RESEARCH PAPER

Mounting Expenditure on Drugs - What is the Sustainable Way Out?

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ABSTRACT

Expenditure on drugs is recognized as the driving force of escalating health expenditure. This high out of pocket expenditure on drugs often pushes households below poverty line. This expenditure is 'catastrophic' as it drags households into poverty. There are various demand side and supply side interventions designed to improve access to health care which include monetary and non monetary measures. The most popular strategy adopted today to reduce health expenditure burden is widening the health insurance coverage. But in India, only in patient care is covered under insurance. Expenditure on outpatient care is out of the scope of health insurance. This has serious implication upon people with non communicable disease who incur life long expenditure on drugs which lies out of the purview of health insurance. Out of pocket payments on outpatient visits are mostly met through own income and savings. Similar to inpatient care, purchase of drugs and expenses on diagnostics are the dominant components of out of pocket spending in case of out patient care also. So, making drugs physically as well as financially accessible on a sustainable basis is very important to solve the problem of mounting expenditure on drugs. This study examines the role played by Fair Price Medical Shops (FPMSs) in this regard.

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Introduction

Expenditure on drugs is an important reason for increase in health expenditure. 70% of health expenditure is out of pocket in nature. High out of pocket expenditure on drugs can push households to poverty. Such expenditure is called as ‘catastrophic’ (Singh et al,2020). There are demand and supply side interventions to improve access to health care (Jacobs et al, 2011). Free or subsidised provision of health care services, supply of drugs at low cost and protection through health insurance are part of such initiatives (Hooda, 2014). These interventions are expected to ameliorate the problem of high out of pocket expenditures.

The most dominant/popular strategy adopted today to reduce health expenditure burden is widening the health insurance coverage. But in India, only in patient care is covered under insurance. Expenditure on outpatient care is out of the scope of health insurance (Kotwani,2009). This has serious implication upon people with non communicable disease who incur life long expenditure on drugs which lies out of the purview of health insurance. Out of pocket payments on outpatient visits are mostly met through own income and savings. Similar to inpatient care, purchase of drugs and expenses on diagnostics are the dominant components of out of pocket spending in case of out patient care also(Gupta et al, 2016). So, making drugs physically as well as financially accessible on a sustainable basis is very important in a society with large number of people with non communicable diseases. Physical accessibility implies physical availability of drugs at geographically accessible locations. For drugs to be financially accessible, it must be available either at free of cost or at a discounted price.

Govt. has adopted a number of legal, institutional and other measures to improve access to essential drugs so as to reduce financial burden due to expenditure on drugs (Sakthivel, 2008). As health is a State subject in India, these policy measures vary from State to State. It is widely acknowledged that centralized procurement of drugs can improve the access to essential drugs. The most successful model in the country is that of TNMSCL in Tamil Nadu. Following that model, Kerala established a centralized agency

called KMSCL to procure drugs for the public health facilities of the State. Along with this, to improve access to medicine, various retail pharmacy chains were set up to sell drugs at discounted prices. This particular paper discusses the effectiveness of selected Fair Price Medical Shops by comparing the availability and price information of selected drugs in these shops with that of other private retail pharmacies. FPMS are initiatives to make drugs affordable for people by offering them at a discounted price. But for the service of FPMS to be effective, locally demanded drugs must be available in these pharmacies. So, this study intends to compare the availability status of 18 drugs which were identified from a household survey conducted in the study area. It is highly relevant in a society like Kerala where prevalence of non communicable disease is proportionately high.

Review of Literature

There are various studies discussing the issue of access to medicine. Most of these studies follow WHO/HAI methodology to collect data on availability, price and affordability of essential drugs. The studies either cover any one aspect of access ie price (Goyal et al 2015) or availability (Carasso et al,2009, Collin et al,2018), or assess access to medicine by covering more than one aspect ie price, availability and affordability (Nguyen et al,2015,Kotwani, 2009,Satheesh et al,2020). The studies either assessed access to medicine for some specific disease(Kotwani, 2009, Kotwani 2013, Satheesh et al 2020) or generally consider drugs for some common ailments(Goyal et al, 2015). Even though there are studies discussing access to drugs for different Non Communicable Diseases individually (Kotwani, 2009, Satheesh 2020), there are not many studies dealing simultaneously with access to medicine for a group of commonly prevalent NCDs. Most of the studies focuses on access to medicine across public or private facilities or both (Carasso, 2009, Kotwani, 2013, Millard 2018, Kotwani 2009). And very few studies considered access to medicine across more types of pharmacies (Satheesh et al, 2020, Godwin 2008). It was generally observed that availability of essential drugs was poor in public sector even though procurement prices are very low there. On the other hand, private facilities have a better availability of essential drugs, but comparatively, prices are higher in private sector. Thus, public sector shows low availability, but high affordability and private sector shows high availability, but low affordability.

