Factors affecting customers' decisions to purchase medicines in Ho Chi Minh City: a quantitative study

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Abstract. Understanding customer behavior and the factors influencing decisions to purchase medicines is crucial for businesses. This study aimed to examine the factors influencing customers' decisions to purchase medicines in Ho Chi Minh City (HCM). This quantitative study used a self-administered questionnaire. A convenience quota sample of 599 participants was recruited online and offline, and data were collected from July to October 2022. The questionnaire included 8 items on personal characteristics, 6 on customers' medicine use characteristics, 13 on factors determining where to buy medicine, and 17 on factors influencing customers' decision to buy medicine. A two-step cluster analysis method was used to identify three distinct customer clusters based on common characteristics. Statistical significance was set at $p<0.05$, with a 95% confidence interval. Of the 632 distributed questionnaires, 599 were returned and analyzed, resulting in a response rate of 94.78%. When making decisions about purchasing medicines, customers expressed the highest level of concern regarding the therapeutic effects of medicines (mean = 4.40 ± 0.77) and the least interest in advertisements (mean = 3.29 ± 1.19). Offering a wide range of products from different brands provides customers with more choices, which attracts them to drugstores. It is recommended that companies minimize their efforts to advertise medicines in Vietnam.
Keywords: two-step cluster, customer behavior, survey, questionnaires, Vietnam

1 Introduction

The COVID-19 pandemic, declared a worldwide health emergency by the World Health Organization (WHO) in January 2020, has profoundly impacted global public health [1]. Following the WHO's characterization of COVID-19 as a pandemic in March 2020, the focus on disease prevention and health awareness has increased among individuals as healthcare systems recover [2, 3]. Studies indicate that the COVID-19 outbreak has significantly influenced consumer purchasing decisions [4-6].

Consumer behavior has long been a hot issue in marketing. Understanding how and why consumers behave a specific way and make confident purchasing decisions enables businesses to enhance their marketing tactics and increase their market share. Thus, one of the challenges facing marketers today is persuading people to buy their goods or services. Therefore, understanding consumer purchasing behavior sheds light on the psychology of how consumers reason, feel, and choose among available options (such as brands, products, and retailers), as well as how the consumer's environment (such as culture, family, and the media) influences them. It also clarifies how consumer motivation and decision-making differ between products. This helps us understand how marketers might enhance their marketing initiatives to better connect with consumers. Understanding customer decisions to purchase medicine, marketing campaigns from companies will become more effective, and public health campaigns can use this to implement actively.

Consumer purchasing decisions encompass various aspects, including shopping habits, buying behavior, brand preferences, and purchase locations. These decisions are influenced by customer characteristics and a range of cultural, social, familial, personality, psychological, and environmental factors [7]. Understanding these influencing factors provides companies with valuable insights for developing effective strategies, marketing messages, and advertising campaigns that align with the needs and preferences of their target consumers, ultimately enhancing customer satisfaction and driving sales.

Vietnam's pharmaceutical industry has experienced substantial growth over the past decade owing to changes in domestic regulations on imported drugs [8]. The Vietnamese healthcare market, valued at USD 17.4 billion, offers numerous opportunities for the pharmaceutical supply sector. Per-capita spending on healthcare is predicted to quadruple from USD 170 in 2017 to USD 400 by 2027. Furthermore, Vietnam's pharmaceutical market is projected to witness double-

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digit growth over the next five years, with an estimated turnover of USD 5.9 billion in 2018, representing an 11.7% annual increase. Vietnam relies heavily on pharmaceutical imports, indicating the significance of this market [9].

While acquiring new customers is important for any business, retaining existing ones is crucial and challenging. Retaining current customers is more cost-effective than acquiring new ones and adds substantial value to a company [10]. Therefore, this study aimed to investigate the factors influencing consumers' purchase decisions regarding medicines in Ho Chi Minh (HCM), Vietnam. The specific objectives were to examine the general characteristics of customers purchasing medicines in HCM in 2022, investigate the factors influencing consumers' purchase decisions for medicines in the community, and explore the correlation between common characteristics and the factors affecting customers' decisions to buy medicines in HCM in 2022.

