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UNDERSTANDING THE PATTERN OF PRESCRIBED MEDICINES IN PUBLIC HEALTH FACILITIES OF BIHAR, ODISHA AND UTTAR PRADESH

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Executive Summary

The Public Health System played a very crucial role in delivering health services during the COVID-19 pandemic. Furthermore, the availability and accessibility of medicines are chronic issues in public health facilities in India. Hence, Oxfam India conducted a rapid survey cum “Prescription Analysis” to understand the status and pattern of what kind of medicines have been prescribed by the government doctors in public health facilities in Bihar, Odisha and Uttar Pradesh states of India. This was part of its campaign on ‘Access to Medicines’ in Public Health Facilities. This covered 16 public health facilities in five districts and included 198 prescriptions from 198 patients; as such, the survey captured the prescriptions for one episode of illness. This included 628 different medicines.

Key Findings:

Despite Government doctors being expected to not prescribe medicines to be purchased externally in any public health facility, the study reveals that on average 3.2 medicines per person were prescribed externally for each episode of illness. This resulted in a total out of pocket expenditure of 374.4 Rupees per patient per episode of treatment. Despite the Government mandating all government doctors to prescribe only generic medicines, doctors prescribed a maximum of branded medicines (65.8%) with most having a single form (68.2%). This contrasted with Generic (34.2%) and combination form (31.8%). Maximum branded medicines were prescribed at Community Health Centre (70.5%) followed by 60% in District Hospitals and 51.3% of generic medicines were prescribed at Primary Health Centres. Patients were estimated to have to pay 2.1 times more than for generic medicines. The average cost incurred was 176 per woman and 198 INR per man incurred on a single episode of illness. Cross-state differences were also examined. Branded medicines were more likely to be prescribed to 61% of men patients and 49% of women patients. The costs for both branded and generic prescribed medicines were high for men than for women patients.

This study recommends strengthening the implementation of the ‘free medicines for all’ policy by improving timely procurement and indent-supply systems in public health facilities. Government medical officers need to be given systematic, updated training on generic medicines and updated materials must be disseminated to doctors in public and private facilities to encourage generic prescription. Mass awareness programs should be undertaken to build awareness about generic medicines and a functional grievance redressal mechanism set up for the patients.

INTRODUCTION

Achieving universal healthcare is critically dependent on ensuring availability, accessibility, affordability and quality of medicines. However, India's centre and state health expenditure amounts to 2.1% of GDP¹ as of 2021-22.² Out-of-pocket expenditures (OOPE) are a major component of the total health expenditure, constituting 70% of all expenditures. 67 % of the healthcare spending of Indians is on the purchase of medicine alone³. While affordability has received policy focus, the availability of essential medicines has remained an area of grave concern. Hence, one of the important objectives of Indian health policy is to provide all the essential medicines at an affordable cost for the public⁴. In developing countries like India, the availability of medicines is irregular, especially in public health facilities⁵. Indeed, along with various other efforts, the central government launched The Pradhan Mantri Bhartiya Jan Aushadhi Pariyojna (PMBJP)⁶ in 2008 with a mandate to sell quality generic medicines in India.

As per government policy and explicitly mentioned in the Indian Public Health Standard (IPHS)⁷ guidelines, under the 'free medicines for all' policy, the free medicines will be generics and doctors working in health facilities will be required to prescribe generic drugs listed on state-determined "essential drug lists" and face penalties if they fail or decline to do so, though the nature of those penalties has not yet been specified.⁸

During the recent COVID 19 pandemic the Public Health System played a very crucial role in providing health services in India⁹. Furthermore, the availability and accessibility of medicines are chronic problems including those for COVID and non-COVID diseases.¹⁰ Unfortunately, the shortage of medicines¹¹ and huge Out of Pocket Expenditure (OoPE) continued unabated during the pandemic. Given the under-resourced public health system, the focus of the government was on responding to the COVID 19 pandemic resulting in the provision of medicines for non-COVID diseases being neglected¹².

Hence, as a part of the campaign on 'Access to Medicines' in Public Health Facilities of India initiated by Oxfam India, a rapid survey was conducted to understand the status and pattern of medicines prescribed by government doctors in public health facilities in Bihar, Odisha and Uttar Pradesh states of India. For conducting this rapid survey, the 'Prescription Analysis' method was used where actual prescriptions were collected from patients and analysed. Though the sample of the study is limited due to COVID 19, this survey provides some key insights on the trends and patterns in prescribing medicines in the selected public health facilities and how these are linked to OoPE.

¹ <https://pib.gov.in/PressReleasePage.aspx?PRID=1793820>

² <https://www.indiabudget.gov.in/economicsurvey/doc/echapter.pdf>

³ https://main.mohfw.gov.in/sites/default/files/NHA_Estimates_Report_2015-16_0.pdf

⁴ Essential medicines: An Indian perspective Maiti R, Bhatia V, Padhy BM, Hota D - Indian J Community Med (ijcm.org.in)

⁵ Accessibility and use of essential medicines in health care: Current progress and challenges in India - PMC (nih.gov)

⁶ <http://janaushadhi.gov.in/FAQ.aspx>

⁷ <https://nhm.gov.in/images/pdf/guidelines/iphs/iphs-revised-guidelines-2012/primay-health-centres.pdf>

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3478367/>

⁹ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7999346/>

¹⁰ https://journals.lww.com/jfmpc/Fulltext/2021/10070/Repercussions_of_lockdown_on_primary_health_care.2.aspx

¹¹ <https://www.frontiersin.org/articles/10.3389/fphar.2020.582154/full>

¹² <https://www.who.int/news/item/23-04-2021-covid-19-continues-to-disrupt-essential-health-services-in-90-of-countries>

THE PRESENT STUDY

The objective of the study:

To understand the pattern of medicines prescribed in public health facilities.