It was agreed among the scholars that there exists various barriers to access to medicine (HLEG 2011, Jacobs et al 2011).High drug prices, unreliable and inefficient procurement and distribution and supply chain management issues were one of the most frequently cited barriers to access to medicine (HLEG, 2011). Kinterman (2001) pointed out that affordability of drug prices as one among the important conditions to be met to ensure access to essential drugs. Sorato (2020) in their review of various measures adopted by Govts to improve access to medicine, underlines supply chain management in improving access to medicine. There were not many studies assessing access to drugs across different types of pharmacies each having a separate procurement and supply chain management mechanism. In this context, the present study assesses prices and availability of 18 drugs across four different types of pharmacies in the study area. The study simultaneously consider the most prevalent NCDs of the State namely diabetes, hypertension, Cholesterol and CVD.

Methodology for the drug shop survey

This is a part of a descriptive and cross sectional study conducted among NCD patients in Thrissur district to understand how accessible the commonly used drugs are. A list of 20 drugs was identified from a household survey conducted among the NCD patients of the study area. Following WHO/HAI guidelines with some modifications, a survey was conducted among 90 selected drug shops of the study area to get information on availability and price of the selected drugs. The drug shop survey was conducted among four different types of drug shops. The drug shops surveyed were pharmacies of public health facilities (PHCs, CHCs, Taluk hospitals, district hospital etc.), Neethi Medical Stores under Consumerfed (a fair price medical shop semi governmental in nature), Jan Aushadhi Medical Stores selling generic drugs under Pradhan Mantra Bharatiya Jan Aushadhi Pariyojana scheme and private retail pharmacies retail pharmacies.

Data were collected from 30 public health facilities, 30 fair price medical shops and 30 private retail pharmacies retail pharmacies from one urban and five rural areas. The 30 fair price medical shops consist of 15 Neethi Medical Stores which is the prominent fair price medical store in State working under Consumerfed and 15 Jan Aushadhi Stores under PMBJP scheme. Price information was collected on low priced generic

equivalent (LPG), high priced generic equivalent (HPG) and most sold generic equivalent (MSG). As JAS sell generic drugs only, there was only one price information available in JAS. As public health facilities provide drugs free of cost, they were considered only for availability analysis, and not for price comparison. The drugs were considered available if at least one unit of the medicine was physically present in the drug store at the time of survey.

Selection of drugs

The drugs of which the price and availability information was collected were selected from a household survey conducted among NCD patients in the study area. The list of drugs selected, reflects the local requirement. A total of 18 drugs were selected from different therapeutic categories for treating diabetes, hypertension, cholesterol and cardio vascular diseases.

Results

Availability of selected drugs

The selected drugs were considered available if at least one unit of them were physically present in the drug shop surveyed at the time of survey. A comparison of availability is done within each type of pharmacy and also between different types of pharmacies. Thus, within sector and cross sector comparison of availability was being made. It is commonly accepted that if availability is less than or equal to 30, it is considered as very low availability. 30-49% implies low availability, 50-80% implies fairly high availability and if availability is greater than 80%, then it is considered as high availability.

