

## ASSESSMENT OF FACTORS INFLUENCING PEOPLE'S WILLINGNESS TO PAY FOR PHARMACEUTICAL CARE SERVICES AT RETAIL PHARMACIES IN CAN THO CITY IN 2023 - 2024

*Vo Thi Hong Dao, Nguyen Bich Tuyen, Le Thi Hong My,  
Nguyen Ngoc Anh Thu, Nguyen Tong Quoc, Nguyen Phuc Hung\*,  
Vo Thi My Huong, Nguyen Thi Tuyet Minh, Tran Thi Ngoc Lan*

*Can Tho University of Medicine and Pharmacy*

*\*Corresponding author: nphung@ctump.edu.vn*

*Received: 23/4/2025*

*Reviewed: 14/5/2025*

*Accepted: 25/6/2025*

### ABSTRACT

**Background:** Assessing people's willingness to pay for pharmaceutical care services in Can Tho city is crucial due to the growing demand for healthcare. Understanding this willingness helps enhance service access and quality, while also guiding the development of effective health policies to improve communit. **Objectives:** To assess the correlation of factors influencing people's willingness to pay for pharmaceutical care services at retail pharmacies in Can Tho city. **Materials and methods:** A cross-sectional descriptive survey was conducted among 505 individuals aged 18 years and older across nine districts in Can Tho city in 2023-2024. The survey used a set of interview questions designed to evaluate factors influencing people's willingness to pay for pharmaceutical care services at retail pharmacies. **Results:** Most participants were female (56.6%) and students (29.7%). The majority visited retail pharmacies less than twice per month (60.6%). The average monthly payment for pharmaceutical care services was 50,000 to 100,000 VND (42.6%). Four factors influencing willingness to pay were: pharmacists' knowledge, attitude, and skills; incentive policies; pricing; and convenience. **Conclusion:** The "Knowledge, attitude, and skills of pharmacists" is the most influential factor on people's willingness to pay for pharmaceutical care services in Can Tho City.

**Keywords:** WTP, willingness to pay threshold, pharmaceutical care services, factors.

### I. INTRODUCTION

Willingness to Pay (WTP) is defined as the maximum price a customer is willing to pay for a product or service under specific conditions [1], [2]. In health economics, the WTP threshold refers to the monetary amount an individual is willing to spend to reduce the risk of experiencing adverse health effects or to obtain attributes associated with one or more medical interventions [3], [4]. Pharmaceutical care involves the contributions of pharmacists in optimizing medication use and improving health outcomes [5]. The preference for using pharmaceutical care services is common not only in Vietnam but also worldwide, driven by convenience and a growing trend of self-medication at retail pharmacies rather than seeking care at hospitals. In Vietnam alone, 80% of the population chooses local pharmacies for health-related needs [6]. This study was conducted in Can Tho City, the central hub of the Mekong Delta, characterized by a high population density (1,252,348 people as of 2022) and a substantial number of retail pharmacies nationwide, according to Official Letter No. 511/CTK, dated August 25, 2022, from the Can Tho City Statistics Department. The high population density impacts both income levels and spending behavior. While numerous international studies have explored WTP for pharmaceutical care

services, domestic research remains limited, often focusing on single departments or hospitals, lacking a comprehensive perspective. Therefore, we conducted the study "Assessment of factors influencing people's willingness to pay for pharmaceutical care services at retail pharmacies in Can Tho city in 2023 – 2024."

## II. MATERIALS AND METHODS

### 2.1. Materials

**Inclusion criteria:** Citizens aged 18 and above from the nine districts of Can Tho city who accessed pharmaceutical care services in 2023-2024, with full civil capacity and consent to participate in the survey.

**Exclusion criteria:** Individuals under 18 years old; individuals unable to answer survey questions; participants who do not fully complete the survey; individuals who do not voluntarily agree to participate in the research.

### 2.2. Methods

**Research design:** The study used a cross-sectional descriptive method with analysis.

**Sample size:** The sample size was calculated using the formula for large populations:

$$n = \frac{Z^2 \left(1 - \frac{\alpha}{2}\right) \cdot p(1 - p)}{d^2}$$

To account for incomplete surveys, the sample size was increased by 10%, resulting in a total of 430 samples. The sample size from each district was based on the population proportion in Can Tho city, according to the population density data from the City Statistics Department (Official Letter No. 511/CTK, August 25, 2022, City Statistics Department) [7].

