

Evaluation of Patients' perceptions towards Padhan Mantri Bharatiya Jan Aushadhi Pariyojana in Mumbai and the Suburbs

Nisha Dolas¹, Dr. Garima Mishra², Dr. Rajiv Gatne³

¹Apex University, Jaipur

²Guide & Assistant Professor, Apex University, Jaipur

³Co-Guide

Cite this paper as: Nisha Dolas, Dr. Garima Mishra, Dr. Rajiv Gatne, (2025) Evaluation of Patients' perceptions towards Pradhan Mantri Bharatiya Jan Aushadhi Pariyojana in Mumbai and the Suburbs. *Journal of Neonatal Surgery*, 14 (27s), 989-998.

ABSTRACT

The Indian pharmaceutical industry plays a crucial global role by providing affordable, high-quality generic medicines and vaccines, particularly through initiatives like the Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana (PMBJP). This study investigates the awareness, accessibility, and acceptance of Jan Aushadhi Medicines among patients, exploring how well the PMBJP has addressed India's need for affordable healthcare. Using an exploratory, descriptive research design and informal interviews with a sample of Jan Aushadhi consumers and non-consumers, the study reveals that while general awareness of generic medicines is relatively high, knowledge of Jan Aushadhi products remains limited. Only 40% of respondents were aware of Jan Aushadhi Medicines, with fewer possessing a comprehensive understanding. Accessibility issues and stock shortages further challenge the program's impact, as does a strong doctor preference for prescribing branded medicines.

The findings highlight that increased visibility, targeted outreach, and enhanced availability of Jan Aushadhi Kendras could significantly improve access to affordable medications. Recommendations include expanding awareness campaigns, partnering with state-level hospitals, encouraging doctors to prescribe generics, and implementing effective inventory management to reduce stock shortages. By improving public confidence in Jan Aushadhi products and fostering a supportive ecosystem, the program can better meet its objective of reducing healthcare costs, particularly for economically disadvantaged populations. This study underscores the potential of Jan Aushadhi to make healthcare more affordable but calls for concerted efforts to overcome barriers to its widespread adoption.

Keywords : Generic medicines, Branded medicines, Jan Aushadhi Kendra, Pradhan Mantri Bharatiya Jan Aushadhi Pariyojana (PMBJP), Generic drugs.

1. INTRODUCTION

The Indian pharmaceutical industry holds a vital role globally, supplying affordable, high-quality generic drugs to millions worldwide. India's pharmaceutical sector provides cost-effective solutions without compromising quality, demonstrated by its high number of USFDA-approved manufacturing facilities outside the U.S., along with many WHO GMP-compliant plants and approvals from other national regulatory authorities.

Key segments in the Indian pharmaceutical industry include generic drugs, over-the-counter (OTC) medicines, bulk drugs, vaccines, contract research and manufacturing, biosimilars, and biologics. India is a global leader in vaccine supply, particularly for DPT, BCG, and measles vaccines. Accounting for 60% of global vaccine production, India meets around 70% of the WHO's demand for DPT and BCG vaccines and 90% for measles.¹

India leads the world in generic medicines, supplying 20% of the global volume. With over 3,000 pharmaceutical companies and a vast network of more than 10,500 manufacturing facilities, India is well-positioned to maintain its role as the "pharmacy of the world." The country produces approximately 60,000 different generic brands across 60 therapeutic categories and has over 500 API manufacturers, contributing around 8% to the global API market.

The Indian pharmaceutical market has seen steady growth, propelled by increasing domestic demand, government support, and strong export channels. Ranking third globally in production by volume and 14th by value, India benefits from low production costs (30–35% lower than in the U.S. and Europe), cost-efficient R&D, and significantly lower labor expenses. Since 2021, the sector has grown at a compound annual growth rate (CAGR) of 16%, reaching a \$65 billion market size in 2024, with growth attributed to rising incomes, greater healthcare access, and government initiatives like the Pradhan Mantri Jan Arogya Yojana (PM-JAY).²

A study found that India's generic drug market was valued at USD 24.53 billion in 2022, and it's projected to grow steadily at an annual rate of 6.97% over the coming years.

The Economic Survey 2022-23, released on January 31, 2023, also highlights that India's overall pharmaceutical industry is set to reach USD 130 billion by 2030, showing continued growth momentum even after the challenges of the Covid-19 pandemic.³

While India is a major exporter of generic medicines, access to affordable medication remains a challenge for many within the country. Branded generic medicines are often more expensive than their unbranded equivalents, creating a financial burden for families, especially when medical expenses are paid out-of-pocket. To address this, the Pradhan Mantri Bhartiya Jan Aushadhi Pariyojana (PMBJP) was launched in 2008 by the Department of Pharmaceuticals under the Ministry of Chemicals and Fertilizers. This initiative aims to provide high-quality generic medicines at affordable prices through dedicated outlets called Janaushadhi Kendras.³

The PMBJP model operates with a franchise approach, inviting entrepreneurs to establish and manage these Kendras. As of January 2024, 10,607 Kendras are operational across India, offering 1,965 drugs and 293 surgical items at prices 50% to 90% lower than branded medicines. The program's objectives include expanding access to affordable medications, raising awareness about generic drugs, countering the misconception that high price equals quality, and generating employment through the establishment of Janaushadhi Kendras.⁴

The PMBJP initiative envisions reducing healthcare costs for Indian citizens by making quality medicines available to all, especially the economically disadvantaged.