Study design

This is a rapid survey involving the review of prescription slips given to OPD patients in selected Public Health facilities.

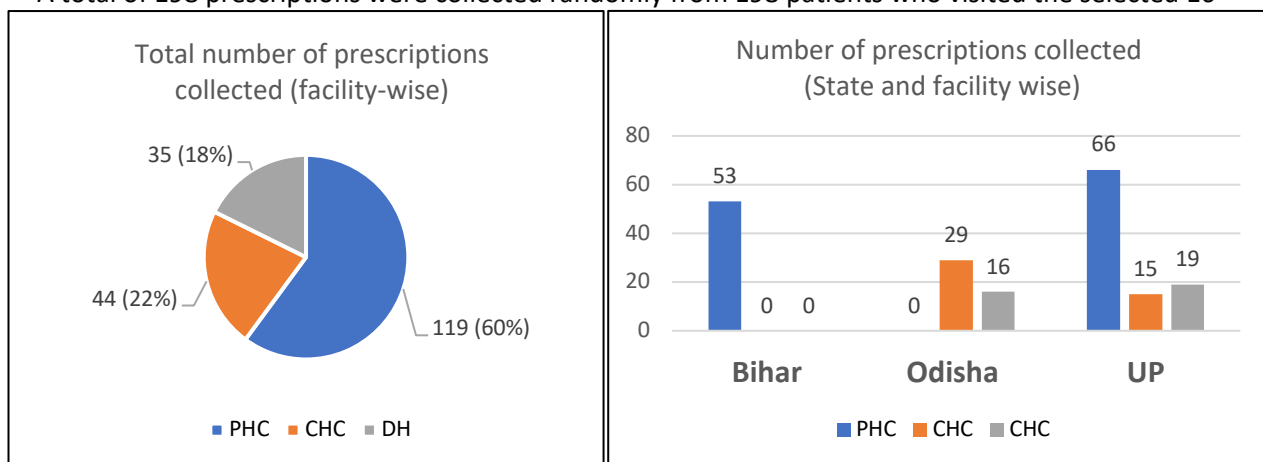
Study settings

This study was carried out between November and December 2021 in 16 selected Public Health facilities from five districts of Bihar, Odisha and Uttar Pradesh. The rising third wave of the pandemic created challenges in reaching out to the patients contributing to smaller sample size.

Purposive sampling was done by Oxfam India in collaboration with local Health networks and groups in these selected three states. The 16 public health facilities were selected purposively which include nine Primary Health Centres (PHCs), three Community Health Centres (CHCs) and four District Hospitals (DHs) from the Purnea district of Bihar; Kalahandi and Bhawanipatna districts of Odisha; Chandauli & Mahoba districts of Uttar Pradesh. The districts were geographies where Oxfam India had its Access to Medicines Campaign.

Study Population

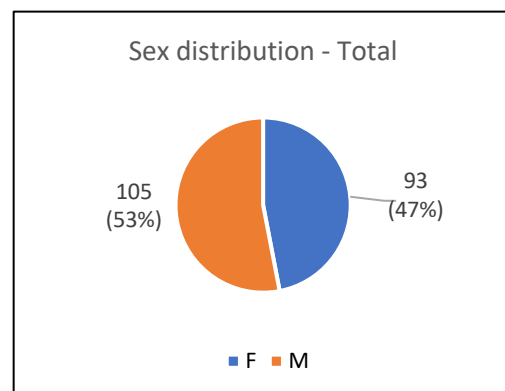
A total of 198 prescriptions were collected randomly from 198 patients who visited the selected 16



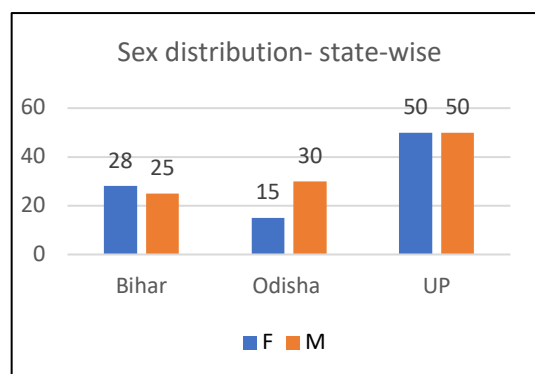
Public Health facilities on the day of data collection. All the patients were seeking Out Patient Department (OPD) based healthcare services at Primary Health Centres (PHCs), Community Health Centres (CHCs) and District Hospitals (DHs).

Out of 198 prescriptions, 60% (119) were collected at the PHC level; 22% (44) prescriptions were at CHCs and 18% (35) were collected from District Hospitals.

