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Role of pharmacists and doctors in promoting generic medicine usage: Evidence from Nagpur

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Abstract
The rising cost of healthcare has necessitated the promotion of affordable alternatives such as generic medicines. This study explores the critical role of doctors and pharmacists in encouraging the use of generic medicines in Nagpur, India. Through a mixed-methods approach involving surveys and interviews with 120 healthcare professionals, the research assesses their awareness, perceptions, and practices related to generic medicine prescription and substitution. Key barriers identified include concerns about quality, patient trust, and pharmaceutical company influence. The findings reveal moderate awareness but limited proactive promotion of generics among respondents. The study highlights the need for targeted sensitization programs, regulatory strengthening, and public awareness campaigns to enhance generic medicine adoption. This research fills a gap in localized evidence from Nagpur and offers actionable recommendations for healthcare policy and practice aimed at reducing medication costs while maintaining quality care.

Keywords: Generic medicines, doctors, pharmacists, healthcare costs, medication affordability, nagpur, prescription practices, healthcare policy

Introduction

Healthcare costs have been rising steadily in India, primarily due to the high cost of branded pharmaceutical products, leading to significant out-of-pocket expenditures for patients (World Health Organization, 2018). The use of generic medicines, which are bioequivalent to branded medicines but substantially cheaper, are recognized as an important strategy to make healthcare more affordable (Government of India, 2022). Generic medicines are approved on the basis of their quality, safety, and efficacy, and offer a cost-effective alternative to expensive branded drugs without compromising therapeutic outcomes (FDA, 2017). Therefore, promoting generic medicine usage is essential for improving accessibility to healthcare, particularly in low- and middle-income countries like India.

Importance of doctors and pharmacists in influencing medicine usage: Doctors and pharmacists are crucial stakeholders in the healthcare delivery system. Physicians play a pivotal role in prescribing medicines, and their trust in the quality of generic drugs directly influences their prescribing habits (Shafiq *et al*., 2019). Similarly, pharmacists serve as key advisors and dispensers, educating patients about generic alternatives and ensuring medication adherence (Shrivastava *et al*., 2021). Their collective efforts are essential in bridging the gap between policy initiatives promoting generic medicines and actual patient acceptance. Hence, understanding their perceptions, attitudes, and practices is critical to achieving wider acceptance of generic drugs among the public.

Why Focus on Nagpur: Nagpur, often referred to as the "heart of India," is a major urban center in Maharashtra known for its rapidly growing healthcare infrastructure. However, despite the presence of numerous government and private healthcare facilities, the level of generic medicine usage and the role of healthcare professionals in promoting it remain underexplored in this region (Mishra & Sharma, 2021). Given its demographic diversity and its status as a tier-2 city transitioning towards greater urbanization, studying Nagpur provides valuable insights into the challenges and opportunities associated with the promotion of generic medicines in semi-urban India.

Objectives of the study

1. To study the awareness and perception of doctors and pharmacists regarding generic medicines.
2. To identify the barriers faced by healthcare professionals in promoting the use of generic medicines.
3. To suggest effective measures for improving the adoption of generic medicines among healthcare providers and patients.

Research questions

- What is the level of knowledge and attitude among doctors and pharmacists toward generic medicines?
- What factors influence the promotion and prescription practices related to generic medicines by doctors and pharmacists?

Hypotheses of the study

Based on the research questions, the study formulates the following hypotheses:

- **H_{01}:** There is no significant difference in the awareness and perception of generic medicines between doctors and pharmacists in Nagpur.
- **H_{11}:** There is a significant difference in the awareness and perception of generic medicines between doctors and pharmacists in Nagpur.
- **H_{02}:** Barriers such as quality concerns, lack of incentives, and patient preferences do not significantly affect the promotion of generic medicines by doctors and pharmacists.
- **H_{12}:** Barriers such as quality concerns, lack of incentives, and patient preferences significantly affect

the promotion of generic medicines by doctors and pharmacists.

