

BRIDGING THE PERCEPTION GAP: PATIENT ATTITUDES TOWARD MULTINATIONAL AND LOCAL MEDICINES IN A RESOURCE-CONSTRAINED SETTING OF QUETTA, PAKISTAN

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Abstract

Background: Patient and caregiver perceptions are important to consider when examining adherence, cost management, and health outcomes of pharmaceuticals. The study explored the attitudes of the people of Quetta, Pakistan, toward the use of multinational and local prescription drugs. **Methods:** A prospective cross-sectional study was conducted in the Quetta area from September 2022 to March 2023, recruiting 816 patients and caregivers (ages 16-58). Demographic and clinical data, knowledge of medicines, and purchasing preferences were collected using structured questionnaires across various scenarios.

Attitudes toward multinational and local pharmaceutical products were compared using a chi-square test and Spearman rank correlation. **Results:** Of 816 participants, 429 (52.6%) were male, and 641 (78.7%) lived in urban areas. Local medicines had significantly higher awareness than multinational products (80.4% vs. 76.0%, $\chi^2=8.43$, $p=0.015$). Across all ten drug attributes, multinational products were strongly preferred: quality (46.1% vs. 27.1%, $p<0.001$), effectiveness (41.7% vs. 24.9%, $p<0.001$), safety (37.1% vs. 21.3%, $p<0.001$), and quick relief (40.7% vs. 22.8%, $p<0.001$). Medicines from other countries were perceived as more expensive (51.0% strongly agreed, $\chi^2=46.31$, $p<0.001$). Multinational preference ranged from 40.8% (spouse, acute disease) to 54.7% (parents, chronic disease; $\chi^2=119.4$, $p<0.001$) across the nine purchasing scenarios. Preferences were highly consistent ($r_s = 0.94$, $p<0.001$). **Conclusions:** Across all diseased conditions, patients and caregivers in Quetta consistently prefer multinational medicines, with their preference based on perceived efficacy, quality, and packaging rather than cost. To bridge this gap, bioequivalence standards need to be tightened, communication among local manufacturers and the public needs to be improved, and public education should be targeted to ensure the rational and equitable use of medicines in Pakistan.

Keywords: Prospective cross-sectional study, Local Medicine, Multinational, Perception, Attitude, and Adherence

1. Introduction

Health is a human right and an integral component of sustainable development. According to WHO, it is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (Svalastog et al., 2017).

Although there has been significant advancement in the field of health care across the globe, the prevalence of acute and chronic diseases has still been rising, particularly in

low- and middle-income countries such as Pakistan. They can manifest in various ways and are abnormal states that may disrupt essential functions due to environmental, genetic, or combined factors (Porta, 2014). Acute conditions are sudden and temporary, but chronic illnesses are prolonged and last for months or years (Libby et al., 2024).

Many diseases worldwide and in this country, such as hypertension, diabetes, peptic ulcer disease, coronary artery disease, rheumatoid arthritis, depression, hepatitis, allergies, and thyroid disorders, cause substantial morbidity and mortality. Control of these diseases is heavily reliant on medication. Prescribed drugs are an important component of contemporary health care, and a prescription serves as a formal authorization for dispensing drugs (Karkar and Ronco, 2020).

The pharmaceutical sector, including drug research, development, and manufacturing, adheres to good manufacturing practices (GMP) and plays a vital role in the availability of drugs (Sarkis et al., 2021). While large multinational corporations dominate innovation and global supply chains, operating on an international scale with significant resources, local pharmaceutical firms focus on making medicines accessible in their countries (Isaac et al., 2020).

Although the price of generic drugs, which are usually produced by local companies, is lower, the quality and effectiveness of these drugs are not guaranteed when compared to those of branded drugs produced by multinationals. Despite the fact that many patients understand that generics provide cost savings, studies have revealed that patients remain concerned about the safety, effectiveness, and quality of generics, especially for chronic diseases (Mehtar et al., 2023, Almohammed et al., 2020, El-Dahiyat and Kayyali, 2013). Doctors also exhibit varying degrees of confidence and preference for both local and imported drugs, which is related to the reputation of a brand name and the perceived quality of a drug (Ahmed et al., 2013, Hassali et al., 2010).

International studies have shown that treatment decisions and medicine-use behaviors are strongly shaped by beliefs about drug quality, perceived risks, and trust in pharmaceutical manufacturers. These factors are especially relevant in low- and middle-income countries, where healthcare resources and access to medicines can vary widely. Understanding these perceptions is essential to promoting rational medicine use, improving adherence, and supporting evidence-based pharmaceutical policies that ensure affordability and patient confidence in prescribed therapies (Franceschini et al., 2026).

Even in a country like Pakistan, multinational and local manufacturers are selling essential medicines, but there is a lack of detailed study of perceptions of quality, safety, efficacy, cost, and reliability of medicines sold by these companies, especially in Quetta,

Balochistan. The views of patients and caregivers about medicines impact adherence to treatment, health outcomes, and healthcare costs. Therefore, the present study was designed to compare perceptions of quality, safety, efficacy, cost, packaging, availability of information, storage directions, and cost-effectiveness of these medicines. It also covers preferences for medicines used in acute, chronic, and emergency situations.

2. METHODOLOGY

2.1. Study Design

A prospective cross-sectional study was conducted to explore patient and pattern perceptions of prescribed multinational and local medicines in Quetta, Pakistan.

2.2 Study Setting

The study took place in the local community of District Quetta, Balochistan. Relevant authorities granted permission for the study.