In Bihar, a total of 53 prescriptions were collected from the PHCs only, whereas, in Odisha, 29 and 16 prescriptions were collected from CHCs and DHs



respectively; in Uttar Pradesh attempt was made to cover and collect prescriptions from all types of public health i.e. 66 prescriptions in PHCs, 15 from CHCs and 19 from DHs. Collecting prescriptions is a sensitive and ethical issue in the context of confidentiality and privacy of the information related to the patient. Hence, an attempt was made to collect the prescriptions from the areas and health facilities where the consultants have some rapport with the patients through local Civil Society Organizations as well as officials from the public health system.



In terms of the patients' sex distribution, out of a total of 198 patients, 105 patients were women and 93 were men. Looking at the state-wise distribution shows that in Bihar and UP the gender distribution was almost equal; in Odisha, there were 15 women and 30 men respondents.

Data collection and analysis

In each state, prescriptions were collected by a team of three independent consultants with each consultant anchoring the process in each state. They visited each selected public facility and interacted with OPD patients outside the centre premises. Oral informed consent was taken by the consultants who also took photographs of the prescriptions received by patients.

The analysis of prescriptions was done mainly in terms of categorizing the prescribed medicines into single/combination forms as well as whether they come under the generic or branded categories. While calculating the cost of each medicine, a qualified pharmacist who is associated with the state health network in that particular intervention state was identified and consulted; the cost of all medicines was verified through the search on the website of medindia.net¹³

Limitations of the study

While collecting prescriptions, consultants faced challenges, in getting prescriptions from patients which is reflected in the small sample size. Local health networks and groups helped in getting the sample. While calculating the cost of each medicine, we observed major state-wise differences shared by the pharmacists consulted in each state as well as dissimilarities in the medicines' cost between the information shared by pharmacists and the findings of the online search. In these instances, we have used information available online as the data point. This may have resulted in some underestimates of the extent of OoPE incurred by patients.

Family economic status, SC, ST, disability and minority status of the patients were not derivable from the prescriptions and hence analysis was not done based on this status.

Given that this is a prescription analysis, interviews with the prescribing doctors to understand the patterns could not be undertaken. At the same time, this is based on the analysis of the prescriptions and does not necessarily translate into the medicines being purchased and consumed by patients.

¹³ https://www.medindia.net/doctors/drug_information/home.asp

FINDINGS

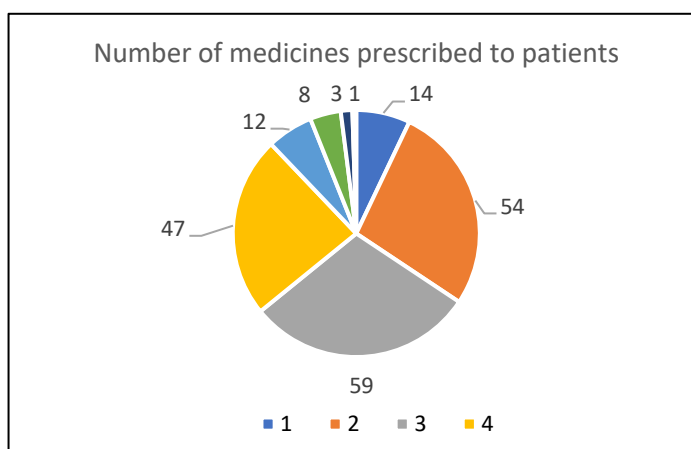
A. Types and forms of medicines prescribed

**On average 3.2 medicines per person were prescribed for each episode of illness.
The number of medicines prescribed varied between one and eight for one episode of illness.**

The Union and state governments declared a policy of Free medicines for All in 2012¹⁴. However, the presence of the prescriptions used in this analysis shows that in the selected public health facilities, government doctors continue to prescribe medicines and ask patients to purchase them from outside.

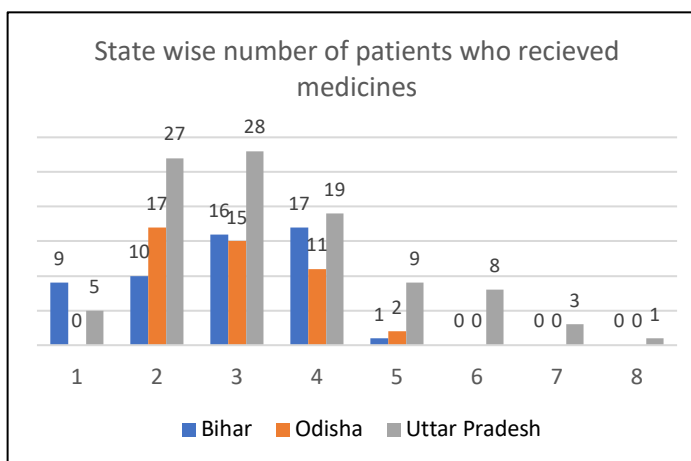
In this study, a total of 628 medicines were analysed which had been prescribed to the 198 patients. This ranged from one medicine to a maximum of eight types of medicines being prescribed for one episode of illness.

