



Knowledge and Perceptions of Generic Medicines Among Hospital Pharmacists Biomedical in Punjab

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ABSTRACT

Background

Generic medicines provide a lower-cost alternative to branded medicines and can improve access to treatment. Pharmacists have an important role in providing information about generic medicines and supporting their appropriate use. However, concerns about quality, efficacy, safety, therapeutic equivalence, and patient acceptance may influence their use.

Objective

To assess the knowledge and perceptions of hospital pharmacists in Punjab regarding generic medicines and to examine selected factors associated with their views and willingness to recommend generic medicines.

Methods

A descriptive cross-sectional study was conducted among registered hospital pharmacists in Punjab. Data were collected using a structured close-ended questionnaire in Urdu and English covering demographic characteristics, knowledge, and perceptions/practices related to generic medicines. Sixty completed questionnaires were included in the final analysis. Data were entered into SPSS version 22 and descriptive analysis was performed.

Results

Among the 60 respondents, 31 (51.7%) were female and 29 (48.3%) were male. Most respondents were aged 25–35 years and many had 1–5 years of professional experience. The study reported generally favorable knowledge and perceptions of generic medicines. Seventy-five percent of respondents strongly agreed with recommending generic medicines. Higher support was reported among younger pharmacists and pharmacists with a Pharm.D. qualification. Concerns regarding therapeutic equivalence, patient trust, and preference for branded medicines were also reported.

Conclusion

Hospital pharmacists participating in this study generally showed favorable views toward generic medicines. However, concerns about therapeutic equivalence and patient acceptance remain. Continuing professional education and effective patient counseling may help address these concerns.

Keywords: Generic Medicines; Hospital Pharmacists; Knowledge and Perceptions; Therapeutic Equivalence; Bioequivalence; Generic Substitution; Patient Acceptance; Pharmacy Practice

INTRODUCTION

Generic medicines are pharmaceutical products intended to provide the same therapeutic effect as their corresponding reference products when they meet applicable requirements for quality, safety, efficacy, and bioequivalence. Their lower cost can reduce medicine expenditure and improve affordability, particularly in healthcare systems where patients bear a substantial proportion of treatment costs [1].

Although generic medicines are widely used, their acceptance can be influenced by the knowledge and perceptions of healthcare professionals and patients. Concerns about efficacy, safety, quality, therapeutic equivalence, and substitution may contribute to preference for branded medicines. Pharmacists are particularly important because they counsel patients and are involved in medicine selection and dispensing.

Recent evidence from Pakistan supports the relevance of these concerns. A 2025 cross-sectional study involving physicians and pharmacists in Pakistan found generally positive attitudes and perceptions toward generic medicines, but also identified barriers related to knowledge, policy, regulation, quality, and implementation. A 2025 study among final-year pharmacy and medical students in Abbottabad also reported knowledge gaps concerning generic medicines, particularly regarding efficacy, while beliefs about their cost were generally favorable [2-5].

International evidence also indicates that negative perceptions of generic medicines can persist among healthcare professionals. A systematic review found that pharmacists and physicians may have concerns about the effectiveness and quality of generics compared with branded medicines, demonstrating the importance of professional knowledge and communication in promoting appropriate generic use.

Despite this evidence, there is limited information specifically concerning hospital pharmacists in Punjab. The present study therefore focuses on this group and examines their knowledge and perceptions of generic medicines. The study may provide useful information for pharmacy education, professional development, and future research concerning generic-medicine use in Punjab.

Research Gap and Novelty

Previous studies have examined generic-medicine knowledge and perceptions among healthcare professionals, students, and the general population. However, comparatively limited evidence is available on hospital pharmacists working across Punjab. The present study contributes regional evidence by assessing hospital pharmacists' knowledge and perceptions of generic medicines and considering demographic and professional characteristics that may be related to these views [6].

OBJECTIVES

- To assess the knowledge of hospital pharmacists in Punjab regarding generic medicines.
- To assess hospital pharmacists' perceptions and willingness to recommend generic medicines [7].
- To examine selected demographic and professional factors associated with perceptions of generic medicines.
- To identify concerns that may be addressed through professional education and patient counseling [8-10].

MATERIALS AND METHODS

Study Design

A descriptive cross-sectional study was conducted to assess the knowledge and perceptions of hospital pharmacists regarding generic medicines. Data were collected through a questionnaire at a single point in time. A cross-sectional design was selected because it allowed information to be collected from a defined group of pharmacists within the study period [11].

