetics and antihypertensives in private and public health centres in Jos and environs.

Method: This study is based on a methodology developed by the World Health Organization (WHO) and Health Action International (HAI), 2004. It uses a short list of medicines to determine the prices of medicines in different health sectors. Data Analysis was done using the SPSS software. The median price ratio for each drug was calculated as well as the percentage availability.

Results: Most antihypertensives and antidiabetics were sold above the international reference price, median price ratio was above 2.5 for all the drugs surveyed. The mean availability of antihypertensives was 85.43% for generic and 1.59% for branded. In public pharmacies, the mean availability of antihypertensives was 79.45% for generic antihypertensives, and 2.37% for branded antihypertensives.

Conclusion: In both public and private pharmacies availability of Branded antihypertensives and antidiabetics were very low compared to their generic counterparts. The poor availability of essential medicines is likely to be multifactorial, further facilitated by cash-flow constraints, inadequate local manufacturing capacities and resulting import dependencies.

1. Introduction

In low- and middle-income countries, large proportions of the population have limited access to medicines, either because of poor availability or because patients must pay for their medicines and are not able to do so. Although research has been undertaken on medicine prices, there has so far been insufficient progress in improving medicine affordability and availability for individual patients in

many countries. For chronic diseases, research on financial aspects has been limited to the large-scale economic consequences of treatment and prevention for society at large, rather than focusing on individuals in a particular society^{1,2}.

Chronic diseases are responsible for 25% of all deaths in Africa and at least 50% of the deaths that occur in all other World Health Organization regions. While the proportion of deaths from chronic diseases is largest in high-income

countries, in low- and middle-income countries chronic diseases continue to cause 39% and 72% of all deaths. The recently published WHO global report entitled *Preventing chronic diseases: a vital investment* dispels the long-held misunderstandings about heart disease, stroke, cancer and other chronic diseases that have contributed to their global neglect. The reality is that in the year 2019, 80% of 35 million chronic disease-related deaths will occur in low- and middle-income countries, where they affect men and women at younger ages than in high-income countries³⁻⁶.

One of the elements restricting access to medicines is high prices, medicine prices can have a detrimental effect on patients' health as well as the healthcare system in terms of lack of patient compliance with treatment and subsequent hospitalisation complications for serious complications,⁶ When drugs are unaffordable, patients resorted to traditional medicine and religious remedies which can be obtained with a lesser price than conventional medicines. Medicines accessibility and affordability depends on various factors that include purchaser variables such as individual, household, community, private insurer, national health system or international donor and even product specificities.⁷

Continuous access to essential medicines, with emphasis on rational selection, affordable prices and sustainable financing, should be a key component of the policy framework. To increase access to medicines, one would thus need to ensure that medicines are affordable in order to counteract any existing barriers that might hinder medicine access.⁵

2. Materials and Methods

This study is based on a methodology developed by the World Health Organization (WHO) and Health Action International (HAI), 2004. It uses a short list of medicines to determine the prices of medicines in different health sectors. It said the price of a medicine should not be higher than four times the IRF. It also said a drug was said to be sufficiently available when it has at least 80% availability. The study was conducted in across centres in Jos, Akwanga, Keffi, and Lafia. Forty five (45) medicines outlets were surveyed, the sampling method was in line with the WHO standard, Outlets surveyed included; JUTH Jos, and twenty community pharmacy stores in Jos, General hospital Akwanga, and five pharmacy stores around it DASH Lafia and five pharmacy stores around it, FMC Keffi and five private pharmacy stores.

Pricing information is expressed as median price ratios (MPRs), i.e. median prices from the survey, compared with

international reference prices (IRPs). When the median price ratio for a particular product is higher than 100%, the price is higher than the reference price for that product, and vice versa.

MPR= the Median price of a Medicine/ International reference Price *100%

The following ranges have been used for describing availability

< 30% very low

30–49% low

50–80% fairly high

>80% high

In order to enable discussion, we have used the following cut-off points of MPRs to represent acceptable local price ratios:

public sector – procurement price: $MPR \leq 1$

public sector – patient price: $MPR \leq 1.5$

private retail pharmacy – patient price: $MPR \leq 2.5$

We consider MPRs above these values to represent excessive local prices

2.1 Data collection and analysis: A questionnaire designed by the World Health Organizations/Health Action International (2008) was used. Data Analysis was done using the SPSS software. The Median Price Ratio as well as the percentage availability for each drug was calculated. The Median Price Ratio is the ratio of the price of the lowest price generic relative to the international reference price.

3. Results

Table 1 List of Medicines, Median price Ratio with their international reference.