Objective of the study

- To evaluate the awareness among the patients about the Jan Aushadhi Medicines
- To understand the scheme is beneficial for people
- To understand the accessibility of Jan Aushadhi Kendra

Research Methodology

This descriptive, empirical study uses exploratory research with unstructured questionnaires. The sample includes both Jan Aushadhi consumers and non-consumers who use other medications covering 50 respondents. Convenience sampling were applied to understand the awareness among the patients as well as the satisfaction among the patients who are consuming Jan Aushadhi medicines. Data collection involved informal interviews and unstructured questionnaires. The sampling area is Mumbai and suburbs.

unstructured questionnaires. The sample comprised 50 respondents, including both Jan Aushadhi consumers and non-consumers who use other medications. Convenience sampling was employed to understand the awareness and satisfaction levels among patients consuming Jan Aushadhi medicines. Data collection involved informal interviews and unstructured questionnaires, with the sampling area focused on Mumbai and its suburbs.

2. LITERATURE REVIEW

Krishna et al., 2024 : The study provides a comprehensive cost analysis of anticancer chemotherapy, highlighting significant savings when using Jan Aushadhi (JAS) drugs instead of branded alternatives. It effectively demonstrates cost differences, making a strong case for JAS drugs in reducing the financial burden on patients. However, while the study is well-structured and data-driven, it does not evaluate the clinical effectiveness of JAS drugs or their impact on patient outcomes. The findings are highly relevant for healthcare professionals and policymakers, but further research is needed to assess long-term treatment efficacy and adherence.⁵

Desai, Dass, & Kaniganti, 2018 This paper covers the study about assessing the attitude of clinicians and postgraduate students regarding generic drugs and branded drugs.

The questionnaire based, cross-section study conducted among clinicians and the post graduate students at NRIMS and SMC, Vijayawada. As per the study result a good percentage of doctors were aware of generic medicines and have positive attitude towards safety, efficacy, and cost-effectiveness of generic medicine and even they prescribe the generic medicines, basis this. Even few meaning proportion of the respondents expressed their concern about the quality and efficacy of the generic drugs. This belief may hamper generic use on large scale and increase out of pocket expenses on healthcare. Proper awareness in physicians about the generic prescription practice may improve the patient compliance by reducing the economic burden to the patients⁶

Shabaraya & Shetty, 2023 This article does a great job of showing how India's Janaushadhi scheme is changing lives by making affordable generic medicines more accessible to more people. It explains how the scheme helps reduce healthcare costs and tackles healthcare inequality, especially for low-income and rural communities, by offering cheaper alternatives through a widespread network of Janaushadhi Kendras. While the article highlights the scheme's success in lowering expenses and creating jobs, it also points out some challenges, like limited public awareness, supply chain issues, and skepticism about the quality of generic medicines. The authors provide practical ideas for improvement, such as expanding

outreach and connecting the scheme with other healthcare programs. Overall, the review is well-rounded, acknowledging the scheme's positive impact and offering realistic ways to overcome obstacles to make a lasting difference in public health across India⁷

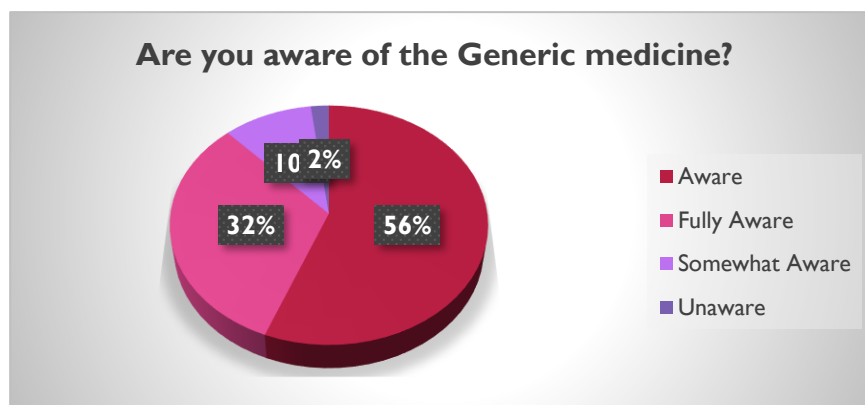
3. DATA ANALYSIS

A comprehensive study was undertaken involving 50 patients within the Mumbai area. Convenience samples with some open ended questionnaires used for primary data collection.

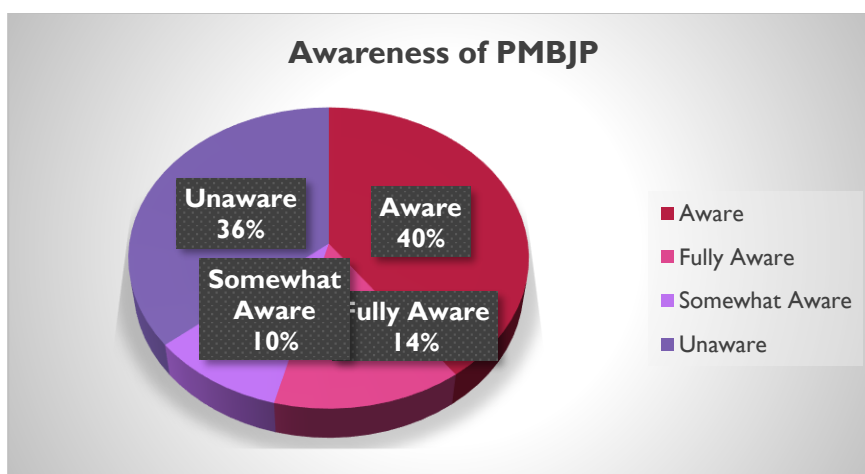
Through this investigative process, a clearer understanding was sought regarding the awareness of Jan Aushadhi Medicines among the patients and the extend of knowledge about Jan Ausahdhi towards it.

