

Original Research Article

Applying Q-methodology to study customer satisfaction with quality of community pharmacy services in Vietnam

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Abstract

Purpose: To determine the pattern of customers' viewpoints regarding their satisfaction with the quality of services of community pharmacies in Vietnam.

Methods: Q-methodology was applied to identify distinct patterns of subjective perception on community pharmacy services. A Q-sample of 40 statements was developed following a review of the literature. The study recruited 144 customers from 40 pharmacies in four Vietnamese cities. They were required to sort 40 statements into a quasi-normal distribution grid according to their degree of satisfaction with the quality of community pharmacy services. Data collected were analyzed using PQ Method software version 2.35.

Results: This study identified three factors indicating three patterns of perspectives concerning customer satisfaction on the quality of community pharmacy services: Factor 1: accessibility of the community pharmacy; Factor 2: availability of medication consultations; Factor 3: accessibility of medicines.

Conclusion: There are three main patterns of viewpoints concerning customer satisfaction with community pharmacy services in Vietnam. The findings should contribute to improving the understanding of pharmaceutical policymakers and pharmacy staff regarding customer satisfaction with current pharmaceutical services.

Keywords: Community pharmacy, Customer satisfaction, Q-methodology, Pharmaceutical policymakers, Pharmacy staff

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INTRODUCTION

The community pharmacy is an integral component of the primary health care system that improves and enhances the public health of the community [1]. Traditionally, community pharmacy is viewed as a retail channel that performs the primary function of distributing

quality-assured medicines to patients [2]. However, in recent years, the role of the community pharmacy has shifted to patient-oriented care in place of medicine-centered services [3], which contributes to ensuring rational medication use and monitoring chronic patients [4,5].

Today, the community pharmacy is the most

frequent destination of patients who face health-related problems [1]. The convenience of access and the availability and cost-effectiveness of medicines are some of the main reasons given by customers who seek pharmaceutical care from pharmacies [6,7]. In developing countries, community pharmacies are considered a replacement of other healthcare services [8]. Customers often choose community pharmacies for self-medication [9]. In Vietnam, the majority of patients prefer to go to community pharmacies for medicine counseling, getting prescriptions, or self-medication [10,11], resulting in pharmacies becoming the most used services, accounting for two-thirds of all healthcare services [11].

With the goal of improving the effectiveness of pharmaceutical practice at pharmacies in Vietnam, in 2007 the Vietnam Ministry of Health promulgated the "Good pharmacy practice" standard, which specified the responsibilities of pharmacists from providing quality medicine to counseling and monitoring the proper use of medicine [11]. However, the supply of high-quality and effective pharmaceutical services is a challenge for Vietnam. According to the study conducted by Smith in 2009, pharmacies in developing countries including Vietnam still play a limited role in the provision of health services [12].

Greater knowledge and understanding of the pharmacy customers' perceptions can improve and enhance the timeliness and quality of community pharmacy services in the context of current practice in Vietnam. In addition, previous studies in Vietnam investigating customer satisfaction on community pharmacy services were mainly conducted in a particular region; there is limited research that takes into consideration the whole country. Therefore, the purpose of this research was to explore the customers' perspectives on the quality of pharmaceutical services provided by community pharmacies in Vietnam.

METHODS

Q-methodology, also known as by-person factor analysis [13], is a strong and unique combination of both qualitative and quantitative research methods [14], with the aim of arriving at a deep understanding of the individual's subjective viewpoints, attitudes, beliefs, and opinions regarding a study issue [15]. The use of Q-methodology has significantly increased in the fields of social sciences and humanities [16] but has not been widely applied in the field of pharmacy, especially to studies on customer satisfaction. In this research, Q-methodology was

applied to explore different types of customer perspectives regarding the quality of pharmaceutical services. The procedure for the study using Q-methodology comprised the following five main steps: (1) development of a concourse based on the research topic; (2) definition of Q-sample; (3) recruitment of a P-set of respondents; (4) completion of the Q-sort; and (5) data analysis and factor interpretation.