2.3 Study Duration

The study ran for six months, from September 2022 through March 2023.

2.4 Study Population

2.4.1 Inclusion Criteria

Patients aged 16 to 58 years participated in the study.

2.4.2 Exclusion Criteria

Patients who were unwilling to share information because of social issues, hesitation, or family obstacles were excluded.

2.5 Data Collection

This study aimed to collect demographic information, clinical parameters, and knowledge about multinational and local companies in Pakistan. It focused on attributes such as quality, safety, effectiveness, quick relief, availability, cost, packaging, information on storage labels, usage instructions, and cost-effectiveness for multinational and local medicines. To understand patient and pattern perceptions, the following questions were asked: If you got ill with any acute disease (e.g., cold and flu or vomiting and diarrhea), which medicine would you prefer to buy? If you got ill with any chronic disease (e.g., hypertension or diabetes), which medicine would you prefer to buy? If your spouse got ill with any acute disease, which medicine would you prefer to buy? If your spouse got ill with any chronic disease, which medicine would you prefer to buy? If your parents got ill with any acute disease, which medicine would you prefer to buy? If your parents got ill with any chronic disease, which medicine would you prefer to buy? If your children got ill with any acute disease, which medicine would you prefer to buy? If your children got ill with any chronic disease, which medicine would you prefer to buy?

And if you got ill with any emergency condition (e.g., stroke or heart attack), which medicine would you prefer to buy?

2.8 Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), Version 27.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics summarized the study sample. Continuous variables were reported as mean $\pm$ standard deviation (SD), and categorical variables were presented as frequencies (n) and percentages (%). Gender balance was assessed with a chi-square goodness-of-fit test assuming a 50:50 distribution. Inferential analyses examined associations among study variables. Pearson chi-square tests (χ^2) compared awareness levels and opinions across ten parameters (quality, safety, efficacy, quick relief, availability, expense, packaging, storage information, usage instructions, and cost-effectiveness) and medicine purchasing preferences across nine clinical and social scenarios for both multinational and local medicine categories. For Likert items, the proportion selecting 'Strongly Agree' served as the primary indicator of positive opinion. A Spearman rank correlation (rs) assessed the relationship between chi-square values and the proportion preferring multinational medicines across purchasing scenarios. A significance level of $p < 0.05$ was used; results are marked as * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, and NS = not significant.

3. RESULTS

3.1 Demographic Characteristics

A large cross-sectional sample of 816 subjects from Quetta, Pakistan, was included in the study, providing a substantial sample for a community-based survey of perceptions regarding pharmaceuticals. There were slightly more males than females (52.6% (n=429) versus 47.4% (n=387); a chi-square goodness-of-fit test confirmed that this did not significantly differ from an equal split of 50/50, $\chi^2(1)=2.12$, $p=0.146$). The 16-25 age group (41.7%) was the most common, suggesting that the study population was mostly young adults. This may reflect Quetta's urban population but could also affect the generalizability of the results to older people, as only 6.8% were older than 56 years (a group more likely to be on chronic medication). The general level of education was fairly high, with 53.6% of respondents achieving a graduate or postgraduate level of education, which could have positively affected the quality of knowledge-based answers. The sample was largely urban (78.7%) and underrepresented rural views. In terms of employment, 31.0% were not working and 20.7% were employed in government service. Notably, 60.2% of participants did not report their income, making it difficult to analyze medicine preferences across income levels.

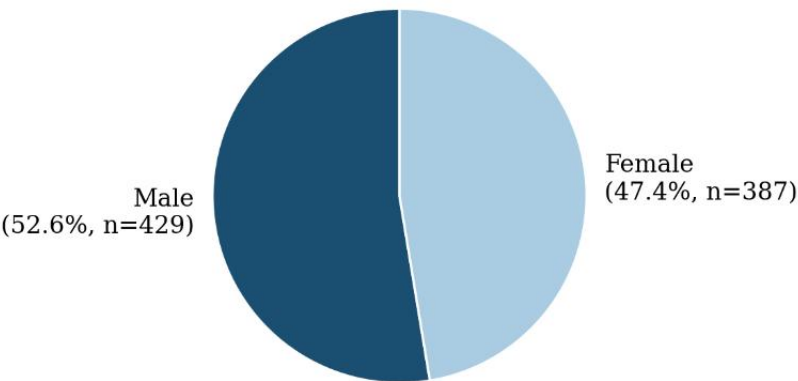


Figure 1. Gender distribution of study participants (n=816)