1) Awareness of the Generic Medicines

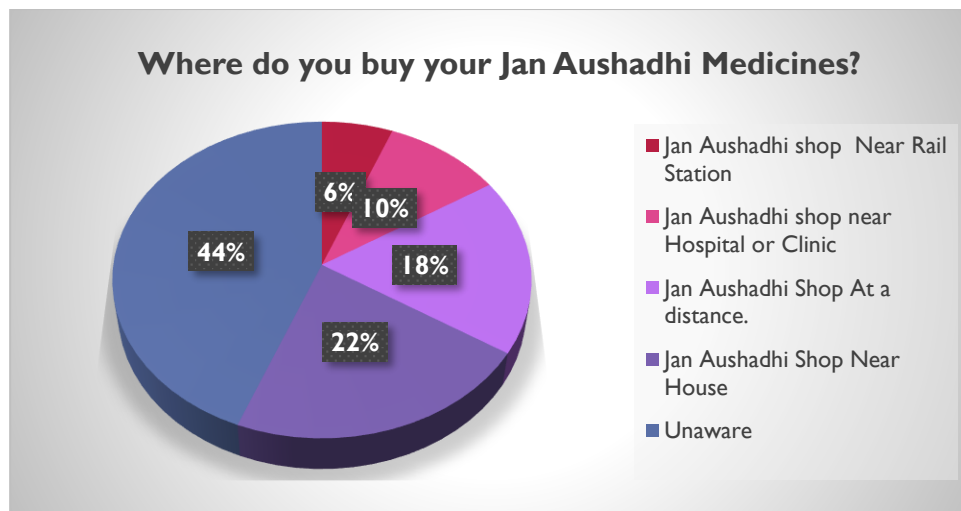
Among the respondents, 56% reported being "Aware" of generic medicines, while 32% indicated they were "Fully Aware". The remaining 10% responded as being "Somewhat Aware", and 2% were "Unaware".



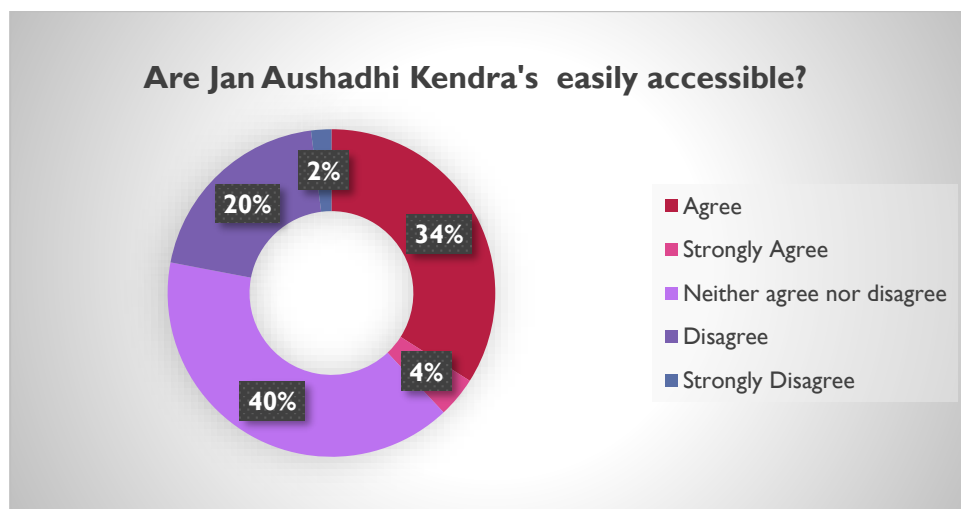
- 2) Regarding awareness of Jan Aushadhi Medicines or Jan Aushadhi Kendras, 40% of the respondents reported being "Aware", 14% indicated they were "Fully Aware", 10% responded as "Somewhat Aware", and 36% were "Unaware".



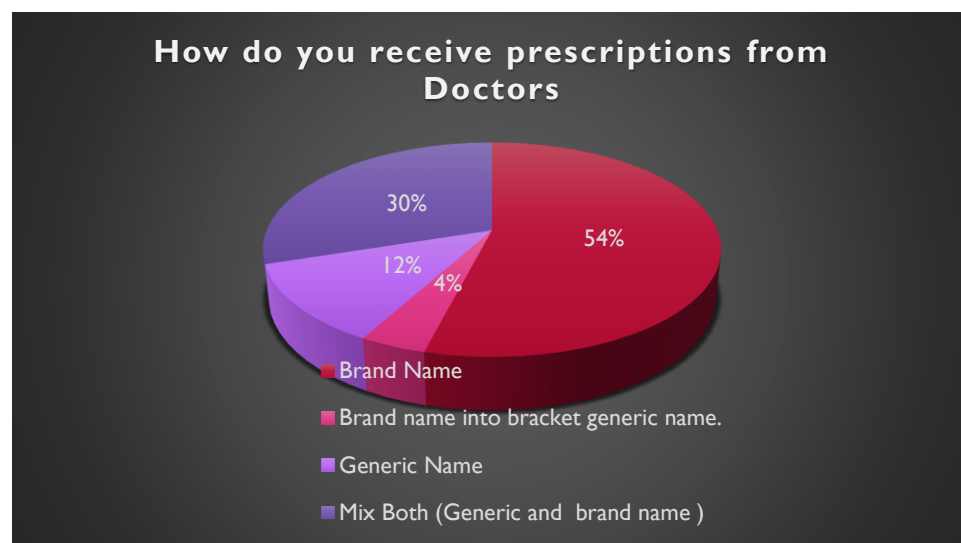
- 3)When questioned about the buying of the Jan Aushadhi Medicines, 22% respondents replied "Jan Aushadhi shop near house", 10% responded "Jan Ausahdhi shop near hospital", 18% reverted "Jan Aushadhi shop at a distance", 6% replied to "Jan Aushdhi shop near rail/Bus stop and 44% were "Unaware of Jan Aushadhi "