2 Materials and methods

2.1 Study design

This cross-sectional study was conducted in HCM, Vietnam, from July to October 2022.

2.2 Sample size and data collection

Sample size calculation was performed using the following formula:

$$n = \frac{z^2 \times P \times (100 - P)}{d^2}$$

where P is the anticipated awareness score percentage, d is the desired precision, z is the appropriate value from the normal distribution for the desired confidence interval, and n is the required sample size [11]. With a desired precision level of 5% at the 95% confidence level, a minimum of 385 cases was required at p = 0.5.

Convenience sampling was used to collect data from individuals who met the following inclusion criteria: (1) at the age of 18 or over, (2) nationality of the People's Republic of Vietnam, (3) the ability to complete the online questionnaire independently or with the assistance of investigators, (4) understanding of the questionnaire items, and (5) having purchased drugs in HCM in 2022. Individuals with cognitive impairment or mental disorders and those who did not complete the survey were excluded.

The survey was launched through social networks, utilizing Google Forms, with the questionnaire link included in articles posted on platforms such as Facebook and Zalo. The Google Forms made the data meet the sampling criteria by excommunicating participants who were not from Ho Chi Minh City or did not agree to participate in the research.

To mitigate the limitations associated with online surveys, face-to-face interviews were conducted to increase the sample size and reduce potential bias towards specific age groups. The participants will be asked in 10 minutes with four parts of the questionnaire, including demographic characteristics of customers (8 questions), customers' medicine use characteristics (6 questions), factors affecting pharmacy selection (13 questions), and factors affecting customer's purchase decision of medicines (17 questions).

2.3 Survey instrument

Data collection involved a structured questionnaire comprising closed-ended, open-ended, and multiple-choice questions. The questionnaire development process comprised several steps. First, a set of questions was prepared based on previous studies through a comprehensive literature review. Second, an expert panel comprising a specialist pharmacist II, a university pharmacist, and a pharmacy pharmacist evaluated the content and developed the questionnaire, resulting in an initial version with 53 questions. Third, the questionnaire was tested on 59 individuals aged 18 years or older [12], and the consistency of the questions was assessed using Cronbach's alpha. An exploratory factor analysis (EFA) was conducted to identify the underlying structures influencing responses. Based on the test results, the questionnaire was revised to produce the final version containing 44 questions. The questionnaire was originally developed in Vietnamese, the participants' native language.

2.4 Data analysis

Data from the questionnaire were coded, entered, and stored in Microsoft Excel. Statistical Package for the Social Sciences (SPSS) software was used for data analysis. Descriptive statistics, including frequencies and percentages, were used to analyze the demographic characteristics of the respondents. The means and standard deviations were calculated to examine the variables and questionnaire items. The reliability of the dataset was assessed using Cronbach's alpha with a threshold set at 0.7. An EFA was performed to identify the underlying structure influencing the responses. Additionally, a two-step cluster analysis was conducted to identify customer segments.

3 Results

The sample consisted of 599 participants, with women accounting for 51.8%. The average age of the participants was 36 ± 15 years. Notably, fewer respondents belonged to the income group of VND 2-4 million than that of less than VND 2 million because of the inclusion of unemployed individuals (18%). Further details on the socio-demographic characteristics of the study population are presented in Table 1.

Table 1. Socio-demographic characteristics

Variable	n = 599	%
Gender		
Male	289	48.2
Female	310	51.8
Age (years)		
18-25	195	32.6
26-35	131	21.9
36-45	87	14.5
46-55	83	13.9
≥ 56	103	17.2
Marital status		
Others (single, divorced, etc.)	323	53.9
Married	276	46.1
Education		
Illiteracy	1	0.2
Primary school	14	2.3
Secondary school	65	10.9
High school	91	15.2
Elementary level/intermediate level	42	7.0
College/ university	386	64.4
Occupation		
Student	148	24.7
Retired/unemployed	67	11.2
Healthcare Assistants	58	9.7
Office staff	164	27.4
Worker	49	8.2
Other	113	18.9
Income in one month* (VND)		
Under 2,000,000	108	18.0
2,000,000- 4,000,000	55	9.2
4,000,000- 6,000,000	103	17.2
6,000,000- 9,000,000	147	24.5
Over 9,000,000	186	31.1
Self-reported health status		
Very poor	3	0.5
Poor	20	3.3
Good or fair	516	86.1
Excellent or very good	60	10.0