Concourse

In Q-methodology, a concourse is a very large set of statements, also known as "universe of viewpoints" [17], comprising all possible aspects that relate to the study topic [18]. The method that is usually used to develop the concourse includes a review of literature, interviews, and focus groups in order to ensure that a representative set of diverse ideas, beliefs, attitudes, and opinions on the issue of interest is obtained [19]. In this study, a concourse of more than 120 statements was developed by non-systematically reviewing 30 articles related to the understanding of customer perspectives on community pharmacies.

Q-sample

Once the concourse has been determined, the next step is to develop a Q-sample with a fewer number of statements that still represent the original concourse. The ideal Q-sample recommended usually comprises 40–80 statements [20]. Moreover, the size of the Q-sample is usually approximately one-third that of the concourse [21]. In the current study, a structured sampling method was used by selecting several representative and appropriate statements from the concourse and classifying them into the following four categories: (1) community pharmacy, (2) medicine, (3) pharmacist's knowledge, skills, attitude, and (4) pharmacist's behavior. Next, two experts from the pharmacy field evaluated and corrected the statements to make the language simple and clear for the participants. This process resulted in a final Q-sample comprising 40 statements.

P-set

The P-set is defined as the group of respondents completing the Q-sort. Q-methodology does not require too many participants. Between 40 and 60 participants are considered adequate enough for most Q-methodology studies [20]. Furthermore, participants were not randomly selected from a particular population to be representative of that population [22]; in contrast, participants with a variety of potentially different

viewpoints were intentionally selected in accordance with the goals of the study [16]. In this study, pharmacy customers of both sexes, different age groups, and diverse educational and geographic backgrounds were mainly recruited from 40 community pharmacies in four Vietnamese cities: Hanoi, Da Nang, Ho Chi Minh, and Can Tho. In each city, five community pharmacies located in the city center and five located on the outskirts of the city were selected for the study, which was conducted from July 10th to September 10th, 2017.

Q-sort

To prepare for the Q-sorting process, each statement from the Q-sample was randomly numbered from 1 to 40 and each statement and number was then imprinted on to small cards. Participants were asked to read and sort 40 cards into the forced quasi-normal distribution grid (shown in Fig. 1) according to their degree of satisfaction or dissatisfaction with the quality of pharmaceutical services of the community pharmacy. This resulted in each participant creating a Q-sort that reflected their perspective on the research topic. A detailed guide on the steps to perform the sorting can be found in Watts and Stenner (2012) [13].

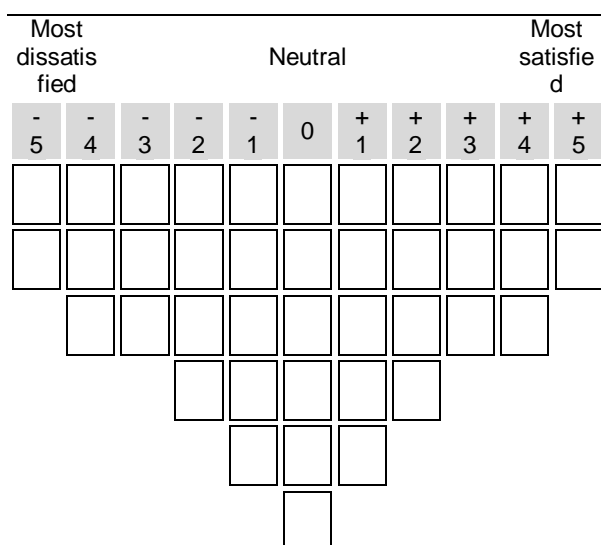


Figure 1: Q-distribution grid

Data analysis and interpretation

All Q-sorts data were entered and analyzed using PQMethod software version 2.35 [23]. Factors, known as the patterns of distinct viewpoints, were extracted using centroid factor analysis and then rotated using the varimax method. The following four evaluation methods were conducted to identify the optimal amount of

factors to retain: (1) Kaiser-Guttman or eigenvalues greater than one criterion [24,25]; (2) factors with two or more significant factor loadings [17]; (3) scree test [26]; and (4) parallel analysis [27]. The scree test and parallel analysis were based on eigenvalues that were computed using principal component analysis as suggested by Q-methodology researchers [13]. Parallel analysis based on 1,000 random datasets' generation of the original data using IBM SPSS version 22.0 syntax was conducted as per the guidance provided by O'Connor (2000) [28]. In this study, factor loading was considered significant at $p < 0.01$ on a factor if its absolute value was greater than 0.41 , based on applying the calculation formula as follows: $2.58/\sqrt{n}$, where n is the number of statements in the Q-sample [17].