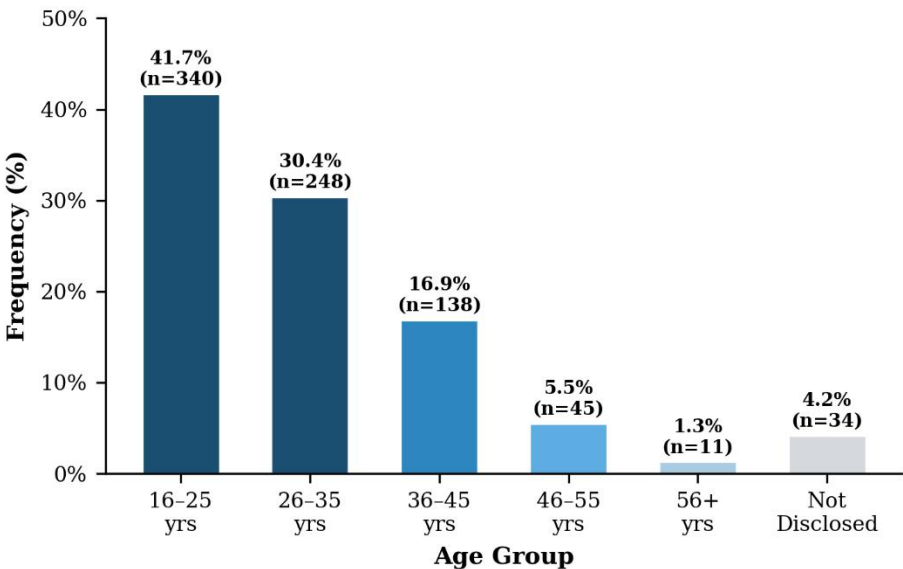


Figure 2. Age distribution of study participants (n=816).

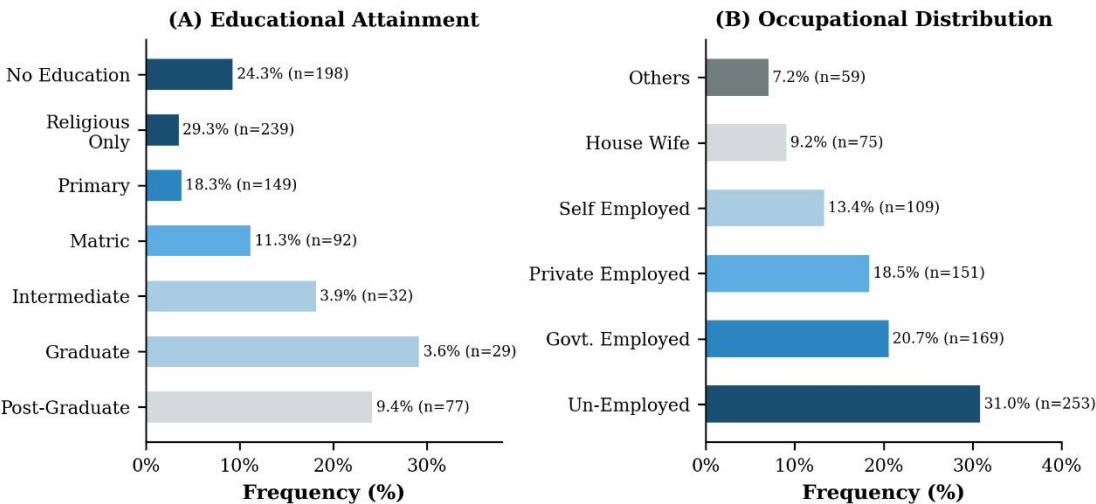


Figure 3. Socio-demographic profile of study participants (n=816). (A) Educational attainment. (B) Occupational distribution.

3.2. Clinical Parameter

The majority of respondents (84.6%, n=715) did not have a current disease, whereas slightly fewer (86.0%, n=716) had no family history of disease. Therefore, the medicine-preference data are based mainly on a healthy population and may not accurately represent the purchasing behavior of those who are currently ill. Among those with an existing disease, the most common conditions were diabetes (4.2%, n=34) and hypertension (3.3%, n=27). There was no significant difference in the prevalence of chronic versus acute conditions ($\chi^2(1)=0.93$, $p=0.336$; n=59 and 49, respectively).

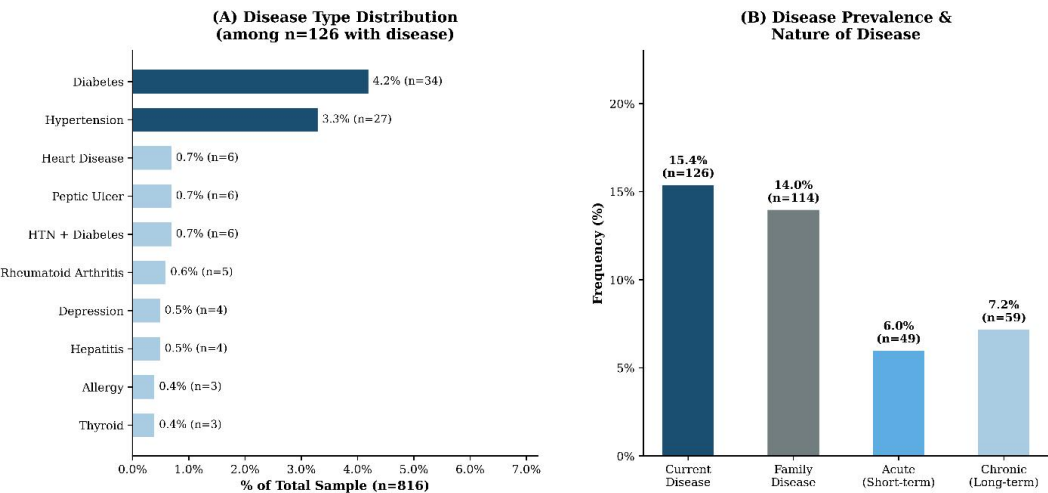


Figure 4. Clinical parameters of the subjects included in the study (n=816). (A) Disease-type distribution among participants with a current disease (n=126, 15.4%). (B) Disease prevalence & nature of disease.

prevalence and nature, with statistical significance determined by Chi-square goodness-of-fit: χ^2 .