Of the 599 participants, 468 (78.1%) reported purchasing medications six months prior to the survey. Among those who made purchases, the majority (40.4%) bought medicine only 1 or 2 times during that period. Participants indicated buying medicines from various categories, with the highest percentages observed for pain and palliative care medicines (58.1%); vitamins and minerals (44.0%); allergy medications (25.9%); medicines for eye, ear, nose, and throat infections (23.9%); and medicines for digestive problems (20.5%). The distribution of the medication groups is shown in Figure 1.

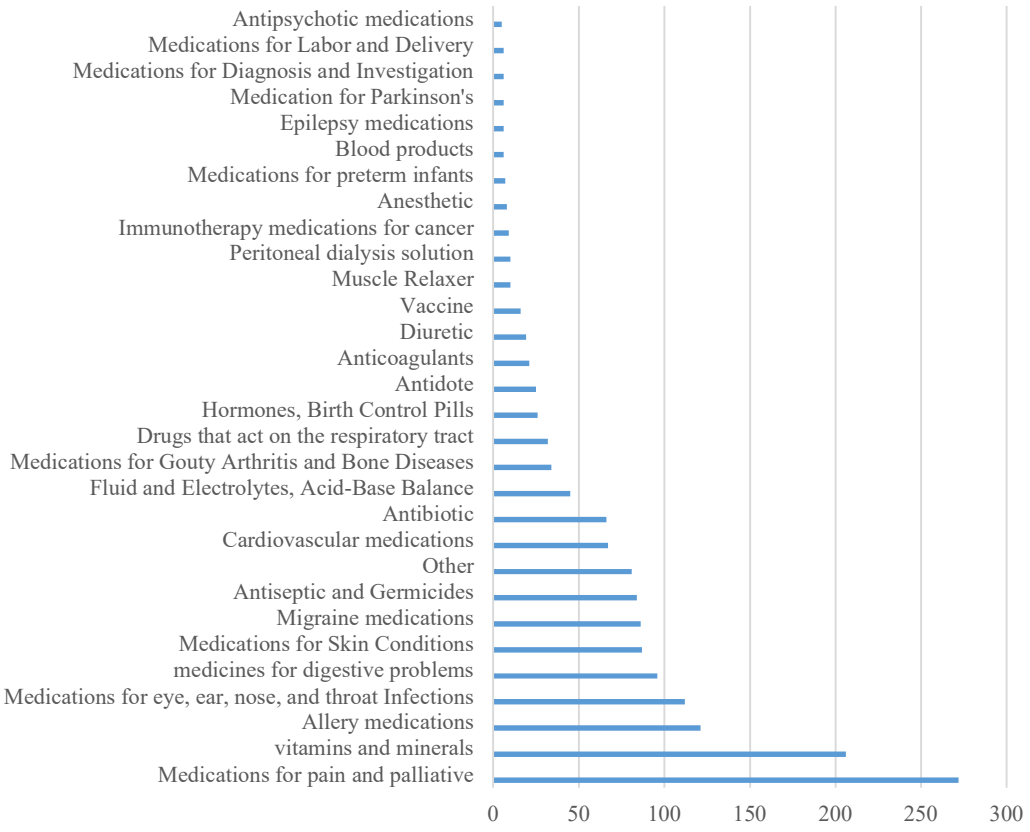

Fig. 1. Medication groups customers purchased within 6 months prior to the survey

