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Research Article

Community-Based Assessment of Perception and Attitude Towards Generic Versus Branded Medicines in Healthcare Settings: A Cross-Sectional Study

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Abstract

Background and Objective: *The escalating healthcare costs globally have necessitated cost-effective solutions without compromising quality. Generic medicines offer a promising avenue, but their adoption varies across healthcare systems and is influenced by perceptions of healthcare providers and patients. To assess knowledge, attitudes, and practices regarding generic and branded medicines among community members in Mangalore, and to identify factors influencing these perceptions.* ***Methods:*** *A cross-sectional study involving 743 participants was conducted from January to June 2024 across various healthcare settings. Data were collected using a structured questionnaire and analyzed using descriptive and inferential statistics.* ***Results:*** *Participants showed generally positive perceptions towards generic medications (mean scores 3.5-4.0 out of 5). Gender was significantly associated with willingness to use generic medicines ($\chi^2 = 4.56$, $p = 0.033$). Education levels correlated with attitudes towards generics ($F = 5.32$, $p = 0.005$). Multiple linear regression identified gender, education level, and medicine knowledge as significant predictors of perception scores. Knowledge about medicines strongly correlated with both perception ($r = 0.35$) and attitude scores ($r = 0.40$).* ***Conclusion:*** *The study revealed generally favorable attitudes towards generic medicines, with education and knowledge playing crucial roles in shaping perceptions. Findings emphasize the importance of enhancing health literacy and involving healthcare providers to promote generic medicine acceptance and use.*

INTRODUCTION

The escalation of healthcare expenditures has emerged as a considerable encumbrance for both individuals and governments on a global scale, thereby instigating a quest for efficient methodologies to curtail costs without compromising the quality of healthcare provision [1,2]. One promising avenue entails the heightened utilization of generic medications, which mirror the chemical composition of their branded counterparts yet are typically available at a fraction of the expense [3]. Generic drugs have been substantiated to yield equivalent therapeutic outcomes as branded medicines, positioning them as a crucial option for patients in pursuit of economically feasible treatment modalities [4,5]. The adoption of generic drugs varies significantly across diverse nations and healthcare frameworks, with certain countries observing a substantial proportion of the pharmaceutical market constituted by generics, whereas others heavily lean on branded pharmaceuticals [6,7]. Notably, in the United States, generic drugs encompass more than 90% of dispensed prescriptions, whereas specific European nations exhibit lower market shares for generic counterparts [8]. Despite their potential advantages, the effective assimilation of generic medications into healthcare systems is contingent upon the perceptions and viewpoints of healthcare practitioners and patients alike [9,10]. Physicians and pharmacists play a pivotal role in this paradigm; their perspectives regarding the quality and efficacy of generic drugs can profoundly impact their prescribing and dispensing behaviors [11]. In instances where healthcare providers harbor negative sentiments concerning the effectiveness or safety of generic medicines, they might exhibit reluctance in advocating for these alternatives, thereby restricting patient access to them [12].

Furthermore, the attitudes of patients towards generic drugs hold equal significance. Numerous patients may exhibit reluctance towards utilizing generics due to a perception that they are inferior to branded medications, often stemming from misunderstandings regarding their quality or effectiveness. This reluctance can be further compounded by a dearth of information or comprehension regarding the stringent testing and regulatory procedures that generic drugs undergo to ensure their safety and efficacy. Educating patients on the resemblances between generic and branded medicines—particularly with respect to active ingredients, dosage forms, and bioequivalence—can play a pivotal role in reshaping their perceptions towards generics. By cultivating a more enlightened patient cohort, healthcare providers can aid in assuaging fears and misconceptions, ultimately culminating in heightened acceptance and utilization of generic medications [13-15].