Out of 198 patients, 59 patients i.e. the maximum number of patients received prescriptions for three types of medicines followed by 54 and 47 patients who received prescriptions for two and four types of medicines respectively. The prescription for the maximum 8 types of medicines was received by only one patient. **On average 3.2 medicines per person were prescribed for each episode of illness.**



Of the 628 medicines, 328 were prescribed to men and 300 to women. **This amounts to 3.5 medicines per person being prescribed for men and 2.9 medicines per person for women.**

State-wise analysis showed that in Uttar Pradesh a maximum of eight types of medicines were prescribed whereas five types of medicines were prescribed in Bihar and Odisha.



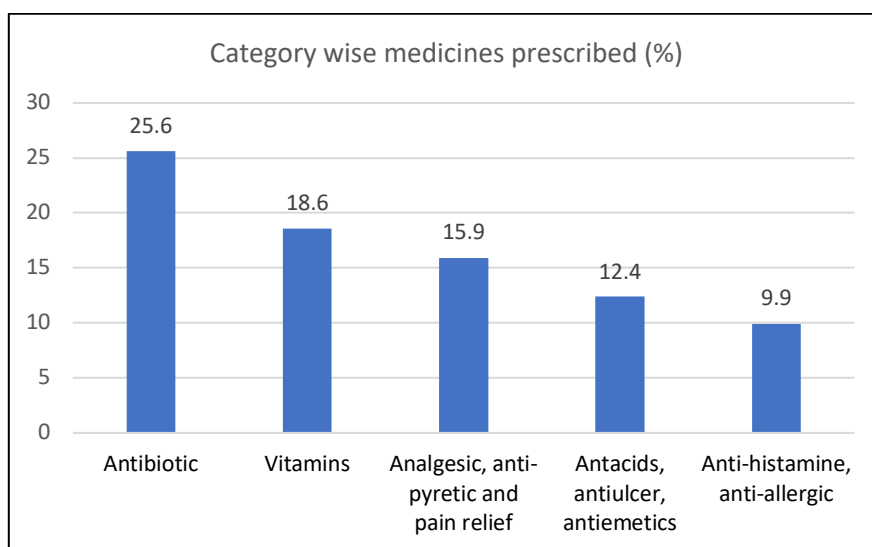
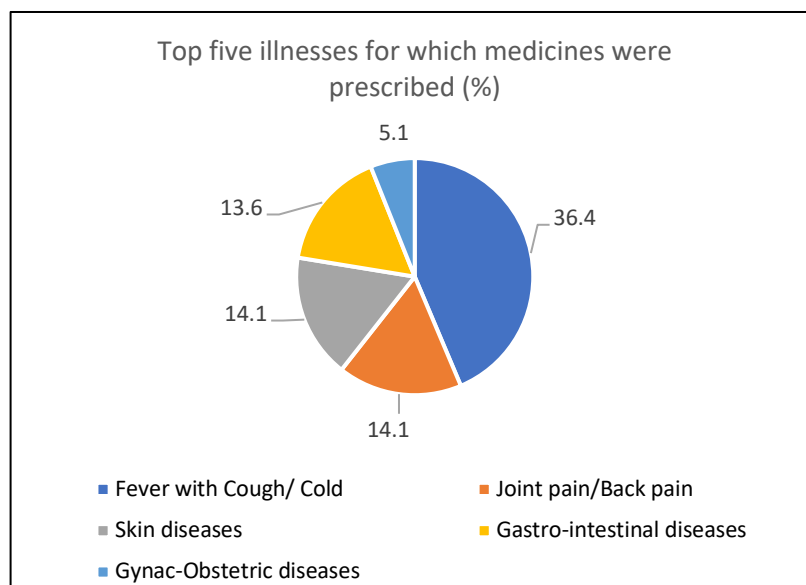
In UP, 28 patients (of the total 100 patients) received three types of prescribed medicines followed by two types of medicines for 27 patients. In Bihar, out of 53 patients, 17 and 16 patients received prescriptions for four and three types of medicines respectively. In Odisha, out of 45 patients, two types of medicines were prescribed to 17 patients followed by three types of medicines to 15 patients.

B. Types of illnesses and categories of prescribed medicines

Fever with cold/cough; Joint or back pain; skin diseases; Gastrointestinal diseases and Gynae-Obstetric diseases are the top five illnesses for which the medicines were prescribed.

While assessing what illnesses the medicines were prescribed against, it emerged that these included common diseases. A total of 628 medicines were prescribed for around 15 types of illnesses. However, the present analysis only covers the five illnesses for which the maximum number of prescriptions were given. Within this list of top five illnesses, the maximum number of medicines (36.4%) were prescribed for fever with cough or cold. This is a result of

a fallout of the pandemic and the fact that the survey was undertaken in mid-winter. In contrast, only 5.1% of medicines were prescribed against diseases related to Gynaecology and obstetrics.



Looking at the categories of the medicines prescribed, it was observed that 15 kinds of medicines were being prescribed. Out of the 15 kinds of prescribed medicines, we focus on the five which were prescribed more than 10%. Of these, the maximum prescriptions (25.6%) were for antibiotics. This is followed by vitamins which account for 18.6% of the medicines prescribed.