Table 2. Factors affecting pharmacy selection

	SD	D	N	A	SA	Mean ± SD
Pharmacy's staff	1	2	3	4	5	4.18 ± 0.85
Anonymity/ confidentiality	1	2	3	4	5	3.89 ± 1.13
Store's atmosphere	1	2	3	4	5	3.63 ± 1.05
Pharmacy in long-term activity	1	2	3	4	5	3.90 ± 0.98
Reputation of pharmacy	1	2	3	4	5	3.92 ± 1.00
Product range	1	2	3	4	5	4.19 ± 0.89
Product quality	1	2	3	4	5	4.43 ± 0.80
SD: Strongly disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly agree						

Table 2 displays the factors influencing the participants' choice of pharmacy. All factors received mean values above 3, indicating that the participants considered these criteria when deciding where to buy medicines. The factor with the highest average score was product quality (4.43 ± 0.80), while the lowest average score was observed for advertisements (3.29 ± 1.19).

Table 3. Factors affecting customer's purchase decision of medicines

	SD	D	N	A	SA	Mean ± SD
Previous experience	1	2	3	4	5	3.75 ± 1.02
Pharmacist's advice	1	2	3	4	5	4.00 ± 0.95
Country of origin	1	2	3	4	5	3.89 ± 1.00
Advertisement	1	2	3	4	5	3.29 ± 1.19
Drug information	1	2	3	4	5	4.00 ± 1.03
Brand of product	1	2	3	4	5	3.93 ± 0.98
Therapeutic efficacy of medicine	1	2	3	4	5	4.40 ± 0.77
Product composition	1	2	3	4	5	4.13 ± 0.97
SD: Strongly disagree, D: Disagree, N: Neutral, A: Agree, SA: Strongly agree						

Table 3 presents the factors influencing customer decisions to purchase medicines. As in the previous section, all factors had mean scores above 3, indicating their consideration by the participants. The factor with the highest average score was the therapeutic efficacy of the medicine (4.40 ± 0.77), while the advertising factor received the lowest average score (3.29 ± 1.19).

Three distinct customer clusters were identified using a two-step cluster analysis method based on common characteristics. Table 4 illustrates the correlation between common characteristics and factors influencing the selection of pharmacies for each cluster. The same analysis was conducted for the factors influencing customer purchase decisions regarding medicines. The results are presented in Table 5. A summary of the three customer profiles is provided in Table 6, which highlights the demographic characteristics and main influencing factors for each cluster.

Table 4. Correlation between common characteristics and factors affecting selection of pharmacy

	Cluster 1 (n = 268)	Cluster 2 (n = 173)	Cluster 3 (n = 158)
		Mean	
Pharmacy's staff	4.28	3.98	4.23
Anonymity/ confidentiality	4.06	3.33	4.22
Store's atmosphere	3.77	3.39	3.66
Pharmacy in long-term activity	4.03	3.70	3.89
Reputation of pharmacy	4.06	3.69	3.92
Product range	4.37	3.91	4.17
Product quality	4.51	4.32	4.41

Table 5. Correlation between common characteristics and factors affecting customer's purchase decision of medicines

	Cluster 1 (n = 268)	Cluster 2 (n = 173)	Cluster 3 (n = 158)
		Mean	
Previous experience	3.94	3.41	3.79
Pharmacist's advice	4.12	3.76	4.06
Country of origin	4.10	3.73	3.73
Advertisement	3.47	2.78	3.53
Medicine's information	4.22	3.62	4.04
Brand of product	4.08	3.63	3.99
Therapeutic efficacy of medicine	4.50	4.24	4.39
Product composition	4.37	3.70	4.18