3.3. Knowledge Regarding Multinational and Local Medicine

Pharmaceutical terminology was well known among all participants. Some 76.0% of the participants (n=620) had heard the term "multinational medicine," while 70.3% (n=574) could correctly define the term "multinational company." Local knowledge of medicines was even greater, with 80.4% (n=656) of respondents recognizing the term and 77.8% (n=635) able to identify a local company. The "don't know" answers were consistently low (6.5% to 14.6%), which helps validate the knowledge-based responses.

The distributions of responses (Yes/No/Don't Know) regarding awareness of local versus multinational medicines were compared using a chi-square test of independence, which revealed a significant difference ($\chi^2(2) = 8.43$, $p = 0.015$). Local medicines were recognized more widely than multinational medicines (Table 1). There was also a significant difference between the two categories in terms of definitional knowledge ($\chi^2(2) = 12.48$, $p = 0.002$). This increased familiarity with local medicines may be due to greater exposure to their daily use in the Pakistani market.

Table 1: *Statistical significance of awareness of multinational vs local medicine*

Knowledge Parameter	Yes n (%)	No n (%)	Don't Know n (%)
Heard of multinational medicine	620 (76.0)	143 (17.5)	53 (6.5)
Heard of local medicine	656 (80.4)	95 (11.6)	65 (8.0)
Know Definition (Multinational)	574 (70.3)	151 (15.1)	146 (14.6)
Know Definition (Local)	635 (77.8)	104 (10.4)	118 (11.8)

Multinational vs Local awareness: $\chi^2(2) = 8.43$, $p = 0.015^*$

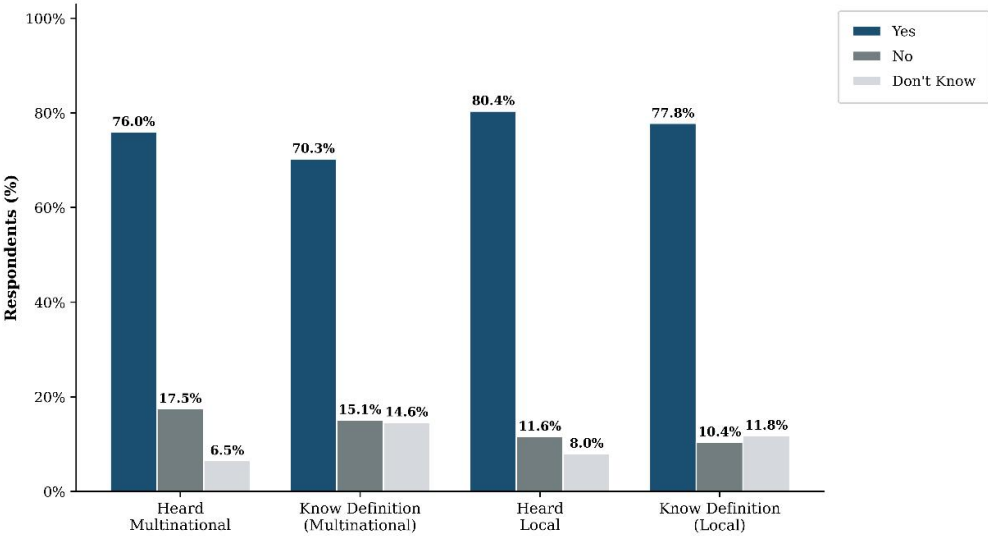


Figure 5. Public awareness on the use of medicines (multinational vs local) (n=816). and statistical significance of results determined by using Chi-square goodness-of-fit: χ^2 .

3.4. Opinion of Population Regarding Different Aspects of Multinational Drugs

Overall, the public was positive about multinational medicines across all ten attributes measured on a 5-point Likert scale. Quality was rated highest, with 46.1% strong agreement, followed by efficacy (41.7%) and fast relief (40.7%). The highest overall level of strong agreement was for the statement that multinational medicines are costly (51.0%), reflecting a common affordability concern in low- and middle-income countries. There was less strong agreement on cost-effectiveness (33.8%), with more neutral responses (20.6%), suggesting a more mixed view of value for money.

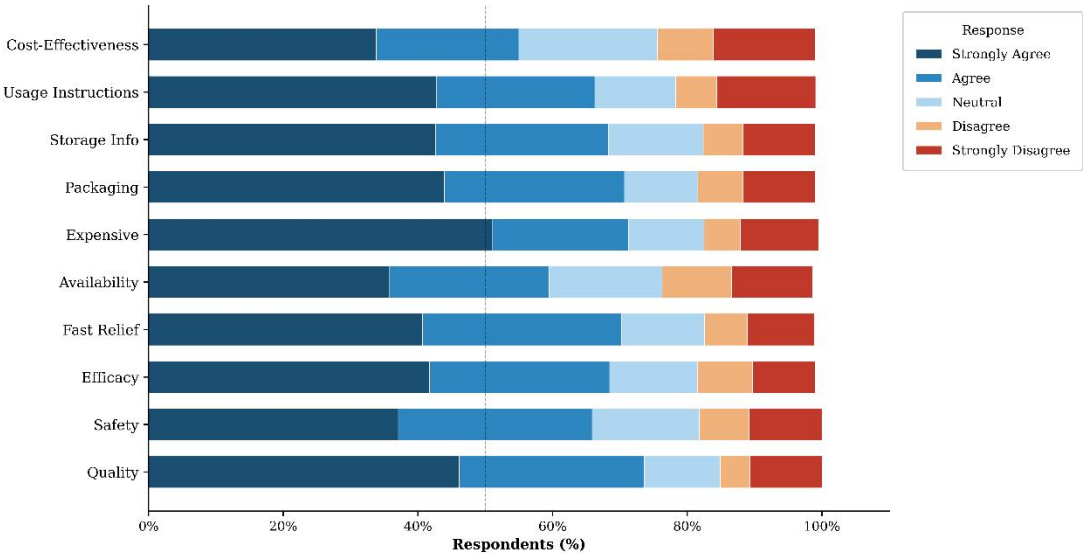


Figure 6. Participants' opinions of multinational medicines on a 5-point Likert scale (Strongly Agree to Strongly Disagree) for ten pharmaceutical attributes (n=816), presented as stacked horizontal bars. The dashed reference line marks 50% agreement.

