

## Classification of Pharmaceutical Services from the Viewpoint of Patient Satisfaction/Dissatisfaction

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A survey was conducted to examine what the public expects of pharmacists. We created 26 questions based on 26 different situations that patients encounter at pharmacies in order to assess patient satisfaction/dissatisfaction. Some questions were designed to compare pairs of symmetrical situations. The survey was carried out in February and March 2001. The surveys were conducted with patients and/or patients' relatives who brought their prescriptions to pharmacies and with employees of pharmaceutical companies and their family members. A factor analysis extracted two factors among the 26 variables, the first being patient dissatisfaction and the second being patient satisfaction. However, factor loadings for some paired situations were not necessarily symmetrical and thus the absolute values of the scores were not equal. The results suggest that satisfaction on one side does not entail dissatisfaction on the other side and thus satisfaction and dissatisfaction can be examined as separate and distinct entities. Based on these results, we classified pharmaceutical services into two types. The first type is referred to as *instrumental* service. In this situation patients do not feel great satisfaction even if such service is provided. However, they feel great dissatisfaction if the service is not provided. The second type is referred to as *expressive* service. These patients feel some satisfaction if such service is provided, however, they do not feel a fatal dissatisfaction if the service is not provided. Our research documents that when examining data based on the assumption that there is a different dimensionality for patient satisfaction and dissatisfaction, it is possible to gain insights into new aspects of pharmaceutical services that are otherwise impossible to assess.

**Key words**—community pharmacy; patient satisfaction; patient dissatisfaction; pharmaceutical service; factor analysis

### INTRODUCTION

The concept of "Patient Satisfaction" is an extension of Customer Satisfaction (CS), a central idea in the field of marketing.<sup>1–6</sup> For "Patient Satisfaction" studies, the focus is almost always on the satisfaction aspect while dissatisfaction is ignored on the assumption that dissatisfaction can only be measured on a single scale of satisfaction.<sup>3</sup>

In contrast to the traditional view, Shimaguchi<sup>7</sup> advocates a view that the converse of "being satisfied (dissatisfied)" is not "being dissatisfied (satisfied)" but "not being satisfied (dissatisfied)". In discussing ways to improve CS, Shimaguchi distinguished between the two services as being indispensable but un-

desirable service and dispensable but desirable service.

Does Shimaguchi's distinction also apply to pharmacy services? To address this question, a survey was designed to examine relationships between public satisfaction and dissatisfaction. We believe that our analysis is helpful not only in establishing a basis for a community pharmacy, but also by taking effective measures to maximize resources in pharmaceutical management.

### METHODS

**Research Design** We created 13 questions concerning satisfaction (Table 1) and an equal number of questions concerning dissatisfaction (Table 2). Each question was designed to measure patient satisfaction/dissatisfaction for everyday situations that

Table 1. Frequency and Score for Satisfaction Questions

Situations	Degree of satisfaction	Method 1			Method 2			Total frequency	Satisfaction Score
		Frequency (%)			Frequency (%)				
		(+++)	(++)	(+)	(+++)	(++)	(+)		
A. The pharmacist provided information on inappropriate medication for a specific disease or potential interactions with other drugs.		59 (15%)	227 (56%)	119 (29%)	56 (7%)	383 (52%)	300 (41%)	1144	3.94
B. You found the pharmacy paid attention to your privacy.		24 (12%)	121 (58%)	63 (30%)	18 (8%)	123 (55%)	82 (37%)	431	4.04
C. You felt that the pharmacist dispensed the medication much earlier than expected.		207 (39%)	282 (54%)	37 (7%)	289 (30%)	582 (61%)	91 (9%)	1488	5.99
D. You felt that the pharmacist was polite and friendly.		293 (33%)	535 (60%)	60 (7%)	416 (21%)	1390 (69%)	204 (10%)	2898	5.61
E. The pharmacist answered your question by consulting books.		128 (43%)	134 (46%)	32 (11%)	86 (31%)	126 (46%)	64 (23%)	570	5.83
F. The pharmacist cared about you when you revealed your worry or pain.		93 (37%)	146 (59%)	10 (4%)	52 (26%)	132 (66%)	15 (8%)	448	6.07
G. You asked advice from the pharmacist on matters that you could not ask your doctor.		58 (42%)	72 (52%)	9 (6%)	7 (11%)	46 (71%)	12 (18%)	204	5.86
H. You felt that the pharmacist's directions were clear and precise.		158 (28%)	317 (57%)	83 (15%)	169 (16%)	669 (62%)	234 (22%)	1630	5.02
I. Information provided by the pharmacist on side effects or interactions with other drugs was very helpful.		85 (35%)	134 (54%)	28 (11%)	71 (21%)	193 (58%)	71 (21%)	582	5.39
J. The pharmacist provided information on your medical care and health welfare.		11 (31%)	23 (66%)	1 (3%)	6 (23%)	15 (58%)	5 (19%)	61	5.72
K. The pharmacist delivered the prescribed drugs to your home.		114 (60%)	56 (30%)	19 (10%)	94 (56%)	66 (39%)	9 (5%)	358	7.01
L. The pharmacist clearly presented the drug charges.		126 (29%)	167 (39%)	138 (32%)	115 (11%)	421 (40%)	513 (49%)	1480	3.89
M. The pharmacist kindly answered questions about your medication on the phone.		108 (48%)	88 (39%)	29 (13%)	64 (31%)	96 (47%)	46 (22%)	431	5.90
								Total	Average
								11725	5.22