In fact, a total of 505 samples were collected.

**Research content:**

- Content 1: General characteristics of the research sample.
- Content 2: Evaluation and testing of the willingness-to-pay scale for pharmaceutical care services among residents of Can Tho city in 2023 – 2024.

**Data collection method:** Random and convenient sampling through direct interviews with residents in the Can Tho city area.

**Data processing and analysis methods:** The data collected in the study were cleaned and analyzed using SPSS version 22 software.

**Ethics in research:** The study adheres to ethical principles, respecting the interests, aspirations, and fairness of each participant. The study has been approved by the ethics committee of Can Tho University of Medicine and Pharmacy.

## III. RESULTS

### 3.1. General characteristics

Of the 505 respondents surveyed, the majority lived in urban areas (71.7%), the age group 18-30 represented a high proportion (54.7%), and females predominated (56.6%). The willingness-to-pay threshold for pharmaceutical care services ranged from 50,000 to 100,000 VND, representing the largest proportion (42.6%). A significantly higher percentage of people purchased non-prescription drugs (77.4%) compared to prescription drugs (22.6%). On average, most participants visited the store fewer than twice per month

(60.6%), while only a small percentage (4.8%) visited more than five times per month. Among purchased items, medicines were the most common (49.4%).

### 3.2. Evaluating and testing the willingness to pay threshold for pharmaceutical care services in Can Tho city (2023 – 2024)

#### Cronbach's Alpha reliability analysis

Table 1. Cronbach's Alpha results

Observed variables	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha coefficient
Incentive policies			
IP1: The retail pharmacy has advertising programs to help you learn about pharmaceutical care services faster.	0.708	0.886	0.895
IP2: The retail pharmacy has incentive programs for new customers.	0.707	0.887	
IP3: The retail pharmacy offers a points accumulation program and discounts on future purchases.	0.829	0.842	
IP4: The retail pharmacy offers services to follow up and provide advice on your condition after using the medication for the first time.	0.830	0.841	
Pricing			
P1: You feel satisfied when the pharmaceutical care service is suitable for the price paid.	0.758	0.910	0.917
P2: You are more likely to use the service when the pharmacist provides a clear consultation price list.	0.808	0.894	
P3: You compare prices after using the service.	0.878	0.869	
P4: You tend to choose cheap services.	0.802	0.896	
Pharmacy brand			
B1: You can easily locate a retail pharmacy if it is a well-known brand.	0.667	0.948	0.923
B2: You can feel secure and confident in the quality of service if it is a well-known brand.	0.821	0.902	
B3: You are willing to pay a higher price for the service if it is a well-known brand.	0.902	0.871	
B4: The retail pharmacy has an eye-catching brand sign that influences your choice.	0.914	0.866	
Pharmacists' knowledge, attitude, and skills			
KSA1. The pharmacist provides comprehensive advice on usage, dosage, and side effects when you purchase medicine.	0.830	0.920	0.935
KSA2. The pharmacist recommends medications that are suitable for your condition.	0.871	0.915	
KSA3. The pharmacist recommends medications that fit your budget.	0.767	0.927	

Observed variables	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Cronbach's Alpha coefficient
KSA4. The pharmacist demonstrates the attitude and skills that satisfy you.	0.845	0.917	
KSA5. The pharmacist provides service at a pace that satisfies you.	0.762	0.928	
KSA6. The pharmacist builds trust and persuades you when offering advice.	0.769	0.927	
<b>Pharmacy space</b>			
S1. A spacious, airy, modern facility at the retail pharmacy is a priority when choosing a consultant.	0.502	0.869	0.836
S2. The retail pharmacy is fully equipped with consulting areas, medicine cabinets, storage spaces, and hand-washing stations.	0.612	0.817	
S3. The retail pharmacy has designated areas for cosmetics, functional foods, and other products.	0.792	0.740	
S4. The larger the space of the pharmacy or medicine cabinet, the greater the range of services and products it provides.	0.800	0.734	
<b>Convenience</b>			
CON1. You prefer retail pharmacies offering both on-site and online consultation services.	0.785	0.963	0.949
CON2. You prefer retail pharmacies that stock all the products you need.	0.883	0.931	
CON3. You often choose a retail pharmacy close to your home.	0.922	0.920	
CON4. You often choose a retail pharmacy that offers door-to-door delivery service.	0.926	0.919	
<b>Willingness to pay</b>			
WTP1. The quality of pharmaceutical care services influences your willingness to pay.	0.865	0.937	0.949
WTP2. Price influences your willingness to pay	0.827	0.942	
WTP3. Pharmacy brand influences your willingness to pay	0.842	0.940	
WTP4. Pharmacist's knowledge influences your willingness to pay	0.813	0.944	
WTP5. Pharmacist's attitude and skills influence your willingness to pay	0.880	0.935	
WTP6. Facilities influence your willingness to pay	0.838	0.940	