Table: Availability of selected drugs

Medicine	**Govt Hospital Pharmacy(n=30)**	**Neethi Medical Stores (n=15)**	**Jan Aushadhi Stores (n=15)**	**Private retail pharmacies Stores (n=30)**	**Total (n=90)**
Anti diabetic					
Metformin 500 mg	28(93%)	15(100)	13(86.6)	30(100)	88(97.7)
Glimepiride 1 mg	30(100)	15(100)	12(80)	30(100)	87(96.6)
Glibenclamide 5 mg	0(0)	13(86.6)	13(86.6)	28(93)	54(60)
Voglibose 0.2 mg	14(46.6)	13(86.6)	13(86.6)	22(73.3)	62(68.8)
Insulin injection 40IU/ml	24(80)	15(100)	11(73.3)	30(100)	80(88.8)
Anti hypertensive					
Amlodipine 5mg	30(100)	15(100)	13(86.6)	30(100)	88(97.7)
Telmisartan 40 mg	30(100)	15(100)	13(86.6)	28(93)	86(95.5)
Losartan 50 mg	30(100)	15(100)	11(73.3)	30(100)	86(95.5)
Nebivolol 5 mg	6(20)	12(80)	10(66.6)	28(93)	56(62.2)
Clonidine 100 mcg	3(10)	13(86.6)	10(66.6)	26(86.6)	52(57.7)
Statins					
Atorvastatin 10 mg	24(80)	15(100)	13(86.6)	30(100)	82(91)
Rosuvastatin 5 mg	0(0)	14(93.33)	13(86.6)	28(93)	55(61)
Anticoagulant & other CVD drugs					
Aspirin 75 mg	24(80)	15(100)	0(0)	30(100)	69(76.6)
Clopidogrel 75 mg	24(80)	15(100)	14(93.33)	30(100)	83(92.2)
Isosorbide dinitrate 10 mg	25(83.33)	13(86.6)	13(86.6)	27(90)	78(86.6)
Metoprolol succinate 25 mg	24(80)	13(86.6)	1(6.67)	26(86.6)	64(71.1)
Carvedilol 3.125 mg	7(23.3)	14(93.3)	9(60)	26(86.6)	56(62)
Enalapril	16(53.3)	13(8	0(0)	30(100	59(6

l 2.5 mg		6.6)		)	5.5)
Average Availability of the sector	**11(61)**	**12(66.67)**	**17(94)**	**17(94)**	

Source: Primary Survey

Availability of each medicine

Most of the selected drugs were highly available (>80%) in the study area. But no medicine reported 100% availability. Highest availability(97.7%) was reported in case of Metformin and Amlodipine. Along with these, Glimepiride, Telmisartan, Atorvastatin and Clopidogrel reported >90% availability. The other drugs that were highly available(>80%) include Insulin injection and Isosorbide dinitrate. All the remaining drugs were reported fairly high availability (50-80%). Even though the aggregate availability of selected drugs was satisfactory, availability varied considerably among different types of pharmacies and among different types of drugs.

Availability among therapeutic categories

Among the anti diabetic drugs, Metformin & Glimepiride were the most commonly available drugs with more than 90% availability. Availability of insulin was also fair(88.8%). The least available anti diabetic drug among the selected drugs was Glibenclamide (60%). The average availability of anti diabetic drugs was computed as 82.4%.

Similar to anti diabetic drugs, anti hypertensive drugs were also highly available. Except Nebivolol(62.2%) and Clonidine(57.7%), the other drugs, ie Amlodipine, Telmisartan and Losartan reported more than 90% availability. The average availability of anti hypertensive drugs was 81.9%.

There were two Statins in the selected list of drugs; Atorvastatin & Rosuvastatin. The two drugs which are used to treat cholesterol showed wide disparity in availability. While Atorvastatin was available in 91% of the facilities surveyed, Rosuvastatin was available in 61% of the facilities only. This has limited the average availability to 68.5%.

The availability of CVD drugs was low compared to other therapeutic categories. The aggregate availability of this category medicine is 75.7%. Except Clopidogrel and Isosorbide Dinitrate, no other drugs of the category were highly available(>80%). The least available medicine of this category is Carvedilol (62%).

Availability – A Cross Sector Comparison

Govt Hospital Pharmacies and Jan Aushadhi Stores lagged behind private retail pharmacies and neethi medical stores in the availability of all the drugs in the selected list. An exception to this is 100% availability of some drugs in the Govt Hospital Pharmacies. GHP reported 100% availability in case some drugs like Glimepiride, Amlodipine, Telmisartan, Losartan etc. Along with these, >90% availability was reported in case of Metformin(93%) only. On the other extreme, certain drugs lie Glibenclamide & Rosuvastatin were totally unavailable in GHPs. GHP reported very low availability in case of Nebivolol(20%), Clonidine(10%), Carvedilol(23.3%) and Thyroxine (23.3%). Availability of certain drugs was better in GHP when compared to JAS. But at the same time, the availability of some other drugs was better in JAS.

Except in case of some drugs like Enalapril, Isosorbide Dinitrate, Nebivolol and Glibenclamide, NMS reported a better availability than Private retail pharmacies medical stores. All the selected drugs reported a fairly high availability (>80%) in NMS. The least availability was reported in case of Nebivolol(80%).

There was no 100% availability of any selected drugs among the JAS surveyed. Highest availability was reported for Clopidogrel (93.33%). This is a difference from other types of medical stores were highest availability was reported in case of common drugs for diabetes and hypertension. Enalapril and Aspirin were totally unavailable in JAS. Most of the drugs reported either very high availability (>80%) or fairly high availability(50-80%). Only Metoprolol had a low availability of 6.67%.