Drug	LPG 2 (USD)	MPR LPG	Brand (USD)	MPR Brand	International Reference Price (USD)
Moduretic	8.2874	1973	0.0000	-	0.0042
Methyldopa	31.1727	8659.08	0.0000	-	0.0036
Vasoprin	9.2604	1251.41	0.0000	-	0.0074
Propranolol	0.6773	63.896	0.0000	-	0.0106
Atenolol	0.4211	6.7919	1.1316	18.25	0.0620
Amlodipine	12.3569	1211.46	43.6156	4276.04	0.0102
Furosemide	0.7232	9.75	0.0000	-	0.0742
Hydralazine	11.5642	243.46	0.0000	-	0.0475
Lisinopril	0.3885	6.475	2.1174	35.29	0.0600
Captopril	3.7398	420.20	0.0000	-	0.0089
Nifedipine	2.2075	75.09	0.0000	-	0.0294
Losartan	0.1615	8.00	6.6233	327.89	0.0202
Spironolactone	0.4099	6.87	0.6377	10.68	0.0597
Methyldopa	26.0601	7238.92	0.0000	-	0.0036
Clopidogrel	0.7579	9.78	2.1053	27.17	0.0775
Labetalol	2.1197	18.12	0.0000	-	0.1170
Pioglitazone	2.8286	66.87	0.0000	-	0.0423
Chlorpromide	4.3426	165.11	0.0000	-	0.0263
Vidagliptin	2.6611	71.15	0.0000	-	0.0374
Glibenclamide	15.3068	1844.19	0.0000	-	0.0083
Metformin	8.0131	474.15	0.0000	-	0.0169
Insulin	33.4197	92.76	0.0000	-	0.3603
Glimepiride	4.5743	114.36	0.0000	-	0.0400
Glipizide	.0000	-	0.0000	-	0.0124

LPG = Lowest Price Generic; MPR = Minimum Price Ratio

Most antihypertensives and Antidiabetics were sold above the international reference price, median price ratio were above 2.5 for all the drugs surveyed. Atenolol, amlodipine, Lisinopril, Losartan, spironolactone and Clopidogrel had branded to generic ratio of 2.69, 3.53, 5.45, 40.99, 1.56 and 2.78 respectively.

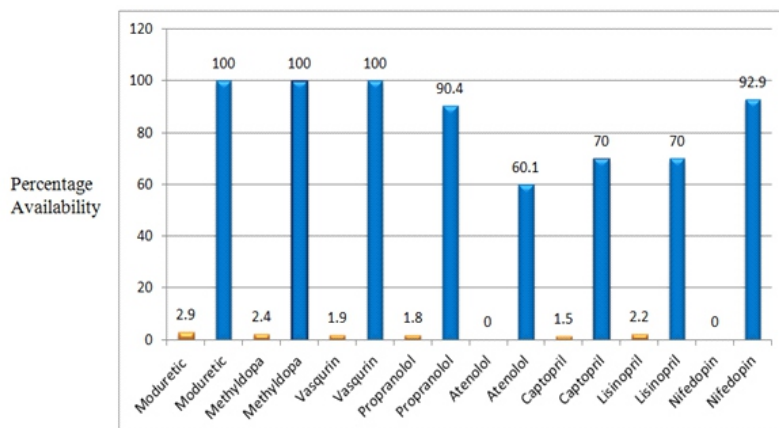


Figure 1: Percentage availability of antihypertensives in private sector (Branded Vs Generic)