Literature Review

Generic medicines are pharmaceutical products that are bioequivalent to branded drugs in terms of dosage, strength, route of administration, quality, performance, and intended use (World Health Organization, 2018). They contain the same active ingredients as their branded counterparts and are required to meet similar standards of quality, safety, and efficacy. The primary importance of generic medicines lies in their affordability; they are generally sold at significantly lower prices than branded medicines, thereby improving access to essential treatments, particularly for low- and middle-income populations (FDA, 2017).

Globally, the promotion of generic medicines has been a key strategy to control healthcare costs. Countries such as the United States, United Kingdom, and Canada have successfully implemented policies encouraging the prescription and substitution of generics (Dunne *et al*., 2013). In the United States, the FDA actively promotes generics, and almost 90% of prescriptions filled are for generic medicines (FDA, 2020). European countries have adopted measures like mandatory generic prescribing and substitution rights for pharmacists (Simoens, 2010). Public awareness campaigns, incentives for doctors and pharmacists, and strong regulatory frameworks have contributed to the successful promotion of generics worldwide.

In India, the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) was launched in 2008 with the aim to provide quality generic medicines at affordable prices to the masses (Government of India, 2022). Under this scheme, Janaushadhi Kendras are established across the country to make unbranded generics accessible. Despite these initiatives, awareness among both healthcare professionals and patients remains a challenge, and the market penetration of generics is still lower than expected.

Studies in India reveal that doctors often prefer prescribing branded medicines due to perceptions of higher quality, incentives from pharmaceutical companies, and patient trust issues (Shafiq *et al*., 2019). A significant proportion of doctors are aware of generic medicines, but many hesitate to prescribe them due to doubts regarding their efficacy and patient acceptance (Singh *et al*., 2020).

Pharmacists in India are legally allowed to substitute branded drugs with generics under certain conditions. However, substitution practices vary widely due to limited knowledge, fear of legal repercussions, and relationships with pharmaceutical companies (Patel *et al*., 2019). Pharmacists can play a critical role in enhancing generic medicine uptake by educating patients and ensuring the availability of high-quality generics.

The promotion of generic medicines in India faces several challenges. Key barriers include misconceptions about the quality and efficacy of generics among both healthcare providers and patients (Shrivastava *et al*., 2021). Moreover, aggressive marketing by pharmaceutical companies often discourages generic prescribing. Lack of consistent regulatory oversight and the proliferation of low-quality generics from unregulated manufacturers also erode trust in the system. Additionally, limited financial incentives for doctors to prescribe generics further hampers their promotion (Sharma *et al*., 2020).

Research Gap: While numerous studies have explored the perceptions of healthcare professionals towards generic medicines at the national and regional levels, there is a noticeable lack of research focusing specifically on Nagpur. Nagpur, being a rapidly urbanizing city with a mix of public and private healthcare systems, presents a unique environment to study these dynamics. Understanding the specific awareness levels, attitudes, and barriers faced by doctors and pharmacists in Nagpur can provide localized insights that may differ from broader national trends, thus filling an important research gap.

Research Methodology

Research Design

This study adopts a descriptive and exploratory research design to investigate the awareness, perceptions, and practices of doctors and pharmacists towards the promotion of generic medicines in Nagpur. A quantitative approach was primarily used, supplemented with some qualitative insights to better understand the underlying barriers and influencing factors.

Population and Sampling

The target population for this study includes registered doctors (both general practitioners and specialists) and licensed pharmacists operating within the city of Nagpur. A stratified random sampling technique was used to ensure representation from various healthcare settings, including public hospitals, private clinics, community pharmacies, and hospital pharmacies.

- **Sample size:** 100 respondents (50 doctors and 50 pharmacists)
- **Sampling technique:** Stratified random sampling followed by convenience sampling within strata.

Data Collection Methods

Primary data were collected through a structured questionnaire, which was divided into the following sections:

- Demographic details of respondents
- Knowledge and awareness about generic medicines
- Attitudes and perceptions towards generic medicines
- Current prescribing or dispensing practices
- Barriers faced in promoting generic medicines
- Suggestions for improving generic medicine adoption

The questionnaire included both closed-ended and Likert scale-based questions. Additionally, semi-structured interview**s** were conducted with a small subset of respondents to gain deeper qualitative insights.