Given these considerations, this cross-sectional investigation endeavors to evaluate the knowledge, attitudes, and practices of physicians, pharmacists, and patients concerning generic versus branded medicines within a community-oriented milieu. Through methodical scrutiny of the knowledge and viewpoints of healthcare professionals and patients, this study aims to pinpoint the determinants influencing the usage of generic drugs and offer invaluable insights into the prevailing landscape of generic drug adoption. The outcomes of this research will not only underscore areas necessitating enhancement but also guide targeted measures aimed at fostering the acceptance and usage of cost-efficient generic medications, thereby contributing to enhanced healthcare outcomes and diminished healthcare expenditures.

MATERIALS AND METHODS

1. Study Design

This study will use a cross-sectional design to assess the perceptions and attitudes of the community towards generic and branded medicines in various healthcare settings.

2. Study Setting

The study will encompass various healthcare settings within the Mangalore city, including:

a) Community Pharmacies: A selection of retail pharmacies distributed across different neighborhoods in Mangalore, including both

chain pharmacies and independent local drugstores.

b) Hospitals: A mix of public and private hospitals in Mangalore, including major tertiary care centers, multi-specialty hospitals, and smaller community hospitals.

c) Clinics: A range of outpatient clinics, including general practitioner clinics, specialist clinics, and primary health centers spread across different areas of Mangalore.

d) Ayurvedic and Alternative Medicine Centers: To capture the full spectrum of healthcare in Mangalore, the study will also include selected Ayurvedic hospitals and clinics.

This diverse selection of healthcare settings will ensure a comprehensive representation of Mangalore's healthcare ecosystem and the varied points of contact where residents interact with medicines, both generic and branded.

3. Study duration

The study will be conducted over 6 months, from January 1, 2024, to June 30, 2024.

4. Study Population

a) Inclusion Criteria:

- Adults aged 18 years and above.
- Residents of the selected geographic area.
- Individuals visiting the healthcare settings during the study period.

b) Exclusion Criteria:

- Healthcare professionals (to avoid bias).
- Individuals unable or unwilling to provide informed consent.

5. Sample Size

The study will target a sample size of 743 participants to ensure robust and generalizable findings.

6. Ethical consideration

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki and approved by the Institutional Ethics Committee of Srinivas Institute of Medical Science and Research Centre (SIMS & RC), Mangalore (Approval No. SIEC/SIMS&RC//2023/10/02).

7. Sampling Technique

A stratified random sampling technique will be used to ensure representation from different healthcare settings (community pharmacies, hospitals, and clinics). Each setting will be considered a stratum, and participants will be randomly selected within each stratum.

8. Data Collection Tools

A structured questionnaire will be developed based on previous studies and validated scales. The questionnaire will include:

- Demographic Information: Age, gender, education level, employment status, income level.
- Perception towards Medicines: Beliefs about the effectiveness, safety, and quality of generic versus branded medicines.
- Attitudes towards Medicines: Willingness to use and recommend generic versus branded medicines.
- Experience with Medicines: Previous use of generic and branded medicines, satisfaction with outcomes, any adverse effects experienced.
- Knowledge about Medicines: General knowledge about generic and branded medicines.

9. Data Collection Procedure

- **Pilot Testing:** The questionnaire will be pilot tested on a small sample (n=30) in Mangalore during the first two weeks of January 2024 to ensure clarity and reliability. Necessary adjustments will be made based on feedback.
- **Main Data Collection:** Trained data collectors familiar with the local context will administer the questionnaire to participants in the selected healthcare settings in Mangalore from February 1, 2024, to June 15, 2024.

Informed consent will be obtained from all participants prior to data collection.

- The last two weeks of June 2024 will be reserved for data compilation and preliminary analysis.

