—Regular Articles—

Investigation of Patients' Demand for Community Pharmacies: Relationship between Pharmacy Services and Patient Satisfaction

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(Received August 15, 2000; Accepted December 14, 2000)

We performed an investigation on the patients' demand for community pharmacy based on the analysis of questionnaire responses on community pharmacy services from the patients at 32 pharmacies in Tokyo and Osaka. In the previous study, we developed seven evaluation indices for pharmacy services, and showed that the functions most sought by patients in the ''ideal pharmacies'' were ''Attitude of pharmacy/pharmacist'', ''Convenient hours'' and ''Information management''. The objective of this study is to determine the relationship between these pharmacy functions and patient satisfaction by analyzing responses from the same questionnaire survey. Overall satisfaction score with the ''pharmacy used today'' was employed as the dependent variable, while the six factors derived from the 26–item evaluation scale in the questionnaire by factor analysis were used as the independent variables. As a result of analysis, it was found that four variables had a significant positive correlation with patient satisfaction, one had a significant inverse correlation, and one showed no significant correlation ($p<0.05$). These results suggest that: attitude of the pharmacists such as general attitude and specialized activities of pharmacy/pharmacist such as providing information and explanations, and convenience of hours are not only judged to be important by patients, but also influence their satisfaction; comfortable facilities and availability of OTC drugs, while rated relatively low by patients in terms of importance, do influence their satisfaction; and convenience of location does not influence patient satisfaction. It was also indicated that insufficient inventories of prescribed medications have an impact upon patient satisfaction. This investigation offers evidence to provide patient–based pharmacy services.

Key words——community pharmacy; patient satisfaction; evaluation scale; pharmacy practice; and prescription

INTRODUCTION

Recently, Japanese consumers have been making more sophisticated and diverse demands upon the medical care system, and attention is now focusing on the importance of evaluating the quality of medical care, not only from the standpoint of providers, but from that of the patients as well.[1–4] In particular, surveys of patient satisfaction, a subjective evaluation of the medical care received, have come to be regarded as a valuable means of determining how patients perceive the medical care provided to them.[5–7] In the United States, research on patient satisfaction has been conducted for decades,[8–14] but in Japan, such studies only began to be carried out in the latter part of the 1980s, targeting inpatients[15,16] and outpatients.[17–22] In Japan, such studies were conducted to evaluate medical care institutions or providers, but pharmacies and the work of pharmacists were rarely included within the evaluation scale. In some cases, patient evaluations of pharmacies or pharmacists were conducted to weigh the pros and cons of ''Bungyo'' (System for Separation of Prescribing and Dispensing of Medications), but these focused on waiting time and convenience of prescription dispensing,[23] and were not suitable as scales for the overall aspects of pharmacy services. A correlation between patient satisfaction with medical care and their subsequent behavior has been reported, with those patients expressing greater satisfaction with the care received also showing lower rates of changing sources of medical care or discontinuing treatment at their own discretion,[22,24] If we adapt this relationship to pharmacies, we can expect that patient/consumer satisfaction will be an important patronage factor.

In November 1995, we conducted a questionnaire survey on evaluation of pharmacy services, targeting outpatients at large hospitals who used pharmacies to get their prescriptions filled at 32 pharmacies in Tokyo and Osaka. In the previous study,[26,] we developed the evaluation index for pharmacy services from the responses. In comparing the ratings of 2

groups (patrons of ''Monzen–Yakkyoku&'' and other community pharmacies), it was revealed that both groups of patients have common expectations for ''Ideal Pharmacy'' and the most important functions in the seven dimensions were: ''Attitude of pharmacy/pharmacist'', ''Convenient hours'' and ''Information management''.

The objective of the present study is to clarify the relationship between these pharmacy functions and overall satisfaction with pharmacy use by a multivariate analysis, using responses of the same questionnaire survey. While clarifying the special factors that influence patient satisfaction at pharmacies, we examine the attributes that patients seek in a ''home pharmacy.''

METHODS

1. Content of Questionnaire and Characteristics of Respondents

The survey consisted of 26 evaluation items related to pharmacy services and overall satisfaction with pharmacy use on the questionnaires. In the previous study,[26] we had participants rate the pharmacy they currently use (the ''pharmacy used today'') and their perceptions of an ideal pharmacy (the ''ideal pharmacy''), using a five–point scale for 26 items. In the present study, we included the item ''overall satisfaction with the pharmacy used today,'' located at the end of the questionnaire. This item required respondents to give an overall satisfaction rating out of a possible perfect score of 100.