While this analysis is limited by the small sample size, it would be critical to flag the high prescription rates of antibiotics. 161 prescriptions of antibiotics were found for 198 patients in this single episode of treatment. This translates into 1257 prescriptions per 1000 persons during a single episode of

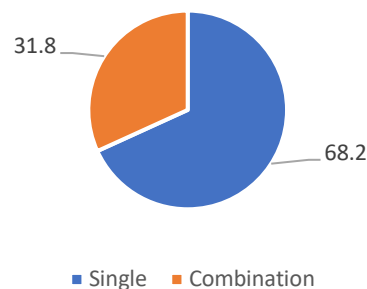
treatment. In an earlier analysis, India was found to have 412 prescriptions of antibiotics per person per year¹⁵. This is significant given the evidence of rising antibiotic resistance¹⁶ in India and other public health impacts¹⁷. At the same time, antibiotics tend to be relatively expensive drugs. Clearly defined treatment protocols, especially at higher level hospitals are lacking.

C. Patterns in prescribing branded and generic medicines

- Government Doctors prescribed more branded medicines (65.8%) compared to Generic (34.2%) and single (68.2%) compared to combination forms (31.8%).
- Branded medicines were most likely to be prescribed at Community Health Centres (70.5%) followed by 60% in District Hospitals and 51.3% of generic medicines have been prescribed at the Primary Health Centre level.
- Branded medicines were more likely to be prescribed to men (61%) patients than women (49%).

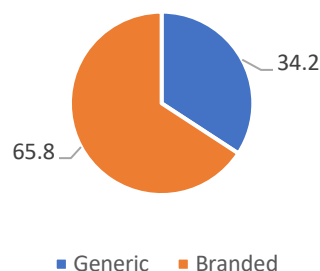
As per the Government's guidelines, doctors should prescribe drugs with a generic name, but this study showed that branded medicines constituted 65.8% (413 out of 628) of the medicines prescribed. In contrast, 34.2% (215 out of 628) of the medicines were generic. 110 of the 198 patients received prescriptions for both Branded and medicines. 88 patients were prescribed only generic medicines. Patients are getting a majority of branded medicines, which means they have to pay more as their cost is higher than for generics.¹⁸

Single vs combination of medicines prescribed (%)



Doctors also prescribed more single form (68.2%) medicines compared to combination forms (31.8%). Only 7% of generic medicines were prescribed in combination form in comparison with 27.2% of branded medicines. 40.9% of single medicines were prescribed under the branded category and 24.8% of single medicines under the same category.

Generic vs branded medicines prescribed (%)



In Bihar, 54.7% of branded medicines were prescribed compared to 45.3% generic. The maximum number (91%) of branded medicines were prescribed in Odisha. 60% of generic medicines were prescribed in Uttar Pradesh.

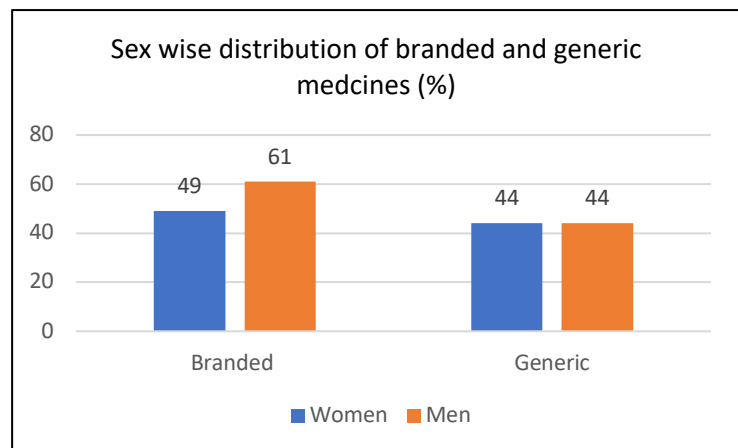
¹⁵ <https://www.downtoearth.org.in/news/health/india-beats-many-in-high-grade-antibiotics-abuse-study-67949#:~:text=Costlier%20antibiotics%20abused%20more,dispensed%20in%20India%20in%202014.>

¹⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6618210/>

¹⁷ <https://www.reactgroup.org/news-and-views/news-and-opinions/year-2021/covid-19-india-pays-a-high-price-for-indiscriminate-drug-use/>

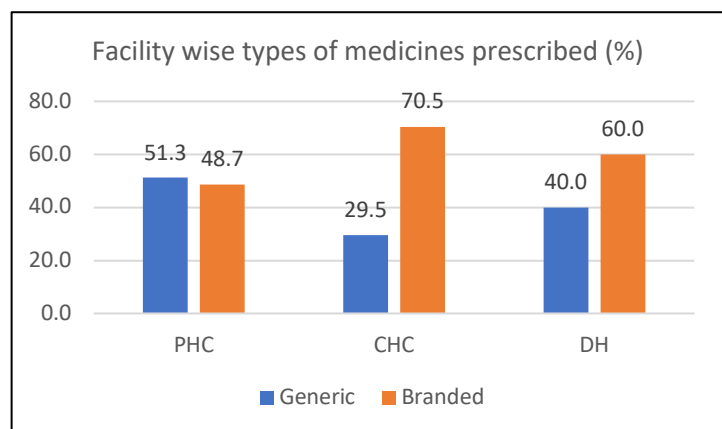
¹⁸ <https://health.economictimes.indiatimes.com/news/pharma/why-do-branded-medicines-cost-30-90-more-than-generic-medicines/64644960>

Gender wise distribution shows that there is equal distribution of prescription of generic medicines in men and women patients (44%). The more expensive branded medicines were likely to be prescribed to 61% of men and 49% of women patients. In this sample, men receive more prescriptions for branded medicines than women. This requires further investigation. Some literature exists on the differential effectiveness of certain medicines on the two sexes and the experience of adherence to medication protocols by women and men patients. However, very limited research has been done on prescription patterns based on gender.