The average availability of the selected drugs was highest in Neethi medical stores and private retail pharmacies pharmacies followed by Jan Aushadhi Stores and Govt hospital pharmacies.

Private retail pharmacies medical stores and NMS show a consistent or fairly high availability of all of the drugs selected. But in JAS and GHP, availability of some drugs are fairly high, but at the same time some drugs are totally unavailable. People usually prefer to get all their drugs from a single source rather than approaching multiple sources to get all the prescribed

drugs. Disparity in availability may affect the households' utilization of the facilities.

Price comparison of selected drugs

The patient purchasing price of the selected drugs were collected by means of primary survey in selected medical stores. As the drugs were provided at free of cost in public health facilities, they were avoided from the analysis of prices. Price information on Lowest Priced Generic (LPG) equivalent, Most Sold Generic (MSG) equivalent and High Priced Generic(HPG) equivalent for each of the selected medicine were collected. The pharmacists of the selected retail medical stores were asked to report the highest priced brand , lowest priced brand and most sold brand of each of the medicine in the list. Innovator brand/originator brand is avoided from the survey as it is less prominent in Indian markets. As Jan Aushadhi Stores sell generic drugs only, there was only one price information for each medicine in these stores. Median unit price of each medicine was estimated and to facilitate international comparison, the prices were expressed as Median Price Ratio (MPR). The MPT is the local median unit price of a medicine in comparison with the median unit price found in Management Sciences for health (MSH) International Medical Products Price Guide 2015.

Table: Median Price Ratio(MPR) of selected drugs

Medicine	**Median Price (Rs.) in Neethi Medical Stores**			**Median Price (Rs.) in Private retail pharmacies Medical Stores**			**Median Price (Rs.) in Jan Aushadi Stores**
	LPG	**MSG**	**HPG**	**LPG**	**MSG**	**HPG**	
Metformin 500 mg	0.89	1.73	1.73	1.74	1.57	2	0.56
Glibenclamide 5 mg	3.17	3.17	3.17	1.14	3.64	3.65	1.23
Insulin injection 40IU/ml	0.74	0.74	0.74	0.97	0.97	0.97	0.56
Amlodipine 5mg	1.02	2.21	2.23	1.18	2.54	2.59	0.45
Losartan 50 mg	0.37	0.76	0.76	0.44	0.88	0.88	0.13
Atorvastatin 10 mg	0.55	1.45	1.45	0.65	1.61	1.61	0.21
Aspirin 75 mg	0.29	0.29	0.29	0.33	0.33	0.33	
Clopidogrel 75 mg	0.79	0.79	1.04	0.79	0.99	1.08	0.24
Isosorbide dinitrate 10 mg	0.09	0.09	0.09	0.11	0.11	0.11	0.004
Median MPR	**0.74**	**0.79**	**1.04**	**0.79**	**0.99**	**1.08**	**0.24**

Source: Primary survey

MPR is obtained by dividing the median unit prices of each medicine with the international reference price.

Comparison of MPR across the pharmacies

MPR for all drugs considered was the lowest in JAS. This is quite expected as JAS sell generic versions of the branded drugs at very low prices. But Aspirin tablets were totally unavailable in JAS. MPR of LPG in NMS was lower than that private retail pharmacies stores. Only in case of Clopidogrel, MPR value is same(0.79) for both type of pharmacies. In case of MPR of MSG also, this pattern is followed except for Metformin. MPR of Metformin (MSG) in NMS(1.73) is higher than that in private retail pharmacies. Similar is the pattern of HPG.

MPR across drugs

In NMS, lowest MPR of LPG was found for Isosorbide Dinitrate (0.09). Highest MPR for LPG was 3.17 for Glibenclamaide. This was true for MSG also. But highest MPR of HPG was 3.17 for Glibenclamide and lowest was for Isosorbide Dinitrate (0.09).

In private retail pharmacies, lowest MPR of LPG was 0.11 for Isosorbide and highest was 1.74 for Metformin. The MPR of LPG of Glibenclamide was lower than that in NMS. In case of MSG, lowest MPR was for Isosorbide and highest was 3.64 for Glibenclamide. For HPG also, the very same pattern is repeated.

The lowest MPR value in JAS was 0.004 in case of Isosorbide and highest was 1.23 for

Glibenclamide. Glibenclamide is the only medicine in JAS with MPR > 1.