The characteristics of the 699 respondents who filled in the pharmacy use satisfaction score in the questionnaire were as follows. In terms of gender, the group broke down into 45.2% male and 54.4% female. The age distribution was 9.7% for 29 or under, 21.9% for 30–39, 47.5% for 50–69, and 20.9% for 70 or over. Patients with jobs accounted for 49.1%; unemployed or retired came to 49.9%. Number of hospital visits per year was 25.6 (standard deviation 33.4). Twenty–three of the respondents (3.2%) had had their prescriptions filled outside of a hospital for the first time.

2. Method of Analysis

1) Derivation of Dimensions of Pharmacy Services We performed a factor analysis (principal component method) of all responses on the 26 items pertaining to the ideal pharmacy. Factors with eigenvalues of 1.0 or higher were regarded as dimensions for pharmacy evaluation. Following Varimax rotation, we set the items with factor loadings of above 0.4 to be evaluation scale. In order to determine the internal consistency among items in each scale, we calculated the coefficient alpha (Cronbach α)[27] for the scores for items within the same scale. Weighting was set at 1 in every case, as no large difference in factor loadings was observed within the same scale.

2) Examination of Defining of Factors Influencing Patient Satisfaction To analyze the relationship between satisfaction and pharmacy services, a multiple regression analysis was performed. Overall satisfaction with pharmacy was used as the dependent variable, and evaluation scales derived in the previous section as the independent variables. The independent variables were determined based on the correlation coefficient between total values of item score for the pharmacy used today. Mean scores of overall satisfaction were also calculated by patient characteristics (age, gender, and employment status) to clarify the relationship between satisfaction and demographic characters.

RESULTS

1) Derivation of Dimensions by Factor Analysis As a result of the factor analysis, 7 factors were obtained. For all factors, there were 3 items having factor loadings of less than 0.4: ''Near home,'' ''Ample parking space is provided,'' and ''The pharmacy specializes in filling prescriptions.'' Accordingly, we eliminated these 3 evaluation items from the 26 items and categorized the remaining 23 items into 7 evaluation scales as shown in Table 1. In cases where the factor loading is above 0.4 for 2 factors, they are categorized into the factor having the greater factor loading. Based on the content of the items included, these scales can be defined as follows. In descending order of contribution ratio, they are: (1) Attitude of pharmacy/pharmacist, (2) Availability of OTC drugs, (3) Availability of special services, (4) Facilities, (5) Convenient location, (6) Convenient hours, and (7) Medication record.

Table 2 shows coefficient alpha and patient evaluation scores for each dimension. The prorated evaluation scores of the ideal pharmacy ranged from 61.3 (Availability of OTC drugs) to 90.0 (Attitude of pharmacy/pharmacist). The Cronbach α values for each scale were 0.67～0.82.

2) Determination of the Independent Variables

Table 1. Results of Factor Analysis: The Items with Factor Loadings greater than 0.4

Dimensions/evaluation items	Factor loadings
Factor 1: Attitude of pharmacy/pharmacist	
Provided a through explanation of the medicine.	0.636
Listened to what I had to say.	0.695
Always receive service from the same pharmacist.*1	0.440
The pharmacists and employees have good attitudes.	0.681
My prescription drugs are always in stock.	0.624
Side effects of medication are always explained.	0.562
Information about routine health maintenance is provided.*2	0.469
Patient/consumer privacy concerning prescriptions is maintained.	0.430
The pharmacy is reliable.	0.508
Factor 2: Availability of OTC drugs	
The pharmacy handles over-the-counter medicine and medical supplies.	0.759
Everyday items can be purchased at the pharmacy.	0.716
The price of over-the-counter medicine is inexpensive.	0.636
Factor 3: Availability of special services	
The pharmacy will deliver medicine.	0.575
Orders for prescriptions are accepted by fax.	0.634
Factor 4: Facilities	
The building is impressive.	0.595
The waiting area/room is comfortable.	0.847
The pharmacy is sanitary.	0.429
Factor 5: Convenient location	
Near the hospital.	0.502
Near the station.	0.702
Near work.	0.486
Factor 6: Convenient hours	
Short waiting time for prescription filling.	0.684
The pharmacy is open at convenient times.	0.477
Factor 7: Medication record	
The pharmacy keeps a record of my prescription history and drug allergies.	0.631

*1 The factor loading for Factor 3 is 0.420 in this item. *2 The factor loading for Factor 7 is 0.453 in this item.

Because grouping was based on the factor analysis, and Varimax rotation was orthogonal rotation, it was expected that the factors would be mutually independent. However, while the factor analysis was based on responses for the ideal pharmacy, the multiple regression analysis performed afterwards used evaluation scores for ''the pharmacy used today'' as independent variables. Hence, there was a need to determine the correlation coefficient for each scale. As shown in Table 3, a high correlation of 0.54 was found for ''Attitude of pharmacy/pharmacist'' and ''Medication record'', and we combined the latter one item with the former to create a single variable. Therefore, six independent variables used in multiple regression analysis.