Study Setting

The study was conducted among hospital pharmacists working in different hospitals in Punjab, Pakistan. An online questionnaire was also used, and the survey link was shared with hospital pharmacists.

S/No.	Aspect	Knowledge	Perception
1.	General Awareness	Pharmacists are generally aware of generic medicines but have gaps in understanding bioequivalence and regulatory standards.	Many pharmacists perceive generics as inferior to branded medicines, largely due to misconceptions about their efficacy and safety.
2.	Influence of Education	Pharmacy programs in Punjab aim to provide comprehensive knowledge about all types of medicines, including generics.	Effectiveness of education in shaping positive perceptions varies, with continuous professional development being crucial for confidence in recommending generics.
3.	Impact of Economic Factors	Knowledge is influenced by economic factors, such as the profitability of selling branded medicines.	Pharmacists in urban areas are less likely to substitute branded medicines with generics due to economic interests and concerns about patient trust.

4.	Cultural Influence	Cultural factors shape pharmacists' knowledge, with a general preference for branded products perceived as higher quality.	Culturally, there is a strong preference for branded products, which affects pharmacists' willingness to recommend generics.
5.	Urban vs. Rural Dynamics	Knowledge levels vary between urban and rural pharmacists, with rural pharmacists often being more aware of the cost benefits of generics.	Perceptions differ significantly; rural pharmacists are more likely to recommend generics due to cost-effectiveness, while urban pharmacists are more hesitant.

Table 1: Comparative Analysis of Pharmacists Knowledge and Perceptions Regarding Generic Medicines

Recruitment Of Participants

The survey included registered pharmacists working in hospital settings in Punjab who provided informed consent. Participants were briefed about the purpose of the study before completing the questionnaire [12]

Inclusion Criteria

- Registered pharmacists working in hospital settings.
- Pharmacists who provided informed consent to participate

Exclusion Criteria

- Trainee pharmacists who were not licensed at the time of the study.
- Community pharmacists.
- Pharmacists teaching in educational institutions.
- Pharmacists working in the pharmaceutical industry [13-15].

Sample Size

The original study reported a calculated sample size of 61 participants and a 90% confidence level. Sixty completed questionnaires were included in the final analysis. The information available in the manuscript does not provide the assumptions or formula used for the sample-size calculation; therefore, no additional calculation has been added.

Study Tool

A close-ended questionnaire was developed on the basis of available literature and was prepared in Urdu and English. It consisted of sections covering socio-demographic information, knowledge of generic medicines, and questions concerning participants' practices and perceptions. The questionnaire was used to assess knowledge and views regarding generic medicines [16-20].

Data Collection Procedure

Data were collected from hospital pharmacists working in different hospitals in Punjab. Participants were informed about the purpose of the research, and informed consent was

obtained. The questionnaire was provided to participants, and clarification was provided where required. Confidentiality of participants' information was maintained.

Ethical Considerations

Participation was voluntary and informed consent was obtained from participants. Confidentiality of responses was maintained. The original manuscript does not provide the name or approval number of an ethics committee; therefore, no approval number has been added [21].

Statistical Analysis

Data were entered into SPSS version 22 and analyzed. The original manuscript describes the analysis only as basic analysis and does not specify the inferential tests, normality assessment, significance level, or missing-data procedure. These details have therefore not been added or assumed.

RESULTS

Characteristics Of Respondents

A total of 60 hospital pharmacists participated in the study. Of these, 31 (51.7%) were female and 29 (48.3%) were male. Most respondents were in the 25–35-year age group, and many had 1–5 years of professional experience. Participants had different educational qualifications, with bachelor's and master's degrees represented in the study [22].

Knowledge of Generic Medicines

The study assessed pharmacists' knowledge of generic medicines using questions concerning active ingredients, regulatory approval, cost, safety, efficacy, and therapeutic equivalence. A high proportion of respondents correctly answered questions concerning active ingredients, regulatory approval, and cost advantages. Knowledge concerning therapeutic equivalence was comparatively lower.

Perceptions and Recommendation of Generic Medicines

The study reported that 75% of respondents strongly agreed with recommending generic medicines. Support was reported as higher among younger pharmacists (74%) and pharmacists with a Pharm.D. qualification (80%). The manuscript also reported

disagreement among 25% of respondents, particularly among female pharmacists (35%) and pharmacists with non-Pharm.D. qualifications (80%).

Trust, Safety and Cost

A substantial proportion of respondents reported that patients trust branded medicines more than generic medicines. Respondents also recognized cost as an important consideration in the use of generic medicines. Concerns about therapeutic equivalence and safety were reported by some participants [23-25].