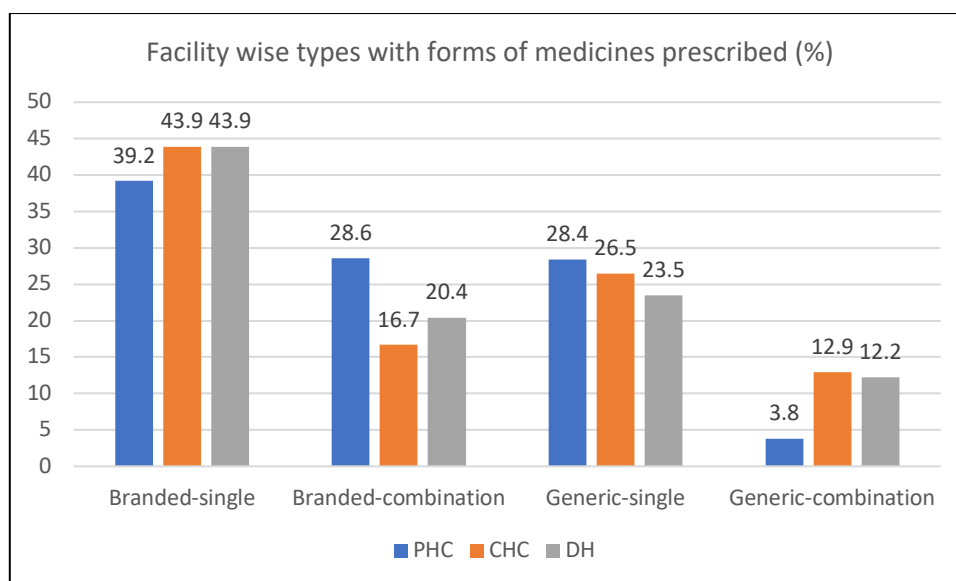


Sites of Generic vs Branded Prescriptions

At the PHC level, the proportion of types of prescribed medicines in terms of branded vs generic is almost equal i.e. 51.3% branded and 48.7% generic. However, there is a major difference at secondary and tertiary level public health facilities, with 70.5% branded medicines compared to 29.5% generic medicines at CHCs. In DHs, the proportion is 60% branded and 40% generic medicine. It implies that patients at higher-level public health



facilities received the maximum number of branded medicines. This may be because the CHCs and DHs are situated at block and district levels having more medical stores nearby which leads to easy accessibility and availability of branded medicines in these medical stores.



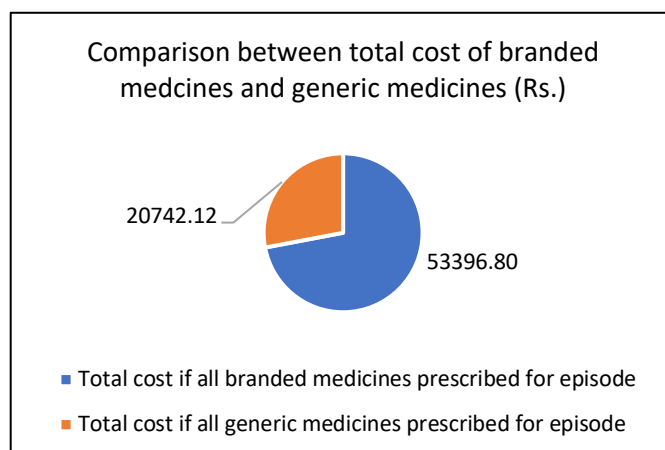
In the case of branded single form medicines (43.9%) were prescribed in CHCs and DHs compared to PHCs (39.2%). Generic-single medicines were slightly more likely to be prescribed in PHCs (28.4%). PHCs were also the site where Branded- Combination form medicines (28.6%) were prescribed in PHCs than CHCs and DHs. Eventually, generic medicines with combination forms were prescribed in all kinds of public health facilities but were lowest in PHCs.

D. Assessing the cost of prescribed branded and generic medicines

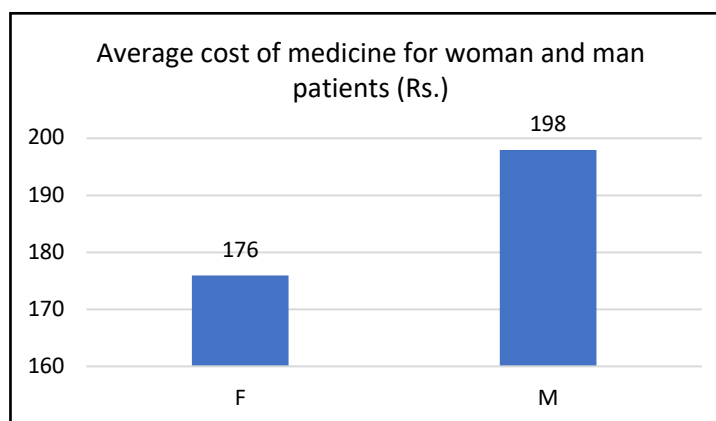
- The cost incurred on the purchase of medicines was 374.4 Rupees per patient per episode of treatment.
- Though the number of women patients (105) was more than the men (93), the total cost of medicine for both branded and generic prescribed medicines was higher for men patients (Branded Rs. 28838/- vs Rs. 11200/- for generic) than women patients (Branded Rs. 24558 vs Rs. 6827 for generic)

A total of 628 medicines were prescribed for 198 selected patients. We tried to assess the quantum of expenses incurred by patients per episode of treatment, including while purchasing branded and generic medicines respectively.