As presented in Table 2, after assessing the reliability using Cronbach's Alpha, three variables (S1, B1, CON1) were eliminated. The remaining 23 variables, with a total correlation coefficient  $> 0.3$  and a Cronbach's Alpha reliability coefficient  $> 0.6$ , meet the requirements.

**Exploratory Factor Analysis (EFA) for subsections of scales measuring variables**

Table 2. Factor rotation matrix for the subsections of variable measurement scales

Table 2a. Independent variable						
Subsection	Factor loading					
	1	2	3	4	5	6
KSA1	0.821					
KSA2	0.872					
KSA3	0.825					
KSA4	0.858					
KSA5	0.799					
KSA6	0.773					
P1		0.828				
P2		0.844				
P3		0.890				
P4		0.852				
CON2			0.880			
CON3			0.939			
CON4			0.941			
B1				0.894		
B2				0.956		
B3				0.963		
IP1					0.705	
IP3					0.957	
IP4					0.958	
S2						0.821
S3						0.857
S4						0.868

  

Table 2b. Dependent variable	
Subsection	Factor loading
	1
WTP1	0.910
WTP2	0.881
WTP3	0.890
WTP4	0.869
WTP5	0.921
WTP6	0.891

Results of EFA: First time: Variable A2 was eliminated due to being isolated in one factor. Second time: 6 factors were extracted that affect people's willingness to pay for pharmaceutical care services (WTP), including: IP, P, B, KSA, S, CON.

**Multivariate linear regression analysis using the “Enter” method**

Table 3: Multivariate regression results

Model	Unstandardized Coefficient		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
Constant	0.251	0.196		1.275	0.203		
CON	0.193	0.037	0.203	5.199	0.000	0.779	1.283
KSA	0.292	0.047	0.269	6.218	0.000	0.633	1.580
P	0.240	0.041	0.237	5.877	0.000	0.732	1.366
IP	0.172	0.040	0.161	4.295	0.000	0.845	1.183
B	-0.001	0.036	-0.001	-0.041	0.968	0.919	1.089
S	0.055	0.046	0.047	1.186	0.236	0.770	1.298

Table 3 shows that four out of six variables were statistically significant ( $\text{Sig} < 0.05$ ), with a confidence level exceeding 95%. The multicollinearity test, using the variance inflation factor (VIF), revealed all factors had a  $\text{VIF} \leq 2$ , consistent with Nguyen Phuc Hung *et al.* [8]. The WTP threshold model after standardization was:  $\text{WTP} = 0.161 \times \text{IP} + 0.203 \times \text{CON} + 0.269 \times \text{KSA} + 0.237 \times \text{P} + \text{e}$ .

## IV. DISCUSSION

### 4.1. General characteristics of the research subjects

A survey of 505 people in Can Tho city (2023-2024) revealed that women (56.6%) were more willing to pay for pharmaceutical care services than men. The majority of respondents were aged 18 to 30 (54.7%), with students making up 29.7%. Additionally, 49.1% of respondents had an income of less than 5 million VND, reflecting the economic context in which these preferences were shaped.

Regarding healthcare awareness, the study found that 77.4% of people purchased non-prescription drugs, with the majority (49.4%) buying them from retail pharmacies. This trend is similar to the findings of a study by Nguyen Thi Phuong Thuy *et al.* [9] which assessed antibiotic sales at retail drug establishments in Vietnam. The high demand for non-prescription drugs highlights the need for stricter regulation of drug sales.