Discussion

Availability of the selected drugs is satisfactory across different pharmacies in the study area. It was clear from the literature that private retail pharmacies have comparatively higher availability of drugs and public health facilities lag behind. In this study, Neethi Medical Stores, a fair price medical shop, show the same availability of private pharmacies. JAS also show a better availability than GHP. Even though GHP supply drugs at free of cost, they fall short in availability than all other types of pharmacies in making drugs available. Also, some of the drugs in the list were totally unavailable in GHPs. Even though some of the drugs surveyed have 100% availability, availability of some other drugs was very poor. Thus, the availability of drugs was not consistent in GHPs. Author is skeptical about reliable supply of drugs from GHPs. Even if people incur no cost in purchasing drugs from GHP, may or may not get all the required drugs from GHPs. The qualitative information from the study points that people prefer to get all their drugs from a single source rather than visiting multiple pharmacies to get all their drugs. Among NCD patients, especially those with diabetes and hypertension, proportion of people undergoing regular check ups is very low. They prefer purchasing drugs over the counter. So, the public hospital routine of providing NCD drugs for mostly 15 days per visit discourages people to seek health care from there. Seeking health care for NCD and getting drugs free of cost in public health facilities demand more frequent visits to the hospital. More frequent visits mean more time cost of visiting the facility, waiting time, more lost wages, more travel cost etc.

JAS offer the drugs at the lowest price. But, there also, some drugs of some particular dosage are totally unavailable. Similar to the case of GHP, in JAS also, some drugs are 100% available, but some other drugs are poorly available. Yet, in overall availability, JAS perform better than GHP.

Efficiency in the supply chain management may be crucial determinant of availability as the considered pharmacies, each of them, have a procurement and supply chain management mechanism. It is evident from the literature that mode of procuring drugs is relevant in lowering the selling price of drugs. In these two respects (procurement & supply chain management), GHP and JAS lag behind NMS and pvt pharmacies. Even though KMSCL is the centralized agency to procure and distribute drugs for public health facilities in the State, managerial inefficiencies and payment delays often cause disruptions in the availability of drugs in GHPs. KMSCL supplies drugs to public health facilities in response to an list of drugs prepared in advance. So, if the current period demand for the drugs is more than what is expected, there are chances for drugs to be out of stock. This deficiency in supply can be managed by local purchase of drugs which is highly dependent upon the fund allotted by local self govt for the same. So, the performance of a Govt hospital pharmacy is dependent upon many external factors. It has limited operational freedom to affect availability and prices.

JAS too face some supply chain difficulties. Even though there are a couple of warehouses, many JAS entrepreneurs complained about insufficient and irregular supply of drugs. Simultaneous purchase of from all the reachable warehouses was suggested by them as a probable solution to this, which is not manageable for most of the stores. Compared to GHP & JAS, Neethi medical stores enjoy more operational freedom. By satisfying a minimum purchase from Consumerfed, if needed, NMC can meet the their demand by purchasing from other distributors. This helps to improve the availability of drugs in NMS. They can alter the supply catering the local demand.

Conclusion

This paper discuss the role played by FPMSs in improving ATM situation and thereby mitigating the rising health care costs. There are many studies assessing availability and price of essential drugs in different types of pharmacies. Most of such studies compare availability and price of selected drugs between private and publicly funded facilities. The present study considered four different types of retail pharmacies; pharmacies in public health facilities, Neethi medical stores – a semi govt pharmacy under Consumerfed, Jan Aushadhi stores under PMBJP scheme and private retail pharmacies. Available literature evidences that public sector has comparatively lower availability than private sector. But apart from many studies, here the public health facilities have a fairly high availability. In the price analysis, NMS, which enjoy comparatively better autonomy in managerial and operational aspects, was identified as a strong competitor of private pharmacies. NMS has better availability than GHP and JAS and prices lower

than private pharmacies. Even though JAS sell the drugs at the lowest price, they sell generic versions of the drugs. As most of the doctors prescribe drugs in their brand name, and as majority of the patients are reluctant to substitute the prescribed medicine by some other brand or generic, either due to ignorance or lack of trust, the low price offered by JAS is probably under utilized. More studies from the consumers' perception must be done to understand this more. Thus, for the time being, in a society where most of the prescriptions are in brand names, a pharmacy like NMS, that sells branded drugs at discounted price can be treated as a replicable model to improve access to medicine. Also, it is evident that rather than being rigid, a pharmacy can improve ATM and mitigate mounting health care costs, if it is provided with some kind of autonomy.

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