Barriers to Generic-Medicine Use

The study identified patient preference for branded medicines, concerns regarding efficacy and safety, professional experience, and pharmaceutical-industry influence as factors that may affect generic-medicine use.

DISCUSSION

The present study indicates generally favorable knowledge and perceptions of generic medicines among participating hospital pharmacists, although some uncertainty remains regarding therapeutic equivalence. This finding is broadly consistent with recent Pakistani evidence. A 2025 study of physicians and pharmacists in Pakistan reported generally positive attitudes and perceptions toward generic medicines, while also identifying barriers that can affect their implementation.

The relatively favorable views observed in the present study may reflect pharmacists' familiarity with the economic and therapeutic role of generic medicines. However, knowledge does not necessarily translate directly into recommendation or dispensing behavior. Patient preferences, previous professional experiences, and concerns about quality may also influence decisions [26].

The finding that younger pharmacists and pharmacists with a Pharm.D. qualification showed greater support may indicate an association between professional characteristics and perceptions. Recent evidence among final-year pharmacy and medical students in Pakistan also demonstrates that education and professional background can influence knowledge and perceptions of generic medicines. Because the present study is cross-sectional and the original analysis does not report sufficient inferential statistics, this association should not be interpreted as causal [27-28].

The findings concerning patient trust are also important. Pharmacists reported that some patients prefer branded medicines, which may make counseling and recommendation of generic alternatives more difficult. Previous systematic evidence has shown that perceptions of lower quality or effectiveness can occur among healthcare professionals and patients, indicating that communication and accurate information remain important.

Cost was another important consideration. Generic medicines can reduce medicine expenditure and may be

particularly relevant for patients who face financial barriers to treatment. However, cost should be considered alongside quality, safety, therapeutic appropriateness, and patient preferences.

The influence of professional experience deserves consideration. The original study suggested that pharmacists with more experience were less likely to prefer generic medicines. This may be related to established professional habits or previous experiences, but the available data do not allow the reasons for this pattern to be established [29].

The findings also have implications for professional education. Continuing education can provide pharmacists with updated information about bioequivalence, quality standards, safety, and appropriate substitution. Such education may be particularly useful when combined with communication training that enables pharmacists to respond to patient concerns.

Regulatory and policy factors may also affect generic-medicine use. Clear information regarding quality standards and substitution policies may help improve confidence among healthcare professionals and patients. Recent Pakistani research has similarly identified policy, regulatory, quality, inventory, and communication barriers to wider implementation [30-32].

Ethically, pharmacists should consider the patient's clinical needs, preferences, and ability to afford treatment when discussing generic alternatives. Generic substitution should be based on appropriate clinical and regulatory considerations rather than cost alone [33].

LIMITATIONS

The study has several limitations. First, the sample consisted of 60 hospital pharmacists, which limits the generalizability of the findings to all hospital pharmacists in Punjab. Second, the cross-sectional design provides information at one point in time and cannot establish causal relationships. Third, the use of self-reported questionnaire responses may introduce response and social-desirability bias. Fourth, the online survey approach may have introduced selection and non-response bias. Fifth, the study focused only on hospital pharmacists and therefore does not represent pharmacists working in community, academic, or industrial settings. Finally, the original manuscript provides limited information about questionnaire validation and detailed statistical procedures, which may affect reproducibility.

RECOMMENDATIONS

The findings suggest several areas for future practice and research.

- Continuing professional education should include current evidence concerning generic-medicine quality, bioequivalence, safety, and appropriate substitution.
- Pharmacists should be supported with clear and evidence-based information that can be used when counseling patients who prefer branded medicines.
- Larger multicenter studies should be conducted across different regions and hospital types in Punjab.

- Future studies should use validated questionnaires and clearly report sample-size calculations and statistical methods.
- Qualitative or mixed-methods research may help explain why pharmacists and patients prefer branded medicines in some situations.

CONCLUSION

The study found generally favorable knowledge and perceptions of generic medicines among the participating hospital pharmacists. The findings also indicate that patient trust, concerns about therapeutic equivalence and safety, professional experience, and preference for branded medicines may influence the use of generic alternatives. Generic medicines may contribute to more affordable treatment when appropriately selected and used. Continued professional education and effective patient counseling may help address concerns and support appropriate generic-medicine use. Further research using larger and more representative samples is needed to confirm these findings among hospital pharmacists across Punjab.

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