For all 198 patients, the total cost of all medicines was 74138.92. This amounts to 374.43 Rupees per patient per episode of treatment.



The total cost incurred for all men patients collectively was Rs. 19293.14 and the total cost for women was Rs. 34844,86. This amounts to an average cost of 176 per woman and 198 INR per man incurred on a single episode of illness. This is in line with the earlier reported trend of more medicines and more branded medicines being prescribed for men in this sample.



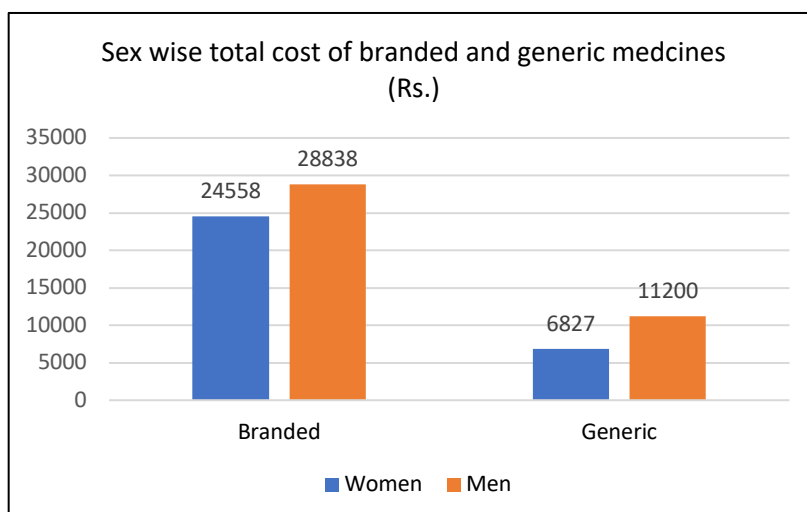
At the state level, the total cost of all prescribed medicines in Bihar was Rs. 12279.20 which is Rs. 231.68 per patient per episode of treatment. For Odisha, the total cost was Rs. 2964.90 where each patient had to pay Rs. 154 for the purchase of medicines for an episode of illness. For Uttar Pradesh, the total cost was Rs. 24230.78 for all prescribed medicines which work out to be Rs. 549 per patient for an episode of illness.

E. Average cost for purchase of branded or generic medicines paid by each patient

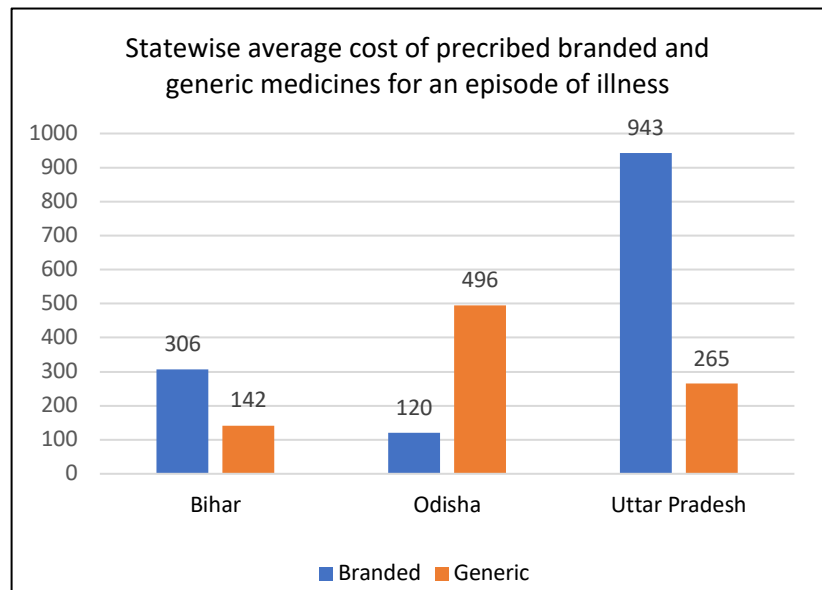
On average for the purchase of branded medicines for each episode of illness, patients had to pay 2.1 times more for branded than for generic medicines.

The average cost of branded prescribed medicines to each patient who received branded medicines was Rs. 485 whereas the average cost of generic medicines was Rs. 236. Patients would have had to pay twice more for branded than generic medicines.

Gender wise, the total cost of branded medicines prescribed to men was Rs. 28,838 compared to the total cost for women patients was Rs. 24,558. Therefore, the per capita cost of generic medicines for women patients was Rs. 6,827 and for branded medicines, it was Rs. 11,200. The costs for both branded and generic prescribed medicines were high for men than for women patients. This corresponds to the earlier reported trend of higher prescription of branded medicines for men.