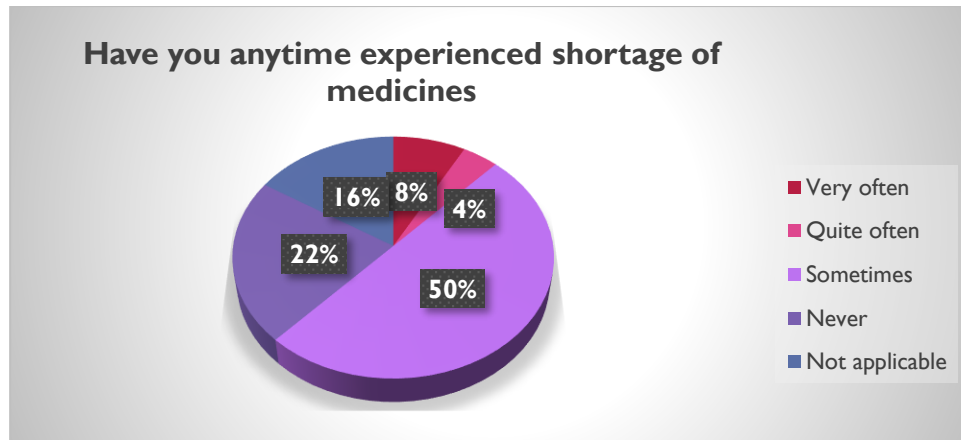
4) In response to the question about the easy accessibility of Jan Aushadhi Kendras, 34% of respondents agreed, 4% strongly agreed, 40% neither agreed nor disagreed, 20% disagreed, and 2% strongly disagreed.



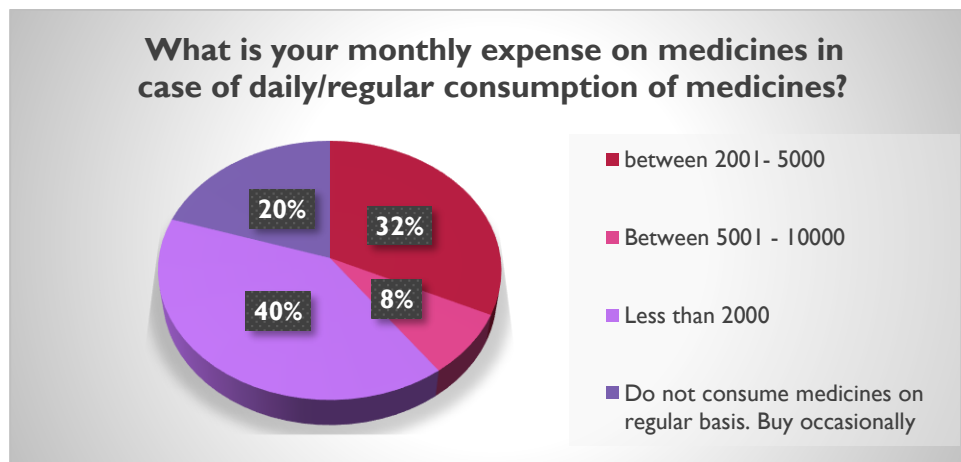
5) when questioned about the patten of receiving prescriptions from doctors, 54% replied that the prescriptions received in "Brand name", 12 % replied that they received it in " Generic Name", 4% replied that they received prescription in " Brand name into bracket Generic Name"and 30% reverted "Mixed i.e. Generic and branded"



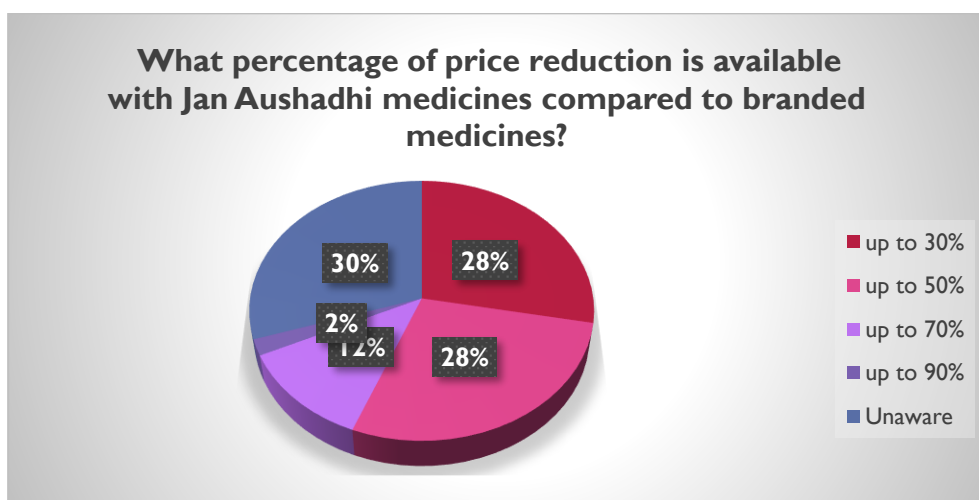
6) The survey revealed that 50% of respondents experienced “sometimes” shortages of the Jan Aushadhi medicines they regularly purchased, while 22% reported never encountering such shortages. Additionally, 8% stated they very often faced shortages, and 4% indicated they had quite often experienced shortages. However, 16% responded that the shortage question was not applicable