Table 6. Comparative summary of the three customer profiles

	Cluster 1	Cluster 2	Cluster 3
Demographic characteristics	High level of education, office staff, high income, average age	Average level of education, either office staff or worker, average income, older age	High level of education, student, low income, low age
Factors affecting pharmacy selection	The main influencing factors include Product quality, pharmacy's staff, and product range. The store's atmosphere factor is the least influential	Factors are less positive feedback than Clusters 1 and 3. The main influencing factors include product quality, pharmacy's staff, and product range. The anonymity/ confidentiality factor is the least influential	The main influencing factors include product quality, pharmacy's staff, and anonymity. Unlike Cluster 2, Anonymity/ confidentiality has a much greater influence in Cluster 3. The store's atmosphere factor is the least influential
Factors affecting customer's purchase decision	The main influencing factors include drug composition, drug information, and the therapeutic effect of the medicine	The main influencing factors include the therapeutic effect of the medicine, the pharmacist's advice, and country of origin. The advertising factor has no effect on this cluster	The main influencing factors include the therapeutic effect of the medicine, drug composition, and the pharmacist's advice

4 Discussion

4.1 Selection of pharmacy

All factors influenced customers' decisions to purchase medicines, with product quality being the most influential factor and store atmosphere being the least influential. Customers prefer pharmacies that offer high-quality products, which positively impact treatment outcomes. This, in turn, leads to positive reviews and electronic word-of-mouth recommendations. Ehsani (2015) defined product quality as a customer's perception of overall quality or superiority over alternatives [13]. However, pharmacy owners should also consider the cost of medicines when deciding which brands to import because high-quality products often come at higher prices. It is important to balance offering high-quality products and ensuring customer affordability.

Compared with similar studies conducted in other countries, Vietnamese customers placed less emphasis on services provided by pharmacies. The mean values for pharmacy staff, store atmosphere, and anonymity/confidentiality were lower in this study than in comparative studies [14]. This finding can be attributed to differences in customers' knowledge of drug information and services. In developed countries, customers are better educated about pharmaceuticals, leading them to consider pharmacy services' quality. In contrast, Vietnamese customers rely more on the perception of product quality, assuming that all pharmacies offer products of similar quality. Additionally, pharmacies in Vietnam often sell a wide range of products in addition to medicines that are convenient for customers.

4.2 Customer's purchase decision of medicines

The therapeutic efficacy of medicines has emerged as the most influential factor in customer purchase decisions. Customers are more inclined to purchase medicines that are perceived to be more effective. This finding aligns with the importance of product quality in the selection of pharmacies, emphasizing the overall impact of effective treatment outcomes on customer decision-making. Compared to previous studies, factors such as pharmacists' advice, product brand, and country of origin had higher mean values in this study [15].

Vietnamese customers have limited knowledge of medicines, leading them to prefer medicines from developed countries to those manufactured domestically. Medicines from developed countries are considered more effective. Consequently, customers rely heavily on pharmacists' advice as they lack the knowledge to make informed decisions about which medicines to purchase. This finding underscores the importance of knowledgeable and experienced pharmacists, who can provide accurate advice to customers. Additionally, positive customer perceptions of pharmacists' services contribute to customer engagement and loyalty [10]. Therefore, pharmacies should prioritize providing competent and socially skilled pharmacists to enhance customer satisfaction and loyalty.

Advertising was found to have minimal influence on customers' purchasing decisions, which is consistent with previous research [16, 17]. Customers perceive advertising as having little impact on their decisions, especially regarding over-the-counter (OTC) drugs. Trust in advertising is lower than trust in physicians' prescriptions. Physicians and the general public have negative views of pharmaceutical advertising, potentially affecting the physician-patient relationship [18].

4.3 Correlation between common characteristics and factors affecting customers' decision to buy medicines

Cluster analysis was used to identify three distinct customer groups based on their common characteristics. The largest group (Cluster 1) consists of customers with a high level of education, predominantly office staff with higher incomes, and an average age of 37.12. The selection of pharmacies was influenced by factors such as product quality, pharmacy staff, and product range. Regarding the decision to purchase medicines, factors such as drug composition, drug information, and the therapeutic effect of the medicine played a significant role.

The second largest group (Cluster 2) primarily comprised older customers with an average level of education, consisting of office staff and workers with average incomes and an average age of 47.10. They shared influencing factors in the selection of pharmacies with Cluster 1, including product quality, pharmacy staff, and product ranges. However, their purchase decisions regarding medicines were influenced by different factors, namely the therapeutic effect of the medicine, the pharmacist's advice, and the country of origin.