### 4.2. Assessing factors influencing people's willingness to pay for pharmaceutical care services at drug retail pharmacies in Can Tho city (2023 – 2024)

The study developed a scale to measure willingness to pay for pharmaceutical care services and its influencing factors. Three variables (B1, S1, CON1) were excluded due to low reliability, as their total variable was less than 0.3 and Cronbach's Alpha increased when removed. EFA confirmed the suitability of factor analysis with a KMO of 0.835 and a significant Bartlett's test ( $\text{sig} < 0.001$ ). Six independent factors were retained, explaining 82.779% of the variance for independent variables and 79.911% for dependent variables, confirming the appropriateness of the EFA model. According to Hair *et al.* (2010), the factor

loading has a standard value that varies with sample size, meaning that the threshold for statistical significance of the factor loading changes depending on the sample size range [10]. The loading factor for all variables is greater than 0.7, indicating that the observed variables are of very good quality. The factor rotation matrix identifies 6 factors, consistent with the original research: KSA, P, B, S, CON, IP.

## V. CONCLUSION

The knowledge, attitude, and skills of pharmacists are the factors that most strongly influence people's willingness to pay for pharmaceutical care services in Can Tho city. In contrast, factors like pharmacy brand and space do not impact people's willingness to pay.

## REFERENCES

1. Breidert C. Estimation of willingness-to-pay: Theory, measurement, application. Deutscher UniversitSts-Verlag: GWV Fachverlage, Wiesbaden. 2006. 23-35.
2. Gall-Ely M. L. Definition, Measurement and Determinants of the Consumer's Willingness to pay: a critical synthesis and avenues for further research. *Recherche Et Applications En Marketing (English Edition)*. 2009. 24(2), 91-112. doi:10.1177/205157070902400205.
3. Rascati K. L. Essentials of pharmacoeconomics. Lippincott Williams & Wilkins. 2009.
4. Ryan, Mandy, Kolstad, Julie R., Rockers, Peter C. *et al*. How to conduct a discrete choice experiment for health workforce recruitment and retention in remote and rural areas: a user guide with case studies. *The World Bank*. 2012. 74489, 1-94. <https://surl.li/dghsoj>.
5. Allemann S.S., Foppe van Mil J.W., Botermann L., Berger K., Griese N. *et al*. Pharmaceutical Care: the PCNE definition 2013. *International Journal of Clinical Pharmacy*. 2014. 36(3), 544-555. doi: 10.1007/s11096-014-9933-x.
6. Chalker J., Chuc N. T. K., Falkenberg T., Tomson G. Private pharmacies in Hanoi, Vietnam: a randomized trial of a 2-year multi-component intervention on knowledge and stated practice regarding ARI, STD and antibiotic/steroid requests. *Tropical Medicine & International Health*. 2002. 7(9), 803-810. doi:10.1046/j.1365-3156.2002.00934.x.
7. Can Tho City Statistics Department. Ninh Kieu District People's Committee. Official Dispatch No. 511/CTK dated August 25, 2022 announcing the official average population in 2021 and preliminary population in 2022. Accessed August 15, 2023. <https://thongkecantho.gso.gov.vn>.
8. Nguyen Phuc Hung, Nguyen Phuc Vinh, Le My Phung, Pham Thanh Suol, Tang Nghiep Minh *et al*. Evaluation of factors affecting pharmacists' behavior regarding the sale of vitamins at retail pharmacies in Vinh Long province from 2022 - 2023. *Journal of Military Pharmacomedicine*. 2024. 49(4), 52-63. doi:10.56535/jmpm.v49i4.609.
9. Nguyen Thi Phuong Thuy, Do Xuan Thang, Vu Dinh Hoa, Nguyen Hoang Anh and Nguyen Thanh Binh. Assessment of antibiotic resistance at retail pharmacies in Vietnam through mystery shopping method. *Pharmaceutical Journal*. 2020. 60(3), 8-14. <https://vjol.info.vn/index.php/tcdh/article/view/47060>.
10. Hair J.F. Multivariate data analysis. Prentice Hall, Upper Saddle River, NJ. 2010.

---