The process of factor interpretation used the following information: (1) statements with the highest or lowest rank, (2) useful higher or lower ranked statements in the focus factor rather than in other factors [13] and (3) distinguishing statements. Distinguishing statements of a factor are statements for which there are statistically significant differences between the score on that factor and any other factor [29].

RESULTS

This study included 150 participants, six of whom did not complete the Q-sort; therefore, 144 Q-sorts by participants were included in the data analysis. The demographic information of 144 participants indicated that more than half of the respondents were female (51.4%); most were aged between 18 and 30 years (59.7%) and had received high school education (43.8%).

Results of factor extraction showed that 33 factors with eigenvalues above 1.0 satisfied the Kaiser-Guttman criterion. Four factors contained two or more significant factor loadings. The scree plot showed that the inflection point was in the position of the fourth factor (see Fig. 2); consequently, the three factors located to the left of the inflection point were considered appropriate. Parallel analysis, seen in Fig. 2, recommended retaining the three factors because their actual eigenvalue was higher than the 95th percentile eigenvalue from 1000 random datasets. Based on the review of these evaluation methods and the theoretical significance of the extracted factors, the three-factor solution was considered most suitable for the present study data.

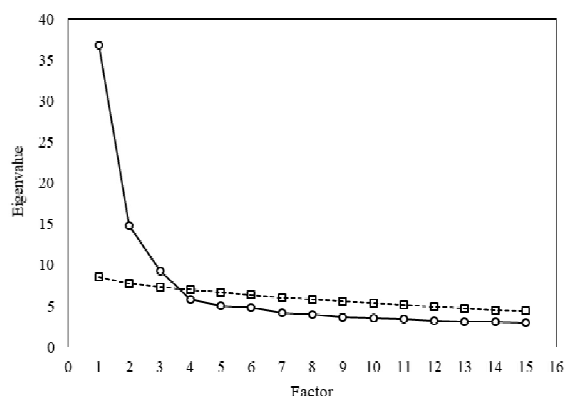


Figure 2: Screen plot and parallel analysis. **Key:** ○ = Actual Eigen value; □ = 95th percentile Eigen value

As a result of the rotation of the three-factor solution, 104 participants loaded with statistical significance on one of three factors, which accounted for 41% of the study’s total variance. Besides, 20 participants did not load significantly on any one factor. The remaining 20 participants loaded with statistical significance on more than one factor, which is known as confounded sorts.

By using by-person factor analysis, this study identified three factors representing three different patterns of viewpoints concerning

customer satisfaction on Vietnamese community pharmacy services: Factor 1—accessibility of the community pharmacy; Factor 2—availability of medication consultations; Factor 3—accessibility of medicines. Detailed information on the characteristics of each factor is given in Table 1 and 2.

Factor 1: Accessibility of the community pharmacy

Factor 1 had eigenvalues of 24.65, which accounted for 17% of the study’s total variance. This factor had 48 participants who significantly loaded on it. Customers sharing this viewpoint expressed high satisfaction with the convenience of the geographic location, as presented in statement number of 20 at rank position of +5, abbreviated as (#20: +5) on factor 1 (see Figure 3). The opening times of the pharmacies (#8: +4) and their clean and well-lit working area environment (#27: +3) were highly appreciated. Besides, customers appreciated the ability to easily access pharmacies in case of emergency (#25: +4) without prior appointment (#14: +5). However, they were not satisfied with the comfort of the waiting area and the number of seats (#11: -4).