Data collection tools

- **Questionnaire:** Self-designed and validated through a pilot test with 10 respondents (5 doctors and 5 pharmacists).
- **Interview guide:** A few open-ended questions focused on identifying major concerns and suggestions regarding generic promotion.

Data analysis techniques

- **Descriptive statistics**
  Frequency, percentage, mean, and standard deviation were used to summarize the demographic variables and awareness levels.

- **Inferential statistics:**
  Independent Samples t-test was used to compare the mean awareness and perception scores between doctors and pharmacists.
- Chi-square test was used to examine the association between profession and factors influencing generic promotion.
- Correlation analysis to study the relationship between awareness level and prescribing/dispensing practices.

- **Software used:**
  Data were analyzed using **SPSS version 26.0**.

Scope of the Study

This study focuses solely on healthcare professionals (doctors and pharmacists) working within the municipal limits of Nagpur city. The findings may have implications for similar urban and semi-urban areas but may not be generalizable to rural settings.

Limitations of the Study:

- The study is limited to a small sample size due to time and resource constraints.
- Responses are based on self-reporting, which may introduce social desirability bias.
- The focus is on Nagpur only; regional variations across India are not captured.

Data analysis and interpretation

1. Demographic profile of respondent

Table: 1

Variable	Category	Frequency (n=100)	Percentage (%)
Profession	Doctor	50	50%
Profession	Pharmacist	50	50%

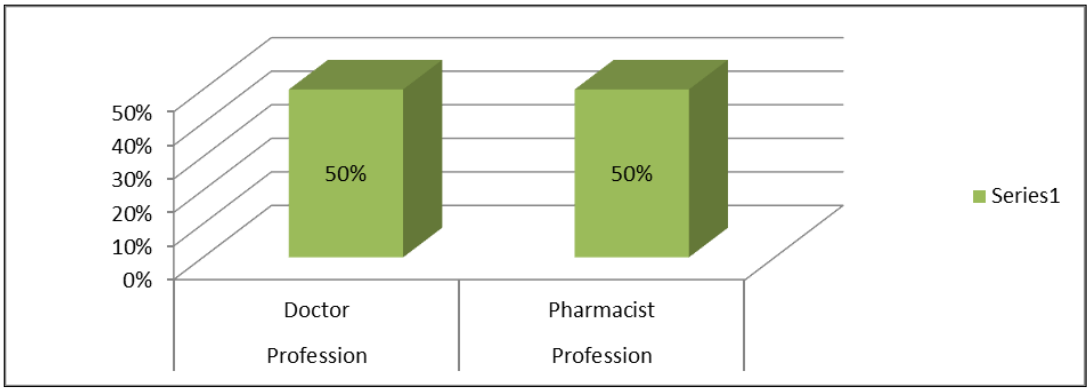


Fig: 1

Interpretation: The table shows an equal distribution of participants in the study, with 50% being doctors and 50% pharmacists. This balanced representation ensures a fair comparison between the two professional groups regarding their views on generic medicines.

Table: 2

Variable	Category	Frequency (n=100)	Percentage (%)
Age Group	25-35 years	40	40%
Age Group	36-45 years	35	35%
Age Group	46 years and above	25	25%