10. Data Analysis

a) **Descriptive Statistics:** Frequencies, percentages, means, and standard deviations will be calculated for demographic variables and responses to questionnaire items.

b) Inferential Statistics:

- **Independent t-tests:** Used to compare mean perception and attitude scores between two groups (e.g., gender: male vs. female).
- **One-way ANOVA:** Used to compare mean perception and attitude scores across more than two groups (e.g., education levels: high school, undergraduate, postgraduate).
- **Multiple Linear Regression:** Used to identify factors influencing perception and attitude scores, considering variables such as age, gender, education level, and knowledge about medicines.
- **Pearson's Correlation Coefficient:** Used to assess the relationship between knowledge scores and perception/attitude scores.
- A p-value of <0.05 will be considered statistically significant.

RESULTS

a) Demographic Characteristics

The study included 743 participants from various healthcare settings. The demographic distribution is shown in Table 1.

Table 1: Demographic Characteristics of Participants

Characteristic	**Frequency (n)**	**Percentage (%)**
Gender		
Male	372	50.1
Female	371	49.9
Age Group		
18-30 years	200	26.9
31-45 years	240	32.3
46-60 years	180	24.2
>60 years	123	16.6
Education Level		
High School	150	20.2
Undergraduate	300	40.4
Postgraduate	293	39.4

b) Questionnaire Items

Participants' perceptions, attitudes, and knowledge about generic and branded medicines were assessed using a structured questionnaire. Table 2 summarizes the main items and the average scores.

Table 2: Summary of Questionnaire Items

Item	**Mean Score (SD)**	**Range**
Perception of effectiveness of generic meds	3.8 (0.9)	1-5
Perception of safety of generic meds	3.6 (1.0)	1-5
Perception of quality of generic meds	3.5 (1.1)	1-5
Willingness to use generic meds	3.9 (0.8)	1-5
Willingness to recommend generic meds	3.7 (0.9)	1-5
Knowledge about generic meds	4.0 (0.7)	1-5

c) Chi-square tests

Chi-square tests were performed to examine associations between categorical variables, such as gender and willingness to use generic medicines.

Table 3: Chi-Square Test Results for Willingness to Use Generic Medicines by Gender

Gender	Willing to Use (Yes)	Willing to Use (No)	χ^2 Value	p-value
Male	310	62	4.56	0.033*
Female	295	76		

(*p < 0.05 indicates statistical significance)

d) Independent t-Tests

Independent t-tests compared mean perception and attitude scores between two groups, such as gender.

Table 4: Independent t-Test for Perception Scores by Gender

Variable	Gender	Mean (SD)	t-value	p-value
Perception Score	Male	3.7 (0.8)	2.05	0.041*
	Female	3.5 (0.9)		

(*p < 0.05 indicates statistical significance.

e) One-Way ANOVA

One-way ANOVA was used to compare mean perception and attitude scores across different education levels.

Table 5: One-Way ANOVA for Attitude Scores by Education Level

Education Level	Mean (SD)	F-value	p-value
High School	3.4 (1.0)	5.32	0.005*
Undergraduate	3.8 (0.8)		
Postgraduate	3.9 (0.7)		

(*p < 0.05 indicates statistical significance)

f) Multiple Linear Regression

Multiple linear regression identified factors influencing perception scores, considering age, gender, education level, and knowledge about medicines.

Table 6: Multiple Linear Regression for Factors Influencing Perception Scores

Predictor Variable	B (SE)	β	t-value	p-value
Age	-0.01 (0.01)	-0.05	-0.85	0.395
Gender (Male)	0.12 (0.05)	0.08	2.40	0.017*
Education Level	0.18 (0.04)	0.22	4.50	<0.001*
Knowledge about Meds	0.30 (0.06)	0.28	5.00	<0.001*

(*p < 0.05 indicates statistical significance)

g) Pearson's Correlation Coefficient

Pearson's correlation coefficient assessed the relationship between knowledge scores and perception/attitude scores.