Table 1: Statements and their corresponding rank values for three factors

S/no.	Statement	Factor		
		1	2	3
1	The pharmacist has high professional knowledge	-1**	+2**	-1**
2	The labels of the medicines I get are clear and easy to read	+1**	+2**	+5**
3	The pharmacist provides easy-to-understand information	+2**	0	0
4	The pharmacy always offers medicines at an affordable price	-3*	-3*	+2**
5	Appearance of the pharmacy is professional and aesthetic	+1*	-2**	+1*
6	I get advice about how to store medications at home from the pharmacist	-3**	0**	-5**
7	The pharmacist is willing to answer all of my questions	+2**	+3**	0**
8	Opening hours of the pharmacy are convenient for me	+4**	-2**	+1**
9	I trust the quality of the medicines purchased at the pharmacy	-1**	0*	+3**
10	To prevent mistakes, the pharmacist provides information on medication use in writing	0**	+4**	-2**
11	The pharmacy has a comfortable waiting area and a sufficient number of seats	-4	-4	-2**
12	I trust the pharmacist; he honors the confidentiality of information regarding me and my purchases	-2**	-1	-1
13	After consultations, I am well aware of the rules for taking medicines	+2	+2	0**
14	Pharmacy services are easily accessible and no prior appointment is necessary before a visit	+5**	-3**	+4**
15	Information on medicine prices is clearly visible	-5**	-2**	+4**
16	I get the required amount of necessary medicines	+3**	0**	+5**
17	The pharmacy does not provide for private counseling areas; other customers can overhear conversations or see the medicines	+1**	-4**	-4**
18	If I have health problems, I will go to the pharmacy. After consulting a pharmacist, I feel better	0**	-2**	-2**
19	The pharmacist asks me questions related to the disease to ensure that my medicine use is reasonable	+3**	+1**	-1**
20	The pharmacy is located in a convenient location, close to my home or workplace	+5**	0**	+3**

*Distinguishing statement with significance of p<0.05; **Distinguishing statement with significance of p<0.01.

Table 2: Statements and their corresponding rank values for three factors (*contd*)

S/no.	Statement	Factor		
		1	2	3
21	The pharmacist is a courteous, friendly, and helpful person	0	+2 ^{**}	0
22	The pharmacist indicates how to take medicines and provides advice on their frequency of use	+4 ^{**}	+5 ^{**}	+3 ^{**}
23	The pharmacist gives advice on maintaining my health and a healthy lifestyle	-4	+1 ^{**}	-3
24	The pharmacy has all the medicines that I need	0 ^{**}	-4 ^{**}	+1 ^{**}
25	In an emergency, I can easily find a pharmacy for pharmaceutical services	+4 ^{**}	-1 ^{**}	+1 ^{**}
26	I am satisfied with the information provided by the pharmacist	0 ^{**}	+1	+1
27	The pharmacy area is well-lit and clean	+3 ^{**}	-1 ^{**}	+4 ^{**}
28	The pharmacist listens attentively to my complaints about my health	0 ^{**}	+5 ^{**}	-1 ^{**}
29	I get information about what to do if I miss a dose	-4 ^{**}	-1 ^{**}	-4 ^{**}
30	The pharmacist helps select the medicines and provides information about alternative medicines and their prices	-2 ^{**}	+3 ^{**}	-1 ^{**}
31	The pharmacist is busy and does not allow enough time for consultation	-1 ^{**}	-5 ^{**}	-3 ^{**}
32	The pharmacy provides good pharmaceutical services; I would continue to use these services	-1	0	0*
33	The pharmacist provides necessary warnings about the side effects and possible interactions of medicines	-2 ^{**}	+4 ^{**}	-4 ^{**}
34	The number of counters in the pharmacy for dispensing medicines is sufficient	+1 ^{**}	-1 ^{**}	+2 ^{**}
35	While communicating with pharmacists, I feel respected and comfortable	+1 ^{**}	+1	+2
36	Dispensing of the medication by the pharmacist does not take much time	-3 ^{**}	-5 ^{**}	-5 ^{**}
37	The pharmacist explains what needs to be done to achieve an effective treatment	-1 ^{**}	+4 ^{**}	-2 ^{**}
38	Before dispensing the medicines, the pharmacist rechecks the medicines' name and dosage	+2 [*]	+3	+2
39	The pharmacist is able to explain things clearly for me to understand	-2 ^{**}	+1 ^{**}	0 ^{**}
40	All the efforts of the pharmacist are to help improve my health and not to profit as much as possible on my account	-5 ^{**}	-3	-3 ^{**}