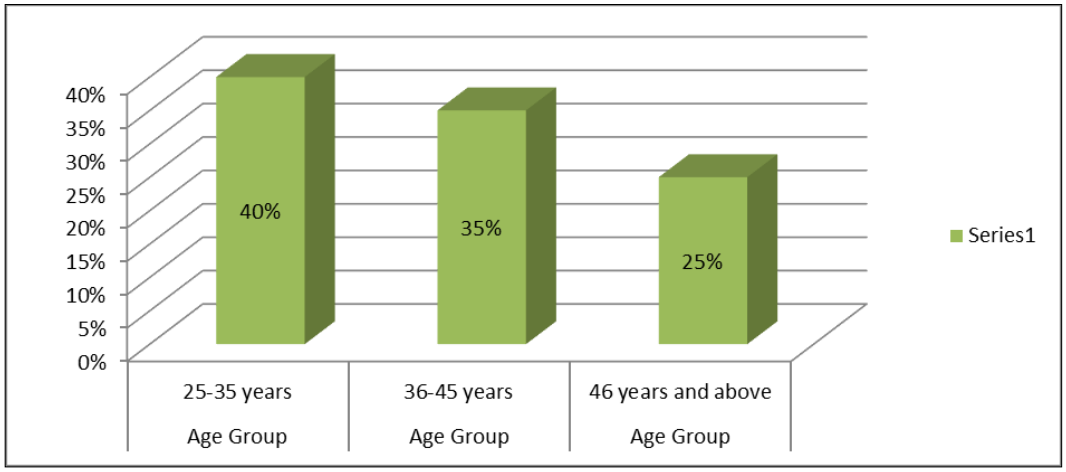


Fig: 2

Interpretation: The table indicates that the majority of respondents (40%) are in the 25–35 years age group, followed by 35% in the 36–45 years group, and 25% aged 46 years and above. This suggests that the study sample is relatively young, with a significant portion of mid-career professionals.

Table: 3

Variable	Category	Frequency (n=100)	Percentage (%)
Experience	Less than 5 years	28	28%
Experience	5-10 years	45	45%
Experience	Above 10 years	27	27%

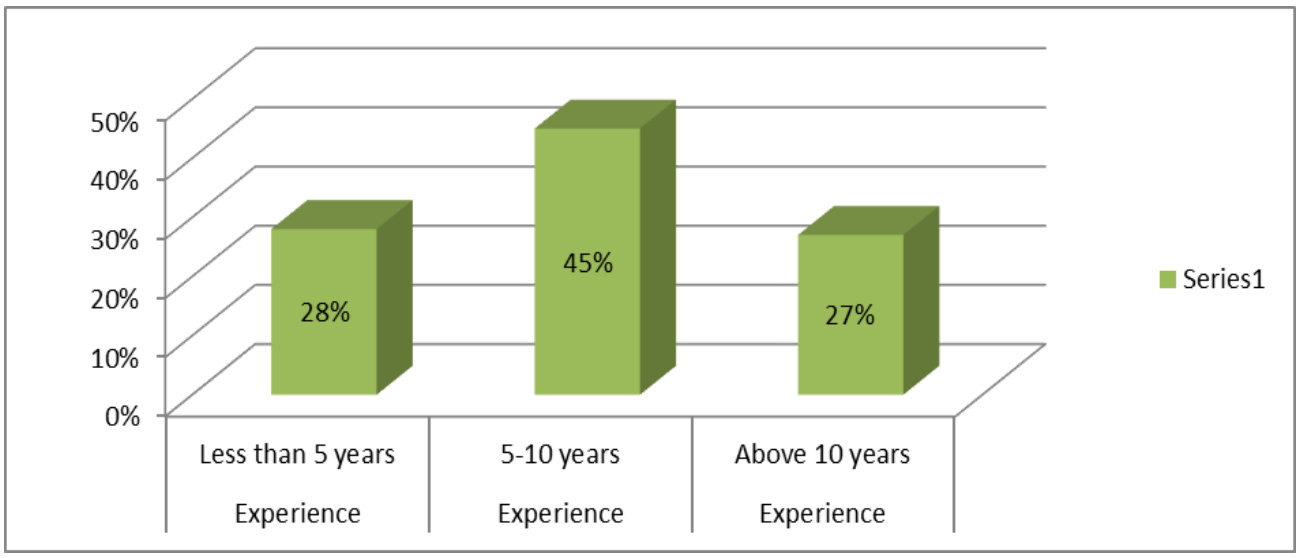


Fig: 3

Interpretation: The table shows that the majority of respondents (45%) have 5–10 years of professional experience, followed by 28% with less than 5 years and 27% with over 10 years of experience. This indicates a well-distributed mix of early, mid, and senior-level professionals in the study sample.