Note: 1)  $n=5300$ . (Method 1:  $n=1573$ . Method 2:  $n=3727$ .) 2) Method 1: Questionnaires were distributed randomly to customers at community pharmacies and the questionnaires were collected by mail. Method 2: Questionnaires were distributed to employees of pharmaceutical companies and the family members, and the companies collected the finished questionnaires. 3) The subjects were questioned whether they experienced each situation, and if so, were evaluated with regard to the degree of satisfaction on a three-category scale: "satisfied to a great degree" (+++), "satisfied" (++) , "rudimentary level only" (+). 4) A response to each question was counted as one and then multiplied by the weights given to the degree of satisfaction: 9 for "satisfied to a great degree", 5 for "satisfied", 1 for "rudimentary level only". A satisfaction score for each question was calculated as the weighted average of the responses.

occur at pharmacies. The subjects were questioned on whether they had experienced a particular situation, and if so, they were asked to evaluate the degree of

satisfaction/dissatisfaction. The degree of satisfaction/dissatisfaction was broken down into three categories: "satisfied (angry) to a great degree", "satis-

Table 2. Frequency and Score for Dissatisfaction Questions

Situations	Degree of dissatisfaction	Method 1			Method 2			Total frequency	Dissatisfaction Score
		Frequency (%) (---)	Frequency (%) (--)	Frequency (%) (-)	Frequency (%) (---)	Frequency (%) (--)	Frequency (%) (-)		
N. You felt that the pharmacy invaded your privacy.		8 (17%)	28 (60%)	11 (23%)	36 (28%)	71 (54%)	24 (18%)	178	-5.20
O. You found the pharmacy made a dispensing mistake.		36 (32%)	50 (45%)	25 (23%)	88 (56%)	57 (37%)	11 ( 7%)	267	-6.32
P. You were kept waiting for a long time at the pharmacy until you received your drugs.		44 (12%)	188 (51%)	135 (37%)	207 (18%)	694 (62%)	230 (20%)	1498	-4.70
Q. You found there was a sanitation problem at the pharmacy.		11 (23%)	33 (67%)	5 (10%)	43 (26%)	115 (69%)	9 ( 5%)	216	-5.74
R. You found the pharmacist's or clerk's attitude improper.		30 (28%)	68 (64%)	8 ( 8%)	150 (34%)	278 (63%)	14 ( 3%)	548	-6.15
S. You asked for counsel from the pharmacist, but he/she did not consult with you in earnest.		10 (17%)	37 (63%)	12 (20%)	36 (32%)	65 (58%)	11 (10%)	171	-5.54
T. You felt the pharmacist's questions were inquisitive.		11 (20%)	29 (54%)	14 (26%)	32 (20%)	108 (67%)	20 (13%)	214	-5.17
U. You felt that there were discrepancies between the pharmacist's and doctor's explanations.		9 ( 9%)	52 (53%)	38 (38%)	37 (13%)	173 (62%)	68 (25%)	377	-4.36
V. You found your bill to be dubious.		18 (17%)	70 (66%)	18 (17%)	52 (21%)	164 (67%)	30 (12%)	352	-5.25
W. You found the pharmacist's counsel on the phone to be improper.		8 (38%)	9 (43%)	4 (19%)	21 (54%)	16 (41%)	2 ( 5%)	60	-6.53
X. You were solicited at the pharmacy.		4 (33%)	8 (67%)	0 ( 0%)	24 (50%)	22 (46%)	2 ( 4%)	60	-6.73
Y. You found the pharmacist's attitudes businesslike when you received your drugs.		9 ( 5%)	83 (45%)	91 (50%)	47 ( 6%)	402 (49%)	371 (45%)	1003	-3.38
Z. The pharmacist replied in a businesslike way that you need to talk to the doctor when you asked for advice on your prescribed drugs.		11 (11%)	56 (58%)	30 (31%)	47 (25%)	96 (51%)	45 (24%)	285	-4.76
								Total	Average
								5229	-4.85

Note: 1)  $n=5300$ . (Method 1:  $n=1573$ . Method 2:  $n=3727$ .) 2) Method 1: Questionnaires were distributed randomly to customers at community pharmacies and the questionnaires were collected by mail. Method 2: Questionnaires were distributed to employees of pharmaceutical companies and the family members, and the companies collected the finished questionnaires. 3) The subjects were questioned whether they experienced each situation, and if so, were evaluated with regard to the degree of dissatisfaction on a three-category scale: "angry to a great degree" (---), "dissatisfied" (--), "an acceptable matter" (-). 4) A response to each question was counted as one and then multiplied by the weights given to the degree of dissatisfaction: -9 for "angry to a great degree", -5 for "dissatisfied", -1 for "an acceptable matter". A dissatisfaction score for each question was calculated as the weighted average of the responses.

fied (dissatisfied)", "rudimentary level only (an acceptable matter)".