7) When questioned about the monthly expense on the medicines, 40% replied to “less than Rs. 2000”, 32% replied “between 2001 – 5000”, 8% reported “between 5001 -10000” and 20% reacted “Do not consume medicines on regular basis. Buy occasionally”

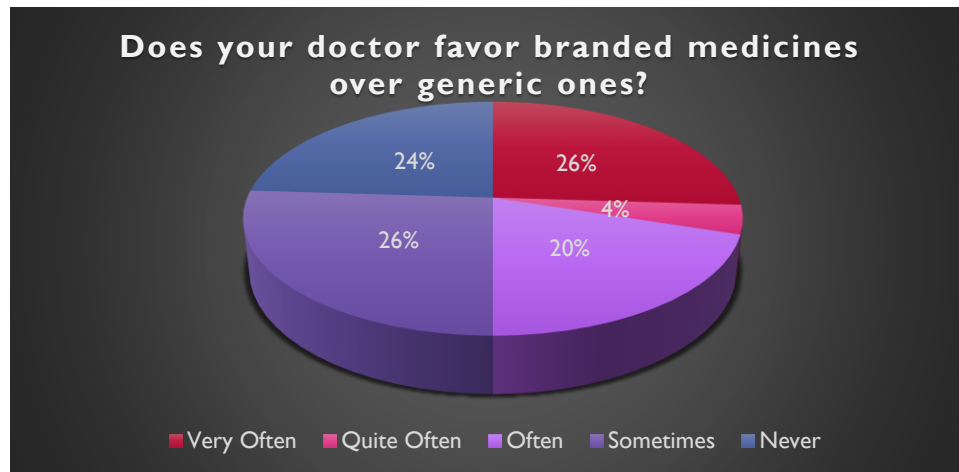


8) The survey findings showed that when asked about the discount or price reduction on Jan Aushadhi medicines compared to branded medicines, 28% of respondents reported discounts of up to 30%, 28% indicated discounts of up to 50%, 12% replied discounts of up to 70%, and 2% stated discounts of up to 90%. However, 30% of respondents were unaware of the level of price reduction available on the Jan Aushadhi medicines.

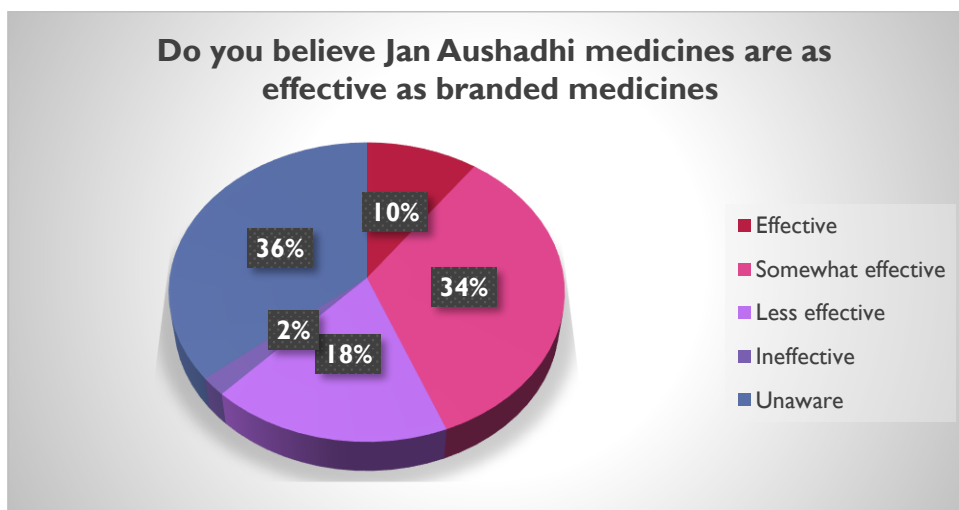


9) When questioned about whether doctors favor branded medicines over generic medicines, the survey findings showed the following:

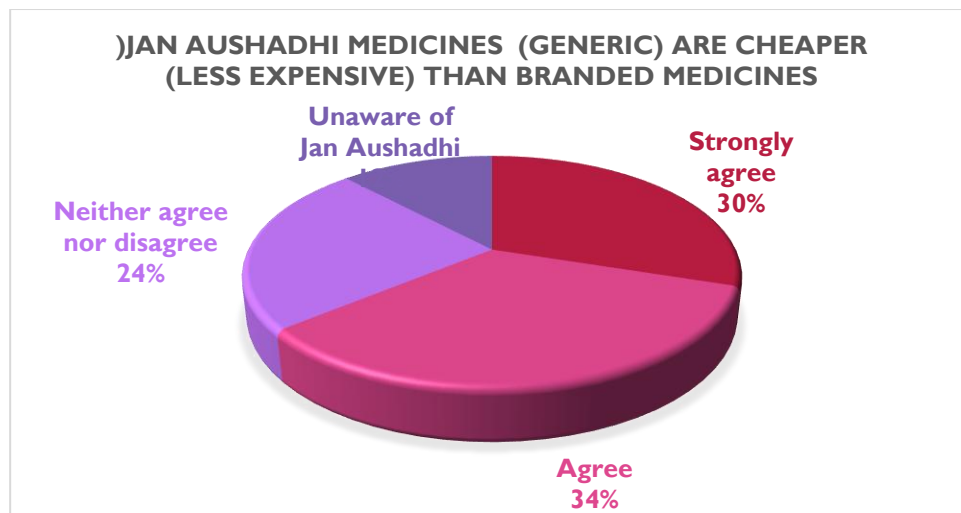
- 26% of respondents replied that this happens "Very Often"
- 4% replied that it happens "Quite often"
- 20% reported that it happens "Often"
- 26% of respondents reacted that it happens "Sometimes"
- 24% reacted that this "Never" happens