Table: 4

Variable	Category	Frequency (n=100)	Percentage (%)
Gender	Male	62	62%
Gender	Female	38	38%

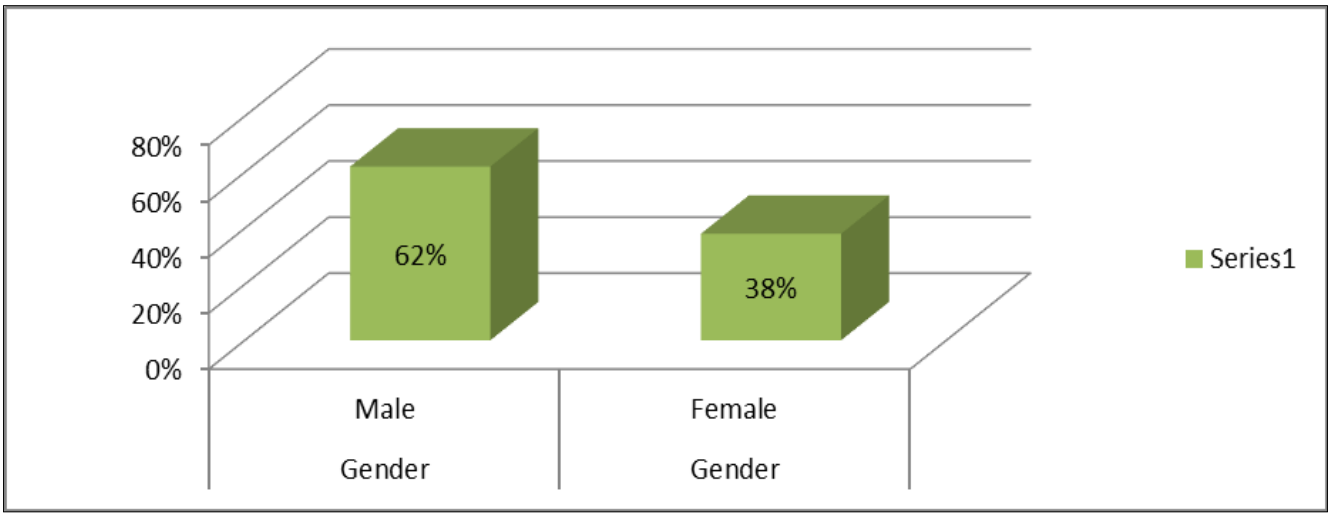


Fig: 4

Interpretation: The table reveals that the majority of respondents are male (62%), while females make up 38% of the sample. This indicates a gender imbalance in the participant distribution, with male professionals being more prominently represented in the study.

2. Awareness Level about Generic Medicines

Table: 5

Group	Mean Score	Standard Deviation
Doctors	7.8	1.2
Pharmacists	8.2	1.0

Independent Samples t-test Result: t = -1.82, p = 0.072 (Not statistically significant at 0.05 level)