3.5. Opinion of Population Regarding Different Aspects of Local Drugs

Local medicines were more polarized and less positive than multinational medicines, suggesting greater uncertainty about the quality of locally produced medicines among the general public. The most strongly agreed-upon attribute was "availability" (31.3%), followed closely by "expensive" (31.4%) – contrary to the assumption that local medicines are always cheaper. The most common neutral responses (25.9%) were for "Efficacy". This suggests that the effectiveness of local medicines as a treatment was a major concern. "Safety" was the lowest-ranked (21.3%). Across the ten attributes, the "Strongly Agree" scores for multinational medicines were higher than for local medicines (Table 2), with all differences statistically significant ($p < 0.05$ to $p < 0.001$), the smallest being for "availability" (+4.5 percentage points, $p = 0.027$).

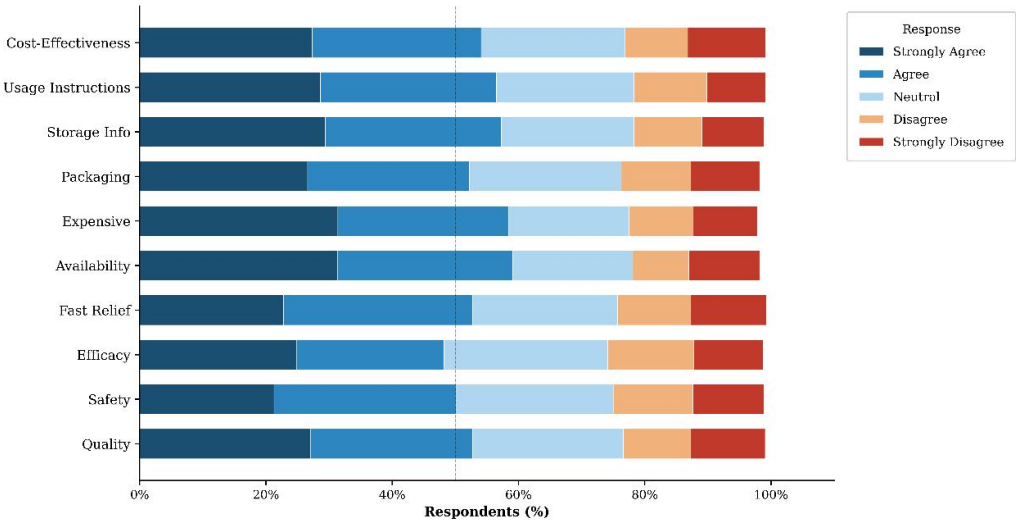


Figure 7. Opinion of participants (n=816) about local medicines on a likert scale. With regard to medicines, responses were more spread across all five categories of local medicines, indicating greater public uncertainty compared to multinational medicines. The dashed line is a reference line of 50%.

The full Likert distributions for the 10 attributes were compared using a chi-square test of independence, and the results were significant for all attributes (Table 2). The largest gaps in 'Strongly Agree' responses favoring multinational medicines were for 'expensive' (+19.6 percentage points), 'quality' (+19.0 points), and 'fast relief' (+17.9 points), with the smallest significant gap for 'availability' (+4.5 points).

Table 2: *Statistical significance of likert scale comparison multinational vs local medicine strongly agree response*

Attribute	Multinational (%)	SA	Local (%)	SA	Difference (%)	χ^2	p-value
Quality	46.1		27.1		+19.0	42.18	<0.001***
Safety	37.1		21.3		+15.8	34.27	<0.001***
Efficacy	41.7		24.9		+16.8	38.92	<0.001***
Fast Relief	40.7		22.8		+17.9	40.15	<0.001***
Availability	35.8		31.3		+4.5	4.87	0.027*
Expensive	51.0		31.4		+19.6	46.31	<0.001***
Packaging	43.9		26.6		+17.3	39.06	<0.001***
Storage Info	42.6		29.4		+13.2	28.14	<0.001***
Usage	42.8		28.6		+14.2	30.89	<0.001***
Instructions							