The per-patient average cost for the purchase of branded medicines is the highest (Rs. 943) in Uttar Pradesh compared to Rs. 120 in Odisha and Rs. 306 in Bihar. The average cost of generic medicines was Rs. 142 per patient in Bihar; Rs. 496 in Odisha and Rs. 265 in Uttar Pradesh. The data from Odisha is somewhat anomalous given that it is based on only four patients who received generic medicines and the average is skewed by a single heavy bill.



What stands out is the considerable difference in the per capita costs across the various states. Some of this may, like in the case of Odisha, be a relic of small sample sizes. However, as per other studies¹⁹ and media reports²⁰, the cost of branded medicines in Uttar Pradesh is 2-15 times more than non-branded medicines; this has been reiterated through this study.

¹⁹ <https://timesofindia.indiatimes.com/city/lucknow/proposal-on-generic-medicines-gathers-dust-in-up/articleshow/24786417.cms>

²⁰ <https://www.thehindu.com/news/cities/Delhi/no-country-for-generics/article26977692.ece>

CONCLUSION

Despite government orders²¹, medical officers in public health facilities continued to prescribe branded and not generic medicines²². This results in increased Out of Pocket expenditure for patients.

The present study did not capture why free medicines were not provided and why generics were not prescribed. Existing research can offer some insights. Some of the reasons include poor procurement of medicines at the state and national levels²³; poor supply and distribution systems of medicines from warehouses to public health facilities²⁴, the limited functionality of the E-Ayushadhi software²⁵ and limited skilled Human Resources to implement the 'Free medicines for all'²⁶ scheme in India. In so doing, it would be critical to ensure that the promotion of prescription of generic medicines does not detract from the fact that free medicines should be provided to patients.

At the same time, there is also a lack of awareness about generic medicines among medical officers, misunderstanding and myths about generic medicines and unregulated incentives for prescribing branded medicines given by pharma companies to the medical officer²⁷. Steps need to be taken to improve the implementation of the Jan Aushadhi Kendra scheme through various measures like mass awareness campaigns on generic medicines and JAKs, expansion of JAKs in each block of the country and mechanisms for regular review of the functioning of the JAKs.

²¹ http://www.nihfw.org/Legislations/THEINDIANMEDICALCOUNCILACT_1956.html

²² <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1705065>

²³ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3585974/>

²⁴ <https://www.downtoearth.org.in/news/health/10-per-cent-drugs-in-government-supply-chain-below-standard-57206>

²⁵ <http://csjournals.com/IJCSC/PDF9-2/21.%20Priyanka.pdf>

²⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3478367/>

²⁷

https://www.researchgate.net/publication/325833275_Patient_Perception_about_Generic_vs_Branded_Medicines_Prescribed_in_a_Tertiary_Care_Hospital_in_Northern_India-A_Descriptive_Study

Recommendations

A. Mechanisms for ensuring that patients are not forced to purchase medicines from outside in Public Health Facilities of India

- Government should ensure effective implementation of the ‘free medicines for all’ policy by strengthening timely procurement and indent-supply system from national/state to each public health facility of India. Tamil Nadu²⁸ and Rajasthan²⁹ have set up effective models for the same, which can be studied, generalised and adapted by the union and state governments.
- State government should develop a grievance redressal mechanism for registering and resolving challenges faced by patients while availing medicine services in public health facilities.
- Union and state governments should reinforce existing rules and regulations controlling the practice of prescribing branded medicines by government doctors in public health facilities.

B. Mechanisms for increasing awareness and knowledge of government medical officers and citizens at large on generic medicines

- More evidence is required to understand prescription patterns in public health facilities including differential trends for men and women patients, by rural and urban residence, patient socioeconomic status and other relevant criteria. Thus, the present study points toward possible gender trends which require further investigation.
- Union and state governments should produce and disseminate updated educational materials on generic medicines for doctors working in public and private healthcare systems which will enhance knowledge and confidence among doctors to prescribe generic medicines.
- Union and state governments should conduct systematic and continuous training for public health doctors on updated information about generic medicines with should clear their doubts and address misunderstandings about the drug preparation process, quality and other such concerns.
- The Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana’s³⁰ initiative of establishing Jan Aushadhi Kendras (JAKs) is a positive step for promotion and ensuring the availability of generic medicines. It needs to be expanded to every block of the country to ensure universal access to cheaper generic medicines. The implementation of the same needs to be strengthened³¹.
- Develop and implement rigorous and continuous mass awareness campaigns using various types of advertisement, outdoor publicity and social media platforms to build awareness among people about generic medicines.

²⁸ https://procurementobservatoryraj.in/pdf/Replicating_Tamil_Nadus_Drug_Procurement_Model_EPW.pdf

²⁹ <https://health.rajasthan.gov.in/content/raj/medical/rajasthan-drugs-and-pharmaceuticals-ltd-/en/home.html#>

³⁰ <http://janaushadhi.gov.in/pmjy.aspx>

³¹ <https://www.oxfamindia.org/knowledgehub/oxfaminction/making-generic-medicines-available-all>