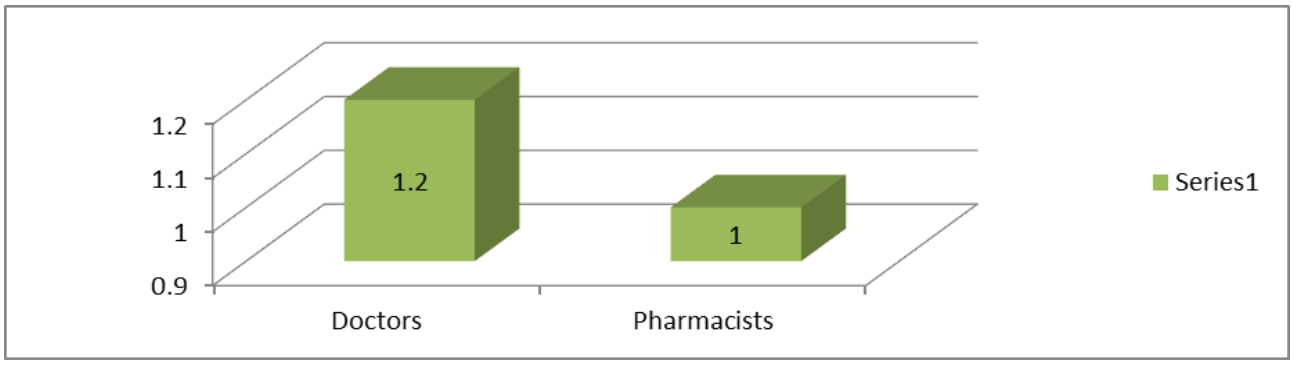


Fig: 5

Interpretation: The table indicates that pharmacists (mean = 8.2) have a slightly more positive overall perception towards generic medicines compared to doctors (mean = 7.8). The lower standard deviation among pharmacists (1.0) suggests their responses were more consistent, while doctors showed slightly more variability in their views (SD = 1.2).

3. Attitude towards Generic Medicines (Likert Scale 1 to 5)

Table: 6

Statement	Doctors (Mean)	Pharmacists (Mean)
Generic medicines are equally effective as branded	3.9	4.2
I feel confident recommending/prescribing generics	3.6	4.1
Patients prefer branded medicines over generics	4.2	4.0

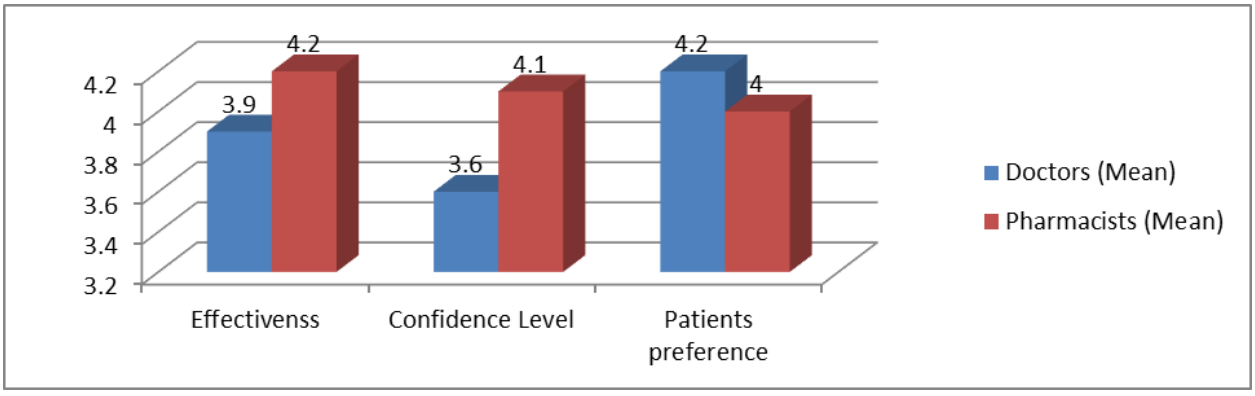


Fig: 6

Interpretation: The table shows that both doctors and pharmacists believe generic medicines are effective, with pharmacists showing stronger agreement (mean = 4.2 vs. 3.9). Pharmacists also feel more confident recommending generics (4.1) compared to doctors (3.6). Both groups agree that patients prefer branded medicines, with doctors (4.2) perceiving this slightly more than pharmacists (4.0). Overall, pharmacists display a more favorable attitude towards generics.

4. Barriers Faced in Promoting Generic Medicines

Table: 7

Barrier	Doctors (%)	Pharmacists (%)
Quality concerns	**60%**	**55%**
Lack of patient trust	**70%**	**50%**
Influence of pharma companies	**50%**	**30%**
Lack of incentives	**65%**	**40%**