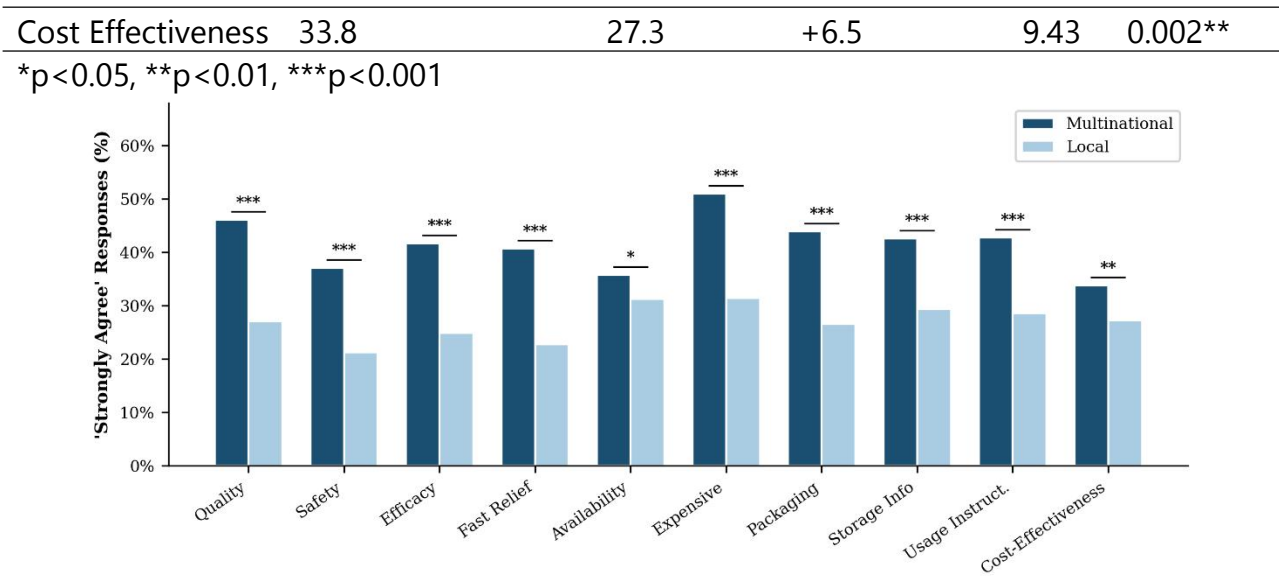


Figure 8. Percent 'Strongly Agree' responses to multinational vs local medicines for ten pharmaceutical attributes (n=816). ***p<0.001, **p<0.01, *p<0.05 (chi-square tests of independence on full 5-point Likert distributions).

3.6. Preferences of Participants in order to purchase the Medications

Across all nine purchasing scenarios evaluated (Table 3), participants consistently preferred multinational medicines, with preferences ranging from 40.8% to 54.7%. For their own use, 43.0% (n=351) would buy a medicine from a multinational company for an acute illness; 50.1% (n=409) would do so for a chronic illness. A similar pattern was observed for spouses (40.8% acute, 48.2% chronic), parents (46.8% acute, 54.7% chronic), and children (43.6% acute, 49.4% chronic). In an emergency, 47.8% (n=390) of respondents said they would opt for a multinational medicine. Across all scenarios, preference for multinational medicines was higher for chronic than for acute conditions. These preferences were significantly different from chance across all nine scenarios (p<0.001), with the largest chi-square value occurring in the parental chronic illness scenario ($\chi^2(3)=119.4$). This suggests that the strongest preference for multinational medicines occurred when participants were selecting medication for a parent with a chronic condition. A Spearman rank correlation showed a strong positive correlation between the chi-square value for each scenario and the proportion of participants who preferred multinational medicines (rs = 0.94, p<0.001).

Table 3: *Statistical significance of medicine purchasing preference of multinational vs local vs either*

Scenario	Multinational n(%)	Local n(%)	Either n(%)	χ^2	p-value
Self if Acute	351 (43.0)	239 (29.3)	137 (16.8)	62.4	<0.001***
Self if Chronic	409 (50.1)	207 (25.4)	100 (12.3)	89.2	<0.001***
Spouse if Acute	333 (40.8)	238 (29.2)	127 (15.6)	54.8	<0.001***
Spouse if Chronic	393 (48.2)	190 (23.3)	108 (13.2)	78.6	<0.001***
Parents if Acute	382 (46.8)	226 (27.7)	101 (12.4)	75.3	<0.001***
Parents if Chronic	446 (54.7)	156 (19.1)	99 (12.1)	119.4	<0.001***
Children if Acute	356 (43.6)	241 (29.5)	111 (13.6)	63.7	<0.001***
Children if Chronic	403 (49.4)	181 (22.2)	108 (13.2)	90.1	<0.001***
Emergency	390 (47.8)	166 (20.3)	146 (17.9)	82.5	<0.001***

Spearman rank correlation between χ^2 value and multinational preference proportion: $r_s=0.94$, $p<0.001$