The smallest group (Cluster 3) mainly consisted of young students with low incomes but high education levels. This group differed from Clusters 1 and 2. The key factors influencing this group include product quality, pharmacy staff, and anonymity. Factors such as the therapeutic effect of the medicine, drug composition, and pharmacists' advice played a significant role in purchase decisions.

Notably, store atmosphere had a lesser impact on customers' selection of pharmacies in Clusters 1 and 3, while anonymity/confidentiality had a stronger influence in Cluster 3. This finding indicates that young people are more concerned about information security when choosing where to buy medicines, whereas middle-aged or older individuals with average incomes are less interested in customer information protection. Level of education and occupation also influenced customers' perspectives. Customers with higher educational levels were more attentive to drug composition and information, whereas those with lower educational levels and older adults placed less importance on these factors. Pharmacists' advice emerged as the third influencing factor in the student group's decisions to purchase medicines, indicating that pharmacists' advice holds greater weight than drug information for this particular demographic [19].

5 Conclusion

In conclusion, this study revealed that Vietnamese customers prioritize product quality when selecting a pharmacy, whereas factors such as store atmosphere, pharmacy staff, and anonymity have less influence on their decisions. Vietnamese customers prefer foreign pharmaceuticals, particularly those from developed countries, and factors such as the country of origin and product brand play a significant role in their purchase decisions. The therapeutic efficacy of medicines is highly valued by customers when making purchase decisions. Students in Vietnam prioritized information security when purchasing medicines. Therefore, pharmacies targeting this demographic group should consider this factor. Advertising has the least impact on customer purchase decisions, indicating that companies should not overly rely on advertising strategies. Segmentation analysis demonstrates variations in customer preferences, selection criteria, and demographic characteristics among the three customer clusters.

6 Limitation

The study's limitations are evident as it solely targeted the inner-city population of Ho Chi Minh City. This limitation arose due to the considerable geographical distance separating the researcher from the suburban areas, resulting in the omission of suburban subjects. Furthermore, the study exclusively engaged retail customers purchasing drugs, while leaders within health agencies remained unexplored.

To address these shortcomings, it is recommended that future studies consider these limitations. However, it is worth noting that we currently lack any rationale to anticipate that rectifying these weaknesses would substantially alter the primary outcomes we have attained.

7 Recommendation

To enhance the comprehensiveness of the study, it is recommended to extend the research beyond the inner-city population of Ho Chi Minh City and incorporate suburban areas. This would provide a more holistic understanding of the phenomenon under investigation and capture diverse perspectives and experiences. Efforts should be made to overcome geographical challenges and ensure representation from suburban subjects. Address the geographical distance issue by implementing strategies such as collaborating with local research partners or utilizing advanced communication technologies. By doing so, you can overcome the constraints posed by the researcher's location and ensure that the suburban population is adequately represented in the study.

To achieve a comprehensive understanding of the subject matter, extend the scope of the study to include leaders in health agencies. Their insights and perspectives are invaluable, as they possess a broader overview of health-related trends and policies. Engaging these stakeholders through interviews, surveys, or focus groups can provide a well-rounded perspective on the topic.

Consequently, more valuable insights and recommendations can be generated for the entire sector.

8 Theoretical Implications

Based on research, certain factors distinctly influence customer purchasing behavior. These factors collectively shape the pharmaceutical market in Ho Chi Minh City, with their impact varying in strength depending on the country and region. While the study effectively uncovers elements with significant or weak influences on customers' decisions to purchase pharmaceuticals in Ho Chi Minh City, its significance is contingent upon the timing of examination. It's important to acknowledge that these factors could evolve in the future.

9 Practical Implications

In light of the factors that influence medication purchasing decisions, businesses can fortify their weaker aspects or promote their strengths during business transactions, thereby leading to increased consumer satisfaction and loyalty. Furthermore, these factors facilitate the segmentation of the pharmaceutical usage market, equipping firms with a more comprehensive understanding of the pharmaceutical market in Ho Chi Minh City.

10 Supplementary Information

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