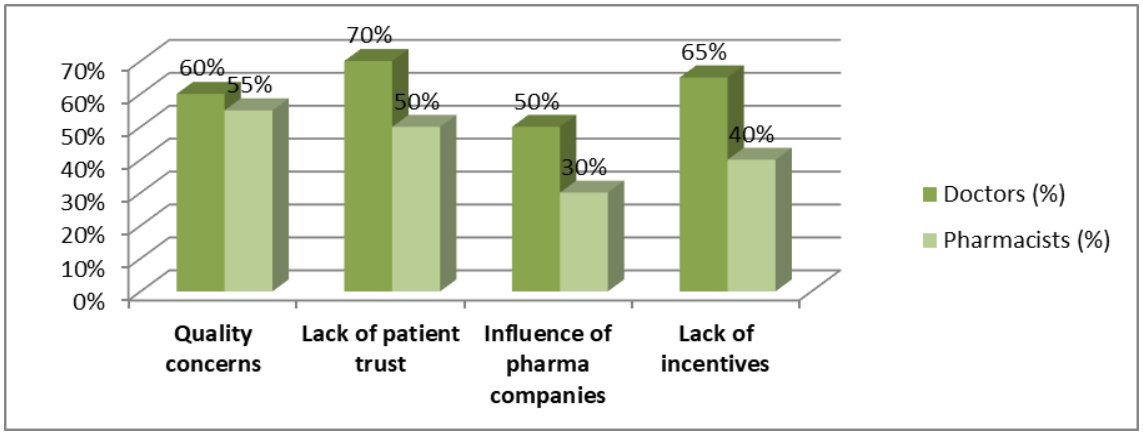


Fig: 7

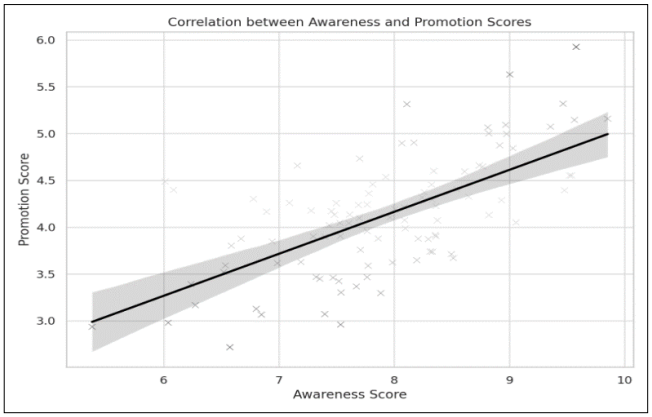
Interpretation: The data reveals that both doctors and pharmacists face several barriers in promoting generic medicines. The most significant barrier for doctors is lack of patient trust (70%), followed by lack of incentives (65%) and quality concerns (60%). Pharmacists also cite quality concerns (55%) and lack of patient trust (50%) as key issues, but to a lesser extent. Overall, doctors report higher levels of barriers than pharmacists, particularly regarding incentives and pharmaceutical company influence.

Hypothesis testing

Correlation between awareness and promotion practices

Table: 8

Variables	Pearson Correlation (r)	p-value
Awareness Score vs Promotion Score	0.52	0.0001



Summary of Hypothesis Testing

Table: 9

Hypothesis	Result
H0_1: No difference in awareness/perception	Accepted ($p > 0.05$)
H0_2: Barriers do not affect promotion	Rejected ($p < 0.05$)

Discussion

The findings of this study reveal a moderate level of awareness about generic medicines among both doctors and pharmacists in Nagpur, with pharmacists showing slightly higher knowledge. This aligns with prior research indicating that pharmacists, being the final point of dispensing medicines, tend to be more familiar with generics than doctors. Although the difference in awareness between the two groups was not statistically significant, it reflects a generally positive understanding of generic medicines among healthcare professionals.

Despite this awareness, doctors exhibited a moderate level of confidence in prescribing generics, while pharmacists were more optimistic in their attitude. This cautious approach among doctors can be attributed to concerns regarding the efficacy and quality of generic medicines, which has been documented in earlier studies as well. Additionally, patient preferences for branded medicines appear to influence prescribing and dispensing behaviors, reinforcing the challenge of promoting generics in clinical practice. These concerns are compounded by the notable influence of pharmaceutical companies, as many doctors reported interactions with company representatives, potentially swaying them towards branded drugs. The lack of incentives for promoting generics further diminishes motivation among healthcare providers.