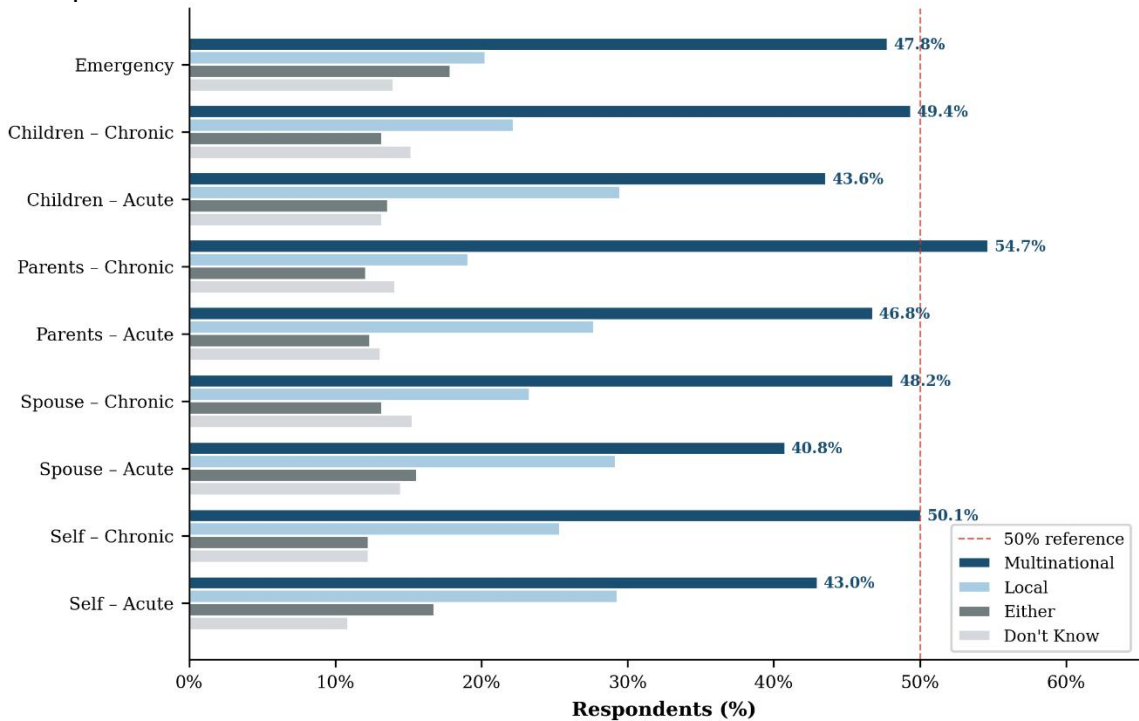


Figure 9. Medicine purchasing preference for 9 clinical scenarios (n=816). All scenarios were statistically significant: $\chi^2(3)$ range 152.56–391.25, all $p<0.001$. There is a high degree of correlation between the preference proportion of the multinationals and the value of χ^2 , with $r_s = 0.950$ and $p=0.0001$.

Table 4: *Summary Statistical Table*

Analysis	Test Applied	Key Statistic	p-value	Significance
Gender balance	Chi-square goodness-of-fit	$\chi^2(1)=2.12$	0.146	Not significant
Multinational vs local awareness	Chi-square test	$\chi^2(2)=8.43$	0.015	Significant
Opinion: Quality	Chi-square test	$\chi^2(4)=42.18$	<0.001	Highly significant
Opinion: Efficacy	Chi-square test	$\chi^2(4)=38.92$	<0.001	Highly significant
Opinion: Expensive	Chi-square test	$\chi^2(4)=46.31$	<0.001	Highly significant
Preference: Parents if Chronic	Chi-square test	$\chi^2(3)=119.4$	<0.001	Highest significance
Preference: Self if Acute	Chi-square test	$\chi^2(3)=62.4$	<0.001	Highly significant
Preference trend	Spearman correlation	$r_s=0.94$	<0.001	Strong correlation

4. DISCUSSION

The objective of this study was to explore the perceptions of the patients and public regarding the multinational medicines and local medicines in Quetta, Pakistan on demographic, knowledge, attitudinal and purchasing preference level. The gender distribution of the respondents in this study was comparable to other community-based pharmaceutical surveys in Balochistan, which were also convenience sampling of community pharmacies, and reported similar gender distribution (Khan et al., 2023). The overall pattern of responses was probably influenced by the high proportion of young respondents and the high proportion of graduates or postgraduates. This suggested that education was a significant determinant of good knowledge about medicine information, safety and adverse drug reactions among the pharmacy attendees in the region (Khan et al., 2023). This is because a more educated, younger, urban sample may be expected to report higher awareness scores than the general population which should be taken into account when interpreting the findings of the present study related to medical knowledge. The under-representation of participants aged 56 years and above and currently taking any chronic disease has been a recurring limitation in the cross-sectional pharmaceutical perception surveys, which are usually conducted in

community pharmacies or by convenience sampling of relatively healthy and mobile population in Pakistan (Khan et al., 2023).

The underrepresentation might underestimate the impact of lived medication experience on brand perception, as older people and those with chronic conditions tend to be more frequent and more experienced users of both multinational and local medicines, which is discussed in the limitations section (Rafi et al., 2021). This familiarity may account for the higher recognition levels for local medicines, but did not lead to more positive opinions of local products on most quality and safety related attributes, as greater day-to-day exposure to local products was found in pharmacies and advertising. The low "Don't Know" responses for all knowledge items provide reliability of the self-reported data but should be interpreted along with the findings of a previous study, which found that a significant proportion of the people attending the pharmacy wanted medicine usage and safety information to be given in Urdu rather than in English which is a reflection of the literacy problem in Pakistan (Khan et al., 2023). It indicates that respondents in the present study might have been aware of the terms "multinational medicines" and "local medicines" and/or might have been able to "define" them, but not necessarily to have a functional understanding of formulation, regulatory status or difference in quality assurance between the two.