*Distinguishing statement with significance of $p < 0.05$; **Distinguishing statement with significance of $p < 0.01$

Factor 2: Availability of medication consultations

Factor 2 had eigenvalues of 15.17, which accounts for 11 % of the total variance of the study. This factor had 26 participants who significantly loaded on it. They expressed satisfaction with the information given by the pharmacist about the use of medication not only orally (#22: +5), but also in writing (#10: +4). They received advice on what to do to achieve effective treatment (#37: +4), as well as on the side effects and interactions of medicines (#33: +4). Besides, pharmacists allocated sufficient time for medication consultation (#31: -5) and helped in recommending medicines by providing information about alternative medicines and their prices (# 30: +3). Participants were also very satisfied with the pharmacists' attitude toward them such as paying attention to their health concerns (#28: +5) and being willing to answer any question (#7: +3). However, they were not satisfied with the private medication consultation settings at the pharmacies (#17: -4).

Factor 3: Accessibility of medicines

Factor 3 had eigenvalues of 19.14, which accounts for 13% of the total variance of the study. This factor had 30 participants who significantly loaded on it. In this factor, customer

satisfaction was mainly related to getting a sufficient number of medicines (#16: +5) with clear labels (#2: +5) in the shopping process. In addition, customers had confidence in the quality of medicines (#9: +3) and could clearly view their price information (#15: +4). However, they had low satisfaction with the variety of necessary medicines for their needs (#24: +1) and the reasonableness of the prices (#4: +2) charged by the pharmacies.

DISCUSSION

This study highlights different patterns of customer opinions toward the quality of community pharmacy services in Vietnam. The three explored patterns were completely independent of one another. There were a large number of distinguishing statements for each viewpoint without any consensus statements—those that have no significant differences between any pair of factors [30]. The current study does not have many new findings compared to previous studies. However, by exploring the characteristics of the idealized Q-sort (see Figure 3) for each factor, it provides a clear picture that reveals a more detailed and insightful view of the subjective opinion of pharmaceutical customers in Vietnam.

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
15. Information on medicine prices is clearly visible	11. The pharmacy has a comfortable waiting area and a sufficient number of seats	4. The pharmacy always offers medicines at an affordable price	33. The pharmacist provides necessary warnings about the side effects and possible interactions of medicines	1. The pharmacist has high professional knowledge	18. If I have health problems, I will go to the pharmacy. After consulting a pharmacist, I feel better	2. The labels of the medicines I get are clear and easy to read	38. Before dispensing the medicines, the pharmacist rechecks the medicines' name and dosage	19. The pharmacist asks me questions related to the disease to ensure that my medicine use is reasonable	22. The pharmacist indicates how to take medicines and provides advice on their frequency of use	14. Pharmacy services are easily accessible and no prior appointment is necessary before a visit
40. All the efforts of the pharmacist are to help improve my health and not to profit as much as possible on my account	23. The pharmacist gives advice on maintaining my health and a healthy lifestyle	36. Dispensing of the medication by the pharmacist does not take much time	12. I trust the pharmacist; he honors the confidentiality of information regarding me and my purchases	9. I trust the quality of the medicines purchased at the pharmacy	10. To prevent mistakes, the pharmacist provides information on medication use in writing	35. While communicating with pharmacists, I feel respected and comfortable	13. After consultations, I am well aware of the rules for taking medicines	27. The pharmacy area is well-lit and clean	8. Opening hours of the pharmacy are convenient for me	20. The pharmacy is located in a convenient location, close to my home or workplace
	29. I get information about what to do if I miss a dose	6. I get advice about how to store medications at home from the pharmacist	30. The pharmacist helps select the medicines and provides information about alternative medicines and their prices	31. The pharmacist is busy and does not allow enough time for consultation	24. The pharmacy has all the medicines that I need	5. Appearance of the pharmacy is professional and aesthetic	7. The pharmacist is willing to answer all of my questions	16. I get the required amount of necessary medicines	25. In an emergency, I can easily find a pharmacy for pharmaceutical services	
			39. The pharmacist is able to explain things clearly for me to understand	37. The pharmacist explains what needs to be done to achieve an effective treatment	28. The pharmacist listens attentively to my complaints about my health	34. The number of counters in the pharmacy for dispensing medicines is sufficient	3. The pharmacist provides easy-to-understand information			
				32. The pharmacy provides good pharmaceutical services; I would continue to use these services	21. The pharmacist is a courteous, friendly, and helpful person	17. The pharmacy does not provide for private counseling areas; other customers can overhear conversations or see the medicines				
					26. I am satisfied with the information provided by the pharmacist					