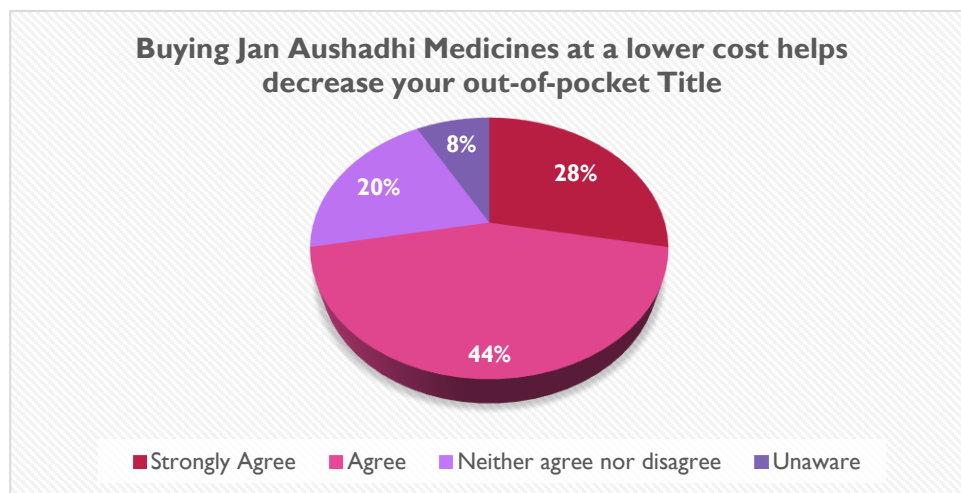
10) when asked consumers about the effectiveness of the Jan Aushadhi Medicines, 10% reacted to “ Effective ”, 34% replied to “ Somewhat Effective”, 18% replied to “Less effective”, 2% reacted to “Ineffective” and 36% were “Unaware”



11) When asked if Jan Ausahdhi medicines are cheaper than the branded medicines in terms of cost, 30% replied to “Strongly Agree”, 34% reacted to “Agree”, 24% replied to “Neither agree nor disagree”, 0% respondents reacted to “Strongly disagree” and 12% were “Unaware of Jan Aushadhi”



12) When asked if buying Aushadhi Medicines at a lower cost helps decrease your out-of-pocket expenses for medications and contribute to monthly saving, 28% respondents replied to “Strongly agree”, 44% reacted to “Agree”, 20% respondents replied to “ Neither agree nor disagree” and 8% were “Unaware”



Findings:-

- 1) A large proportion of respondents (28 out of 50) are aware of generic medicines, indicating that the concept is widely recognized within this group. 16 respondents (32%) have a strong understanding of generic medicines, suggesting effective awareness among a significant portion of the group. 10% have some understanding, which indicates a need for further information to deepen their knowledge. Only 1 respondent (2%) is completely unaware of generic medicines, reflecting a minor gap in awareness within the sample group.

This suggests that a vast majority of patients have at least a basic understanding of generic medicines. The relatively high awareness level indicates that awareness campaigns or public discussions on generic medicines may have been somewhat effective. However, there's room for growth to shift more people from “Aware” to “Fully Aware” for deeper understanding and informed decision-making.

- 2) Out of the total respondents, 20 are aware of Jan Aushadhi Medicines, indicating that around 40% of the group has some level of familiarity with the initiative. Only 7 respondents (14% of the total) are fully aware, showing limited in-depth understanding among the aware group, 5 respondents (10%) are somewhat aware, suggesting partial knowledge or familiarity with the concept but a need for more information.

This shows a clear gap in awareness specific to Jan Aushadhi Medicines. While some awareness is present, the significant “Unaware” percentage (36%) indicates a need for increased visibility and targeted awareness efforts. Greater public outreach through healthcare providers, pharmacies, or government initiatives may help bridge this knowledge gap.

- 3) The majority of aware respondents prefer nearby locations (either near their house or within a reasonable distance),

suggesting that convenience is important for accessing Jan Aushadhi Medicines.

The high percentage of respondents who are unaware of Jan Aushadhi purchase locations points to a need for better visibility or information about where these medicines can be obtained. Nearly half of the respondents don't know where Jan Aushadhi shops are located. The limited access to or visibility of these shops could hinder usage even among those aware of the program. Initiatives to expand and advertise the network of Jan Aushadhi shops could significantly improve accessibility.

- 4) The data shows a mixed perception regarding the accessibility of Jan Aushadhi Kendras. 17 respondents (34%) believe that Jan Aushadhi Kendras are easily accessible, indicating a fair level of satisfaction with accessibility. Only 2 respondents (4%) strongly agree, showing that very few consider accessibility to be exceptionally good. 10 respondents (20%) feel that Jan Aushadhi Kendras are not easily accessible, indicating a notable level of dissatisfaction. 1 respondent (2%) strongly disagrees, highlighting minimal but definite frustration with accessibility. 20 respondents (40%) are neutral, suggesting that a significant portion may not have a strong opinion on accessibility. This could reflect limited experience with Jan Aushadhi Kendras or ambivalence about their convenience.