3) Results of Multiple Regression Analysis Table 4 presents the results of multiple regression analysis performed using the overall satisfaction with pharmacy use as a dependent variable, and the 6 independent variables. A significant correlation was observed for 5 variables. A significant inverse relationship ($p<0.01$) was identified between ''Availability of special services'' and satisfaction score. The other 4 variables have a significant positive correlation, ranked as follows in declining order of influence: ''Attitude of pharmacy/pharmacist'' ($p<0.01$), ''Facilities'' ($p<0.01$), ''Availability of OTC drugs'' ($p<0.05$) and ''Convenient hours'' ($p<0.05$). There was no significant relationship between ''Convenient location'' and satisfaction score.

4) Relationship between Degree of Satisfaction and Patient Characteristics The relationship between patient characteristics and the scores for overall satisfaction is shown in Table 5. No difference in

Table 2. Coefficient Alpha and Descriptive Statistics (The Responses for the Ideal Pharmacy)

Evaluation scale	Number of items	Coefficient alpha	Highest possible score	Evaluation score*1	
				Mean (S.D.)	Prorated mean
Attitude of pharmacy/pharmacist	9	0.82	45	40.5 (4.7)	90.0
Availability of OTC drugs	3	0.76	15	9.2 (3.3)	61.3
Availability of special services	2	0.67	10	6.6 (2.3)	66.0
Facilities	3	0.68	15	11.3 (2.3)	75.3
Convenient location	3	0.57	15	11.0 (2.9)	73.2
Convenient hours	2	0.64	10	8.9 (1.3)	89.4
Medication record	1	—	5	4.2 (1.0)	84.9
total	23	0.82	115	91.7 (10.8)	79.7

*1 Evaluation scores were calculated on the basis of the following 5-point scale for each item: 5 very important, 4 important, 3 can't tell if important or not, 2 not very important, 1 not important at all.

Table 3. Correlation Coefficients and Descriptive Statistics (The Responses for the Pharmacy Used Today)

Evaluation scale	1	2	3	4	5	6	7
1. Attitude of pharmacy/pharmacist	1.000						
2. Availability of OTC drugs	0.297	1.000					
3. Availability of special services	0.351	0.234	1.000				
4. Facilities	0.476	0.157	0.020	1.000			
5. Convenient location	0.207	0.039	0.100	0.176	1.000		
6. Convenient hours	0.492	0.255	0.323	0.397	0.090	1.000	
7. Medication record	0.541	0.155	0.355	0.220	0.119	0.290	1.000
Evaluation score*1,2							
Mean	35.2	8.4	5.3	11.7	9.4	7.9	3.3
(S.D.)	6.6	3.2	2.7	2.6	2.8	2.1	1.4
Prorated Mean	78.3	55.9	52.6	78.1	78.9	78.9	66.4

*1 Evaluation scores were calculated on the basis of the following 5-point scale for each item: 5 most applicable, 4 somewhat applicable, 3 can't tell if applicable or not, 2 not very applicable, 1 not at all applicable. *2 As for the number of items and the highest possible score including each scale, see Table 2.

Table 4. Results of Multiple Regression Analysis

Variables	Standardized regression coefficient	t
Attitude of pharmacy/pharmacist	0.423	11.1**
Availability of OTC drug	0.067	2.2*
Availability of special services	−0.134	−4.1**
Facilities	0.294	8.5**
Convenient location	−0.035	−1.2
Convenient hours	0.071	2.0*

* $p<0.05$, ** $p<0.01$

satisfaction score depending on patient gender was observed by t-test ($p<0.001$), but significant differences were seen for employment status, with older persons and those without jobs showing higher degrees of satisfaction.

Table 5. Patient Characteristics and Satisfaction Score

Characteristic item	Satisfaction score
	Mean (S.D.)
Gender	
Male	85.5 (11.5)
Female	85.9 (10.9)
Age	
−29	79.3 (13.9)
30−49	82.8 (10.0)
50−69	86.8 (10.9)
70−	89.4 (9.3)
Employment Status	
Employed	83.2 (11.4)
Unemployed	88.1 (10.3)

DISCUSSION

1) Validity of Evaluation Scale The number of dimensions obtained by factor analysis was seven, and this matched the number of dimensions for factors in the previous evaluations.[25,26] Comparing the seven dimensions with the previous study,[26] ''Attitude of pharmacy/pharmacist'' comprised the items of the ''Information management'' dimension on the previous study. For this reason, the ''Attitude of pharmacy/pharmacist'' can be said to evaluate the pharmacy not only in terms of the general attitude of the pharmacist towards the patient, but also the pharmacist's competence in supplying information and ability to manage information. Conversely, the fact that these evaluation items have been grouped together in a single dimension suggests that it is difficult for the patients to judge such specialized activities as explaining the properties of drugs or supplying information; rather, they seem to form their impressions of these activities based on the pharmacist and other staff members' treatment of them as customers.