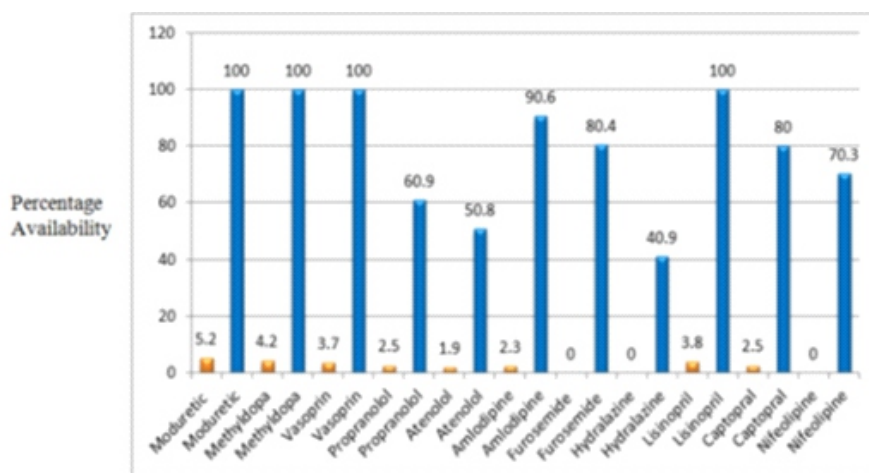


Figure 2 Percentage Availability of antihypertensives in the Public sector

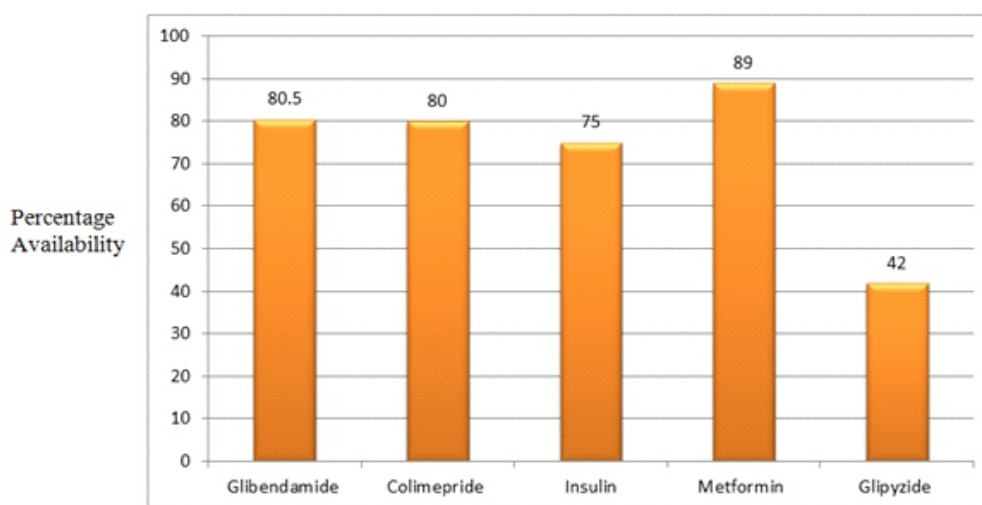


Figure 3 Percentage availability of Antidiabetics in private facilities.

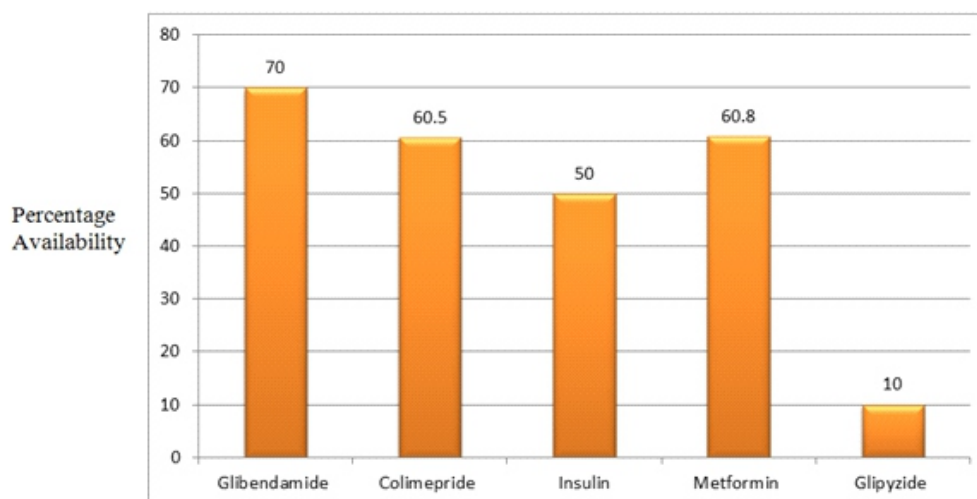


Figure 4 Percentage availability of antidiabetics in Public facilities.

In both public and private pharmacies availability of Branded antihypertensives and antidiabetics were very low compared to their generic counterparts. The mean availability of antihypertensives was 85.43% for generic and 1.59% for branded (Figure 1). In public pharmacies the mean availability of antihypertensives was 79.45% for generic antihypertensives, for branded antihypertensives it was 2.37%. Moduretic®, Methyldopa®, vasoprin® and Lisinoprin® were had percentage availability of 100%, Hydralazine had the lowest percentage availability 40.9% (Figure 2). The average availability of Antidiabetic in private sector was 73.3% less than 80%. Metformin, Glibenclamide and Colimepride had percentage availability of 80% or more in the private pharmacies (Figure 3). In public pharmacies, the mean availability of antidiabetics was 50.26%. None of the antidiabetics surveyed had availability of up to 80% in public facilities. Glipyzide had the lowest availability; of just 10%. (Figure 4).

4. Discussion

Mean availability of both antihypertensives were about 80%; 79.45% in public and 85.43% in private pharmacies. Mean availability of antidiabetics in both private and public centres were 73.3%, 50.26% respectively. Mean availability of both antihypertensives and antidiabetics were both 50% and 80% respectively. In 2016, Kalungia et al.^{10,13} found low-level availability of 22.2% to 37.8% at 15 surveyed public facilities in Lusaka Shiwei et al.; showed that of 20 antidiabetic drugs surveyed, 70.6% were below 50% availability. A study done by Andrea et al.; the mean availability of all medicines across pharmacies surveyed and the two surveyed baskets of medicines was low, this reflects the inadequate availability (<80%) of the majority of individual medicines. Our study reflected similar result with studies conducted by Andrea et al. and Aantjes et al.^{10,13} generic drugs were widely available compared to branded drugs and also studies conducted by WHO highlighted that it would be expected that the availability of generic medicines is generally better in public than in private sector facilities. Metformin and Glibenclamide were the most available antidiabetics. In similar studies, Metformin and

Glibenclamide were also found the most widely available medicines.

5. Conclusion

In both public and private pharmacies availability of branded antihypertensives and antidiabetics were very low compared to their generic counterparts. The poor availability of essential medicines is likely to be multifactorial, further facilitated by cash-flow constraints, inadequate local manufacturing capacities and resulting import dependencies in Nigeria.

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