While some find Jan Aushadhi Kendras accessible, a considerable portion (40%) are indifferent, which could indicate an overall perception of low availability or convenience.

- 5) 27 respondents (54%) reported that doctors prescribe medicines using only the brand name, indicating a strong tendency towards brand-name prescription. 5 respondents (30%) receive prescriptions that include both the generic and brand names, showing that some doctors are adopting a balanced approach to prescribing. 6 respondents (12%) are prescribed medications using only the generic name, indicating that purely generic prescriptions are relatively uncommon. 2 respondents (4%) receive prescriptions where the brand name is written with the generic name in brackets, which may help patients identify the medicine while still understanding its generic equivalent. Increasing the use of generic names or mixed prescriptions (brand and generic) could encourage patients to consider generic alternatives, potentially reducing costs.

Brand-name prescriptions are dominant, suggesting that doctors may favor branded medications over generics or Jan Aushadhi options.

The high rate of branded prescriptions suggests that doctors may often favor or default to branded medicines. This could be due to established prescribing habits which might limit patients' exposure to generics and Jan Aushadhi options.

- 6) Regarding the shortage of Jan Aushadhi Medicines 11 respondents (22%) have never faced a shortage, which implies that some locations or medicines are more reliably stocked. 8 respondents (16%) marked "Not applicable," likely indicating that they either don't buy medicines regularly from Jan Aushadhi Kendras or haven't experienced any shortage. With 62% of respondents (very often, quite often, and sometimes) reporting some level of shortage, supply reliability at Jan Aushadhi Kendras may be a concern for regular users. The frequent and occasional shortage reports suggest there may be gaps in inventory management or supply chain efficiency.

The results show that while consistent shortages aren't reported widely, half of the respondents do experience them occasionally, which could deter regular users. Addressing these stock inconsistencies could help maintain consumer trust and consistent usage.

- 7) Many respondents have relatively low to moderate expenses on medicines, suggesting that the availability of lower-cost options like Jan Aushadhi could significantly reduce monthly out-of-pocket costs. This range of spending highlights a potential benefit for those with higher medication expenses, who could particularly benefit from Jan Aushadhi's lower-cost alternatives. Raising awareness among these higher spenders may lead to greater adoption of Jan Aushadhi products.
- 8) While some respondents recognize the cost benefits, a substantial portion is unaware of the discounts, indicating a gap in awareness regarding potential savings.

There's considerable room to increase awareness of cost savings, especially given that nearly a third are unaware. More targeted information on savings could help make Jan Aushadhi Medicines more appealing to cost-conscious consumers.

- 9) Many respondents perceive a doctor preference for branded medicines, which may impact the adoption of generics and Jan Aushadhi alternatives.

These perceptions could be due to doctors' concerns over generic effectiveness, patient preference, or habitual prescribing practices. Educating both doctors and patients about the efficacy of Jan Aushadhi products could encourage more frequent prescribing and use of generics.

- 10) There is moderate confidence in the effectiveness of Jan Aushadhi medicines, but a large portion is unaware, which could limit their willingness to choose these options. Consumers may feel unsure about the effectiveness of generic medications if they haven't tried them before or don't fully trust them. Sharing testimonials, offering educational

resources, and providing clear, transparent information could help build trust and encourage people to give generics a try

- 11) While many agree that Jan Aushadhi products are cost-effective, the neutral and unaware groups show there's still a need to spread awareness and highlight the cost-saving benefits of the program.

Many respondents recognize the cost benefits of Jan Aushadhi over branded medicines, although some remain indifferent, possibly due to a lack of experience or awareness

- 12) The responses show that many people appreciate the lower prices of Jan Aushadhi medicines, as they help reduce financial stress. Encouraging more people to try Jan Aushadhi products could bring even greater financial relief to patients. A majority believe Jan Aushadhi could reduce out-of-pocket expenses, suggesting that increased usage could improve monthly saving

4. RECOMMENDATION

1. Increase Awareness Campaigns for Jan Aushadhi Medicines

Many respondents are either unaware or only vaguely aware of Jan Aushadhi Medicines and Kendras. Greater awareness can directly lead to higher adoption rates. Launch targeted awareness campaigns to educate patients about Jan Aushadhi Medicines, focusing on their availability, affordability, and quality. These campaigns could include partnerships with local healthcare providers, community events, and advertisements in healthcare facilities.

2. Improve Accessibility of Jan Aushadhi Kendras

Accessibility was identified as a concern. By increasing the visibility and reach of Jan Aushadhi Kendras, particularly in underserved areas, the program can better meet the needs of the population. Expand the distribution network of Jan Aushadhi Kendras, especially in areas where healthcare facilities and pharmacies are lacking. Still it is not well recognized and accepted by State level hospital like BMC hospitals and clinics. Partner with local BMC hospital authorities for Jan -Aushadhi Kendra set up.

3. Promote Doctors' Prescriptions of Generic Medicines

A significant portion of prescriptions are still written for branded medicines, which may discourage patients from opting for cost-effective generics. Educating doctors can help shift this prescribing pattern and enhance patient access to affordable medicines. Conduct informational sessions with healthcare professionals to encourage prescribing Jan Aushadhi or generic medicines. Highlight the effectiveness and affordability of these medicines to increase their confidence in recommending them.