2) Relationship between Patient Satisfaction and Pharmacy Service As shown in Table 4, the variables that have a significant relationship on patient satisfaction are the following five: ''Attitude of pharmacy/pharmacist'', ''Availability of special services'', ''Facilities'', ''Availability of OTC drugs'' and ''Convenient hours''. Of these, ''Availability of special services'' had a significant inverse relationship. The reason for this is thought to be that special services were limited to ''acceptance of prescriptions by fax'' and ''home delivery of medications,'' both of which are related to insufficient inventories of prescribed medications.

The other four variables exert a positive influence on satisfaction, and the factor having the largest standard regression coefficient was ''Attitude of pharmacy/pharmacist.'' Just as an ''attitude of the physician'' and ''communication during the examination'' influence patient satisfaction with medical care,[13,17,19] communication with the pharmacists at community pharmacies is strongly related to patient satisfaction. The evaluation scales of high importance to patients (Prorated Mean of 80 or higher), all have a significant influence upon overall satisfaction. These correspond to the evaluation indices of ''Attitude of pharmacy / pharmacist,'' ''Information management,'' and ''Convenient hours'' from the previous study. The results of multiple regression analysis suggest that these three dimensions are key, not only as pharmacy functions that patients consciously view as important, but also as factors influencing satisfaction.

''Facilities'' was the only scale wherein evaluation of the ''Pharmacy Used Today'' (Prorated Mean $=78.1$) exceeded the degree of importance for the ''Ideal Pharmacy'' (Prorated Mean$=75.3$). In terms of patients' evaluation scores, this is an aspect where existing conditions meet expectations, but with respect to patient satisfaction, this is the second most influential variable. Likewise, although the degree of importance ascribed to ''Availability of OTC drugs'' as a function of the ''Ideal Pharmacy'' was relatively low (Prorated Mean$=61.4$), a significant influence of this function on satisfaction was indicated. These findings confirmed that patient satisfaction with a pharmacy is influenced not only by those functions he /she consciously seeks, but also by other functions that are not consciously viewed as important.

3) Relationship between Patient Satisfaction and Patient Characteristics Studies on patient characteristics have reported that age has an influence upon satisfaction, with older patients tending to indicate higher levels of satisfaction.[11,28]. In this study we found no differences based on gender, but significant differences were observed between age groups and depending on whether or not the patients were employed. Age also has a bearing upon whether or not a patient is likely to hold a job.

4) Characteristics of Patient Satisfaction with Pharmacies in Japan In the United States, pharmacy patronage factors include a greater number of dimensions than we found in our study.[29–31] In addition to the pharmacist's level of ability, communication with the pharmacist, and availability of products, patients in these countries take into account such factors as home delivery, proximity to home, availability of parking, and financial aspects such as method of payment and price. Behind this lie the facts that pharmacy evaluation forms list numerous items, and patients have a good understanding of the nature of the pharmacy services referred to in these items. In Japan, by contrast, the attitude and skill level of the pharmacist belong to the same dimension, and there is no dimension pertaining to financial aspects. Japan's unique dimensions are thought to reflect the

short history of prescription-filling in this country and patients' poor understanding of the work of a pharmacist, as well as differences in medical care systems.

CONCLUSIONS

This study clarified the factors determining patient satisfaction with the pharmacies they use to fill prescriptions. The functions that patients most desire in a pharmacy are communication with the pharmacist (general attitude and specialized activities of pharmacy/pharmacist such as providing information and explanations of medications) and convenient hours. These functions were also found to influence patient satisfaction. Many pharmacies are making efforts to meet these demands in their current dispensing operations. However, our results show that fulfilling these functions alone is not enough to secure high levels of patient satisfaction, since facility-related factors as well as availability of OTC drugs, also have an impact upon satisfaction. Because the results suggest that insufficient inventories of prescribed medications influence patient satisfaction, it will also be important for pharmacies to improve their medication capacities. In order to provide patient-based pharmacy services, community pharmacies will be called upon to make efforts to improve the above-mentioned functions.

ACKNOWLEDGEMENTS

The authors gratefully acknowledge the Tokyo Pharmaceutical Association and the Osaka Pharmaceutical Association for their cooperation in this study. We wish to thank Dr. Yasuhiko Saito of Nihon University for his statistical assistance.

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