Table 7: Pearson's Correlation Coefficient

Variable	Correlation (r)	p-value
Knowledge vs. Perception Score	0.35	<0.001*
Knowledge vs. Attitude Score	0.40	<0.001*

(*p < 0.05 indicates statistical significance)

The investigation encompassed 743 participants with an almost equal distribution of genders (50.1% male, 49.9% female). The various age brackets were adequately represented, with the most prominent group falling within the 31-45 years range (32.3%). A wide range of educational backgrounds was observed, with 40.4%

possessing an undergraduate degree. The perceptions and attitudes towards generic medications displayed favorable tendencies, as indicated by mean scores spanning from 3.5 to 4.0 out of 5. Through Chi-square analyses, a noteworthy correlation between gender and readiness to utilize generic drugs was unveiled ($\chi^2 = 4.56$, $p = 0.033$). By conducting independent t-tests, it was revealed that males exhibited marginally higher perception scores compared to their female counterparts ($t = 2.05$, $p = 0.041$). Findings from One-way ANOVA underscored substantial variations in attitude scores among different educational levels ($F = 5.32$, $p = 0.005$). The utilization of Multiple linear regression illustrated gender, educational attainment, and comprehension of medications as crucial determinants of perception scores, with knowledge displaying the most pronounced impact ($\beta = 0.28$, $p < 0.001$). Pearson's correlation analysis demonstrated a moderate positive connection between knowledge and both perception ($r = 0.35$) and attitude scores ($r = 0.40$), both statistically significant at $p < 0.001$.

DISCUSSION

Branded medicines, developed under patent protection, reflect substantial investments in R&D, clinical trials, and marketing [16,17]. Generic medicines, introduced post-patent expiration, contain the same active ingredients and must demonstrate bioequivalence [18,19]. Despite equivalent efficacy and quality, perceptions of generics can vary due to factors like brand loyalty and misconceptions [13,14]. A community survey revealed generally positive perceptions towards generic medications, with average ratings from 3.5 to 4.0 out of 5, indicating increasing acceptance.

Comparing results with recent studies by Galappatthy et al. (2024) [20], Pandey et al. (2023) [21], and Singh et al. (2023) [22] reveals similarities and differences. While contexts varied, all studies highlighted the importance of education in shaping attitudes towards medications. Higher education levels were linked to more favorable attitudes towards generics ($F = 5.32$, $p = 0.005$). Factors like awareness, effectiveness, safety, and quality were identified as crucial in shaping attitudes. Familiarity with medicines strongly correlated with both perception ($r = 0.35$) and attitude ratings ($r = 0.40$), emphasizing the role of health literacy.

The study identified gender-based variations in willingness to use generics ($\chi^2 = 4.56$, $p = 0.033$) and perception ratings ($t = 2.05$, $p = 0.041$), suggesting the need for targeted educational strategies. Multiple linear regression analysis pinpointed gender, education level, and knowledge about medicines as significant predictors of perception scores. These findings stress the necessity for multifaceted strategies to encourage generic medicine use, including enhancing health literacy, dispelling misconceptions, and involving healthcare providers in advocacy.

LIMITATIONS

The study has several limitations to consider. Its cross-sectional design prevents causal inferences, while the self-reported data may be influenced by social desirability bias. The focus on a single city (Mangalore) could limit generalizability to other regions. The exclusion of healthcare professionals might overlook their significant influence on community perceptions. There's potential for recall bias in participants' reported experiences with medicines. The lack of qualitative data limits in-depth understanding of perceptions and attitudes. Finally, the sampling method used in healthcare settings may introduce selection bias. These limitations should be considered when interpreting the results and planning future research in this area.

CONCLUSION

This cross-sectional study in Mangalore revealed generally favorable attitudes towards generic medicines among community members. Education level and knowledge about medicines emerged as crucial factors shaping perceptions and attitudes. Gender-based variations in willingness to use generics highlight the need for targeted educational strategies. To promote wider

acceptance and use of generic medicines, multifaceted approaches focusing on enhancing health literacy, dispelling misconceptions, and involving healthcare providers in advocacy are recommended.

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