Nagpur's unique socio-economic context also plays a role in shaping attitudes towards generic medicines. Being a tier-2 city with a diverse population, there appears to be limited patient trust in generics, possibly due to lower literacy levels and reduced exposure to government initiatives like the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP). This contrasts with metropolitan areas where awareness campaigns and healthcare infrastructure are more robust. The persistence of pharmaceutical marketing strategies targeting local doctors highlights the need for stronger regulatory oversight in such regions.

These findings have important implications for healthcare in India, especially in semi-urban and rural settings. Healthcare professionals hold a crucial position in influencing medicine choices, and empowering them with greater confidence in generic medicines through continuous education and training can facilitate wider adoption. Addressing barriers such as misconceptions about quality and patient trust will require comprehensive public awareness campaigns. Furthermore, policy measures to regulate pharmaceutical marketing practices and introduce incentives for prescribing generics could enhance motivation among doctors and pharmacists.

Overall, increasing the use of generic medicines aligns with national healthcare objectives aimed at reducing treatment costs and expanding access to affordable healthcare. The insights gained from this study of Nagpur's healthcare professionals underscore the necessity of tailored interventions that consider local challenges and stakeholder

perspectives to successfully promote generic medicine usage across India.

Recommendations

Based on the findings of this study, several recommendations can be made to enhance the promotion and adoption of generic medicines in Nagpur and similar regions.

For doctors, it is crucial to implement targeted sensitization programs and continuous medical education (CME) sessions focused specifically on generic medicines. These programs should address common misconceptions related to the efficacy and safety of generics, providing up-to-date scientific evidence to build confidence in prescribing them. Additionally, introducing incentives for doctors who actively prescribe generic medicines can motivate them to prioritize cost-effective treatment options, aligning their practices with public health goals.

Pharmacists play a pivotal role in the dispensing process and should receive comprehensive training on safe substitution practices to ensure that generics are dispensed appropriately without compromising patient care. Empowering pharmacists with greater authority to substitute branded medicines with generic alternatives when clinically appropriate can streamline the adoption of generics and reduce unnecessary expenses for patients.

At the policy level, it is essential to strengthen the regulatory framework governing generic medicines. This includes enforcing stringent quality control measures to guarantee that generics meet high standards of safety and efficacy, thereby addressing prevalent quality concerns among healthcare professionals and patients alike. Regulatory bodies should also monitor and regulate the influence of pharmaceutical marketing to prevent biased prescribing and dispensing behaviors.

Finally, public awareness campaigns are indispensable in building patient trust and acceptance of generic medicines. Such campaigns should be designed to educate the general population about the benefits, safety, and cost-effectiveness of generics, thereby dispelling myths and encouraging informed choices. Collaboration between government agencies, healthcare providers, and community organizations will be key to reaching diverse populations effectively.

Implementing these recommendations will require coordinated efforts from healthcare providers, policymakers, and the community. Together, these strategies can facilitate greater generic medicine usage, contributing to more affordable and accessible healthcare in Nagpur and beyond.

Conclusion

This study highlights the critical role played by doctors and pharmacists in promoting the usage of generic medicines in Nagpur. The findings reveal a moderate level of awareness and generally positive attitudes towards generics among healthcare professionals, with pharmacists demonstrating slightly higher confidence than doctors. However, persistent barriers such as concerns about quality, patient trust issues, and the influence of pharmaceutical companies continue to hinder the widespread adoption of generics. Doctors and pharmacists emerge as key agents of change who can significantly influence medicine usage patterns. Their endorsement and active promotion of generic medicines are essential for making healthcare more affordable and accessible, particularly in tier-2 cities like Nagpur. Nonetheless, individual efforts must be supported by systemic interventions including targeted education, regulatory strengthening, incentive mechanisms, and robust public awareness campaigns. The promotion of generic medicines in Nagpur demands coordinated action from healthcare providers, policymakers, and community stakeholders to overcome existing challenges and foster trust among patients. This will not only reduce healthcare costs but also align with India's broader healthcare objectives of universal access and equity. Future research can expand on this study by exploring patient perspectives on generic medicines, evaluating the long-term impact of policy interventions, and conducting comparative studies across different regions. Such research will further deepen understanding and help design effective strategies to promote generic medicine usage across the country.

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