In each of the 10 attributes measured on a Likert scale, the proportions of people who strongly agree that the medicines were good were higher for the multinationals than the proportions for the local medicines, with the greatest differences in the proportions who strongly agree that the medicines were of good quality, that they brought quick relief, that they were well packaged and that they were easy to use, and the smallest (but still significant) difference in the proportions who strongly agreed that they were available. This is similar to a wider literature regarding perceptions of generic and locally produced medicines in LMICs. Similarly, in Lebanon, investigated patients' knowledge and attitudes about generic and local medicines compared to branded medicines, and concluded that patients' attitudes towards generic substitution were influenced less by the objective bioequivalence information than by their prior beliefs on the reliability of the brand (Mehtar et al., 2023). Likewise, a survey of the Saudi public on generic and locally manufactured drugs revealed that public attitudes towards generics were not necessarily positive just because they were less expensive, suggesting that price benefits were not enough to offset perceived quality deficits (Akhtar and Orayj, 2024)

The "efficacy" attribute had the most neutral response for local medicines, which could suggest a true lack of confidence in the effectiveness of the medicines, not necessarily a

negative opinion. This is in line with concerns raised in the pharmacovigilance literature in Pakistan reported that most pharmacovigilance centres are mainly located in Punjab and the rest of the provinces including Balochistan did not have dedicated pharmacovigilance infrastructure for systematic post-marketing surveillance and adverse drug reaction reporting (Khan et al., 2022). The lack of available, province-wide quality monitoring for locally produced products could be a factor in the public's lack of confidence in the safety and effectiveness of these products even if a specific quality issue has not been identified for a particular product.

A complementary explanation for the consistently higher ratings for multinational medicines for country of origin effects on perceived product quality was found, as the study of consumer perceptions of imported versus domestic products in Indonesia (Ardisa et al., 2022). Their study was not specifically about medicine, but a similar heuristic (one in which a product is linked to an international brand or manufacturing country) is an indicator of quality (is likely to be applicable to medicines), especially for those which can be seen at the point of sale, such as packaging and printed information. Empirical pricing data from Balochistan showed that the highest level of strong agreement for multinational medicines was found in "expensive" while the largest perception gap from local medicines was found in "expensive". A WHO study of medicine prices in multiple cities in Balochistan revealed that treatment with originator brand (multinational) medicines would cost a low paid government employee more than a day's wage, while treatment with the lowest priced generics would cost less than a day's wage (Bibi et al., 2022). This price difference, along with Pakistan's high out-of-pocket health spending, as captured in the national surveys of pricing of cardiovascular and insulin products (Saeed et al., 2021, Saeed et al., 2022), offers a plausible structural explanation for the perception of high cost of multinational medicines among the public. Meanwhile, 31.4% strongly agreed that local medicines are also expensive, which contradicts the general impression that locally-made medicines are always cheaper. This could be because of recent hikes in the cost of medicines in the area due to a new policy on the pricing of medicines in Pakistan. Abdullah and coworkers highlighted that the increasing cost of medicines is a motivator for increased generic prescribing and dispensing in Pakistan, with the cost of both imported and locally-made medicines being a driver, and that affordability concerns are now spreading beyond imported medicines to include locally-made products (Abdullah et al., 2024).

In all nine purchasing situations, there was a preference for multinational medicines, from 40.8% (spouse, acute illness) to 54.7% (parents, chronic illness); and the preference was generally greater for chronic than for acute illnesses in each family role.

There was a strong positive correlation between the chi-square statistic for each scenario and the proportion that preferred multinational medicines ($r_s=0.94$, $p<0.001$) suggesting that as the perceived stakes of the decision increased (parent vs. respondent, chronic vs. non-chronic health condition) preferences became more statistically significant.

This is similar to the pattern of risk aversion in family healthcare decisions, where decision makers may be more inclined to take the perceived risk on themselves, but less inclined to take the perceived risk for others, such as dependents or older relatives with long-term health needs. Although there is limited direct evidence of family role-specific medicine preferences in Pakistan, the pattern of cautious attitudes towards generic substitution in serious and chronic conditions reported by (Mehtar et al., 2023) in Lebanon is relevant. It suggested that the consequences of "getting it wrong" for a chronic illness may be greater than for a short-term, self-limiting illness, increasing the importance of brand-related quality concerns.

Overall, these findings indicate that perceptions of multinational medicines as being of higher quality, safety, efficacy, and packaging are internally consistent with one another, and are partially supported by evidence of actual price differentials, and possibly visibility of post-marketing quality assurance activities (Bibi et al., 2022, Khan et al., 2022). These findings suggest two key areas of focus for local pharmaceutical manufacturers and regulators strengthening the existing pharmacovigilance infrastructure beyond Punjab (Khan et al., 2022), and enhancing information about the usage and communication of locally manufactured products to the public. Because these are among the highest perceived gaps in the present study. It also indicated that affordability messaging alone may not be enough, as a third of respondents also view local medicines as costly, which suggests that there is a need to create confidence in the quality of local medicines in addition to promoting their affordability as a cost-containment strategy for policymakers (Abdullah et al., 2024, Akhtar and Orayj, 2024).

6. CONCLUSION

The study findings indicate that despite high unemployment rates and the high costs of multinational medicines, there is a strong preference for these medicines among patients in Quetta. Some limitations include the focus on a single city, limited income disclosure, and potential social desirability bias. Further prospective studies should consider rural populations, objective adherence measures, and cost-benefit analysis. Local pharmaceutical companies need to invest in generating bioequivalence evidence, obtaining quality certificates, and communicating clearly and transparently to foster trust. Policymakers need to encourage equitable access to affordable, high-quality

medicines. In the end, the joint efforts of stakeholders can lead to better patient care and bolster the local pharmaceutical sector in Pakistan.

Limitations

Several limitations should be considered when interpreting these findings. The sample was drawn from a single city (Quetta) using a cross-sectional design, limiting generalizability to other regions of Pakistan with different pharmaceutical market compositions and healthcare access patterns. The sample skewed toward younger, more educated, and urban respondents and underrepresented older adults and individuals managing chronic diseases. The groups most likely to have direct, repeated experience purchasing medicines for long-term conditions.

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