Figure 3: An example of an idealized Q-sort for factor 1

In the context of the market economy in Vietnam, activities related to the supply and distribution of medicines have received attention and attracted participation from many economic stakeholders such as enterprises, pharmacies, and medical facilities not only in the public sectors, but also in the private sectors [31]. This led to the creation of a network of pharmacies that were widely distributed and covered all areas of the country of Vietnam [10]. This is one of the reasons to explain why participants in factor 1 represented the pattern of high satisfaction with access to pharmacies. However, there are still some limitations with regard to the setting of pharmacies such as waiting areas and seating. Another study reported similar results in Ethiopia and showed that patients were satisfied or very satisfied with the pharmacy location (69.3 %) but their satisfaction with the available number of chairs in the waiting area was poor or very poor (50.5 %) [32].

Over a long period of implementation of the “Doi moi” (renovation) policy since the late 1980s [33], the Vietnamese healthcare system has actively improved [34]. Currently, the pharmaceutical sector in Vietnam has achieved remarkable success in national management from the manufacture and distribution of medicines to its effective, safe, and appropriate use [35]. The results of the present research on factors 2 and 3 reflects a significant improvement of current Vietnamese pharmacy services in patient medication counseling as well as regarding the population’s access to medicines. However, there are some limitations with regard to the privacy of the patients’ medication consultations, as well as the availability of the full range of necessary medicines and the fairness of their prices at community pharmacies, which need to be overcome. Similar findings from a study conducted in the United Arab Emirates showed that pharmacy customer satisfaction with medication prices was at a moderate level [36].

For the first time, a study using Q-methodology was conducted in Vietnam. Moreover, data collection through Q-sort based on a quasi-normal distribution grid is a more complex process than traditional questionnaire surveys. Therefore, this collection method required the direct involvement of the researcher and a trained assistant in providing detailed guidance on the Q-sort completion steps to ensure that participants understood and followed them correctly when the study was conducted in Vietnam.

There are some limitations to this study. Only 10 pharmacies from each of the four major cities in Vietnam were selected for the study. Descriptive statistics of frequency distribution for statements in each factor were also not reported in this study because research using Q-methodology does not require it [16]. Furthermore, the extracted factors accounted for a not-too-large 41% of the total variance. This can be explained by the complexity of data collection tools through Q-sorts and the majority of participants with high school education. However, the study’s values are within the allowable range; according to Q-researchers, a variance greater than 35% is considered acceptable for a Q-study [13]. In the future, we hope to expand the number of participants and focus not only on community pharmacies in the big cities but also on those in small cities and rural areas.

CONCLUSION

This study identifies three patterns of pharmaceutical customers’ distinct viewpoints on the quality of community pharmacy services in Vietnam using Q-methodology. The findings of this study contribute to improving the understanding of pharmaceutical policymakers and pharmacy staff about the advantages and disadvantages of current pharmaceutical services, which serves the ultimate goal of the supply of best-quality pharmacy services for the community. Q-methodology is a powerful and useful tool to understand human subjectivity. Based on its successful application to this current research, we hope to motivate many other researchers in the future to apply Q-methodology to understand the subjective views of not only pharmacy customers but also pharmacy staff, managers, and pharmaceutical policymakers.

DECLARATIONS

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Conflict of Interest

No conflict of interest associated with this work.

Contribution of Authors

The authors declare that this work was done by the authors named in this article and all liabilities pertaining to claims relating to the content of this article will be borne by them.

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