4. Address Stock Shortages to Ensure Consistent Availability

Stock shortages are a reported issue, and they can discourage patients from returning to Jan Aushadhi stores. By addressing supply chain gaps, Kendras can build a reputation for reliability. Establish a robust inventory management system for Jan Aushadhi Kendras to minimize stockouts. Implement predictive stock management based on consumption patterns to ensure a steady supply of popular medicines

5. Increase Public Confidence in the Effectiveness of Jan Aushadhi Medicines

Concerns about the effectiveness of Jan Aushadhi Medicines may deter usage. Building public trust through transparency and positive feedback can increase acceptance. Run campaigns that include testimonials, endorsements from healthcare providers, and data on the efficacy of Jan Aushadhi products. Educational pamphlets, online content, and testimonials from existing users can allay concerns about effectiveness

6. Facilitate Comparison Tools for Cost and Effectiveness

Create a tool or informational materials that compare Jan Aushadhi Medicines with branded medicines in terms of price, availability, and efficacy. These could be displayed at Jan Aushadhi Kendras or on an online platform. Such a tool can empower patients to make informed decisions by clearly understanding the value offered by Jan Aushadhi Medicines.

7. Collaborate with Government and NGOs for Community Outreach

A coordinated effort with government and community groups can extend the reach of Jan Aushadhi to populations who might benefit most but are currently unaware. Collaborate with local government bodies, NGOs, and community health programs to promote Jan Aushadhi in underserved communities and at health camps.

8. Gather and Monitor Patient Feedback for Continuous Improvement

Implement a feedback mechanism at Jan Aushadhi Kendras to gather insights directly from patients on their experience, including availability, cost, and effectiveness. This data can inform future improvements.

Strategy

To implement these recommendations effectively, a multi-pronged approach involving awareness, accessibility, consistent supply, and patient education is essential. This holistic strategy can lead to better patient satisfaction, increased usage of Jan Aushadhi products, and improved

Conclusion

The study highlights a moderate to high level of general awareness about generic medicines among patients, but a more limited awareness and understanding of Jan Aushadhi Medicines and Kendras specifically. Although some respondents recognize the benefits of cost-effective generics, there is a significant gap in awareness, accessibility, and confidence in the Jan Aushadhi program. The findings reveal that while many patients see value in Jan Aushadhi products, challenges such as limited access, occasional stock shortages, and doctors' preference for branded prescriptions hinder widespread adoption.

The study underscores the need for targeted awareness campaigns, improved accessibility, and increased doctor engagement to promote Jan Aushadhi options. By addressing these barriers, the program can become more widely adopted, offering affordable medication alternatives to a broader patient base and potentially reducing healthcare costs for the population.

Key recommendations include expanding the Jan Aushadhi Kendra network, collaborating with healthcare professionals to encourage generic prescriptions, and addressing supply chain issues to maintain consistent stock levels. Building trust in the effectiveness of Jan Aushadhi products through education and community engagement can further strengthen the program's acceptance. Continuous monitoring and feedback from patients will be essential for making ongoing improvements and achieving the intended impact of providing affordable and accessible healthcare.

REFERENCES

- [1] Kurup, R. (2023, April 5). *India: The emerging pharmacy of the world*. Asian Lite. Retrieved from <https://asianlite.com/2023/health/india-the-emerging-pharmacy-of-the-world/> Asian Lite
- [2] Pharmaceuticals Export Promotion Council of India. (n.d.). *Home*. Retrieved May 10, 2025, from <https://pharmexcil.com> Pharmexcil
- [3] Jain, V. M. (2023, March 2). *Generic drugs & its future in India*. Times of India Blogs. Retrieved from <https://timesofindia.indiatimes.com/blogs/voices/generic-drugs-its-future-in-india/> The Times of India
- [4] Ministry of Chemicals and Fertilizers, Government of India. (n.d.). *Pradhan Mantri Bhartiya Janaushadhi Pariyojana*. Retrieved May 10, 2025, from <https://janaushadhi.gov.in>
- [5] Krishna, A., Simon, P., Palatty, P. L., Sacheendran, D., Jayachandran, M., George, T., & Baliga, M. S. (2024). *Cost analysis of anticancer chemotherapy and chemoradiation regimens considering the drugs marketed through Jan Aushadhi (People's Medicine) stores and their branded counterparts: First cost comparison study*. *Journal of Cancer Research and Therapeutics*, 20, 1472-1485
- [6] Desai, S., Dass, A. P., & Kaniganti, S. (2018). Assessment of perception and attitude of postgraduates and clinicians toward generic versus branded medicines at a teaching medical institute. *National Journal of Physiology, Pharmacy and Pharmacology*, 8(4), 540-543. <https://doi.org/10.5455/njppp.2018.8.1144523112017>
- [7] Shabaraya, A. R., & Shetty, R. (2023). *A review on the Janaushadhi Scheme: Transforming acquisition to affordable medicines in India*. *International Journal in Pharmaceutical Sciences*, 1(12), 88–94. <https://doi.org/10.5281/zenodo.10259580>
- [8] Laing R, Waning B, Gray A, Ford N, t Hoen E. 25 years of the WHO essential medicines lists: progress and challenges. *Lancet*. 2003;361(9370):1723–1729. doi: 10.1016/S0140-6736(03)13375-2. - DOI - PubMed
- [9] Attridge CJ, Alexander SP. Improving access to medicines in developing countries. Washington, DC: The World Bank; 2005.
- [10] Alfonso-Cristancho, R., Andia, T., Barbosa, T., & Watanabe, J. H. (2015). Definition and classification of generic drugs across the world. *Applied Health Economics and Health Policy*, 13(Suppl 1), S5–S11. <https://doi.org/10.1007/s40258-014-0146-1>