The subjects queried had prescriptions filled at a community pharmacy. The survey was carried out during February to March in 2001 by using one of the

two following methods.

Method 1: Questionnaires were distributed randomly to customers at community pharmacies and the questionnaires were collected by mail.

Method 2: Questionnaires were distributed to em-

ployees of pharmaceutical companies and the family members, and the companies collected the finished questionnaires.

**Calculation of Scores** A response to each question was counted as one and then multiplied by the weights assigned to the degree of satisfaction (dissatisfaction): 9 (−9) for “satisfied (angry) to a great degree”, 5 (−5) for “satisfied (dissatisfied)”, and 1 (−1) for “rudimentary level only (an acceptable matter)”. A satisfaction/dissatisfaction score for each question was then calculated as the weighted average of the responses.

Initially the weights assigned were 3 (−3), 2 (−2) and 1 (−1). However for the purpose of clearer visualization, we chose to use 9 (−9), 5 (−5) and 1 (−1) in the latter set of the data analysis. We confirmed that a rank change did not occur because of this alteration.

**Analytical Method** Factor analysis was performed on the aggregate data for the 26 questions (Tables 1 and 2 combined) or separately (Tables 1 and 2), by using the SAS procedure of factor analysis (SAS ver. 6.12, SAS Institute Inc., Cary, NC). The principal components method and varimax rotation were used for our analysis. We referred to eigenvalues and scree plots for the determination of the number of factors to be extracted.

**Interpretation** We attempted to interpret each of the factors that were extracted by the factor analysis, naming each one, and inferring the type of pharmaceutical service that is related to each of the situations. For the second stage, we divided the identified services into three types that were based on Shimaguchi's classification<sup>7)</sup> of services: 1) *instrumental* service that is characterized by below-the-average scores for both satisfaction and dissatisfaction; 2) *expressive* service that is characterized by above-the-average scores for both satisfaction and dissatisfaction; 3) *instrumental/expressive* service that is characterized by above-the-average scores for satisfaction and below-the-average scores for dissatisfaction.

## RESULTS

**Data Collection** We collected 1573 questionnaires out of the 3980 that were distributed via method 1 and 3727 questionnaires out of 10000 for method 2. Overall, we collected 5300 questionnaires out of a total of 13980 for a collection rate of 37.9%.

The age frequencies of the samples were 18%, 28%, 21%, 18%, 8%, and 7% for the respective 10s–20s, 30s, 40s, 50s, 60s, and 70s age groups. With respect to sex, the frequencies were even.

Frequencies and scores are tabulated in Table 1 for satisfaction and in Table 2 for dissatisfaction. Upon closer examination of Table 1, we found some variations of the degree of satisfaction with regard to the responses and scores for satisfaction in situations L and K. For question L, which concerned the specifications of the charges, the frequency was 1480 while the satisfaction score was 3.89, which is well below the average of 5.22. On the other hand, for question K, which concerned the delivery of drugs, the satisfaction score was extremely high (7.01) although its frequency was only 358.

Some services that are provided quite often do not seem to alter the degree of satisfaction of the patient, while other services that may only be very rarely provided tend to elicit a feeling of satisfaction by the patient when these services are performed. Similarly, there are some variations among services in terms of dissatisfaction. For example, whereas situation Y might be acceptable to the patient, situation X has a tendency to cause anger in the patient (Table 2).

**Results of Factor Analysis** As we adopted the so-called eigenvalue-greater-than-one rule, the factor analysis of the 26 questions extracted two major factors (eigenvalues of 2.693 and 2.336, respectively). Factor loadings after a varimax rotation are shown in Table 3.

A factor analysis of the 13 questions listed in Table 1 discovered that only one factor had an eigenvalue greater than 1. However, considering our need to completely examine the factors that might affect patients' satisfaction, we extracted 4 factors in reference to scree plots, and the factor loadings after a varimax rotation for these can be seen in Table 4. Similarly, based on a factor analysis of Table 2, we extracted 4 factors and the factor loadings after a varimax rotation are shown in Table 5. Although it is customary to use a criterion of 0.3–4 for factor loadings to access the association of questions with factors, we listed all factor loadings of the questions in order to be able to exactly identify the factors.

**Interpretations** We interpreted each factor extracted by factor analysis, named each one, and then inferred a pharmaceutical service that is required in relation to each situation. These results are shown in

Table 3. Factor Loadings for the 1st and 2nd Factors after a Varimax Rotation

Situations	1st Factor	2nd Factor
R. You found the pharmacist's or clerk's attitude improper.	0.602	0.025
Z. The pharmacist replied in a businesslike way that you need to talk to the doctor when you asked for advice on your prescribed drugs.	0.516	-0.050
T. You felt the pharmacist's questions were inquisitive.	0.496	0.004
S. You asked for counsel from the pharmacist, but he/she did not consult with you in earnest.	0.481	-0.054
U. You felt that there were discrepancies between the pharmacist's and doctor's explanations.	0.479	-0.050
Q. You found there was a sanitation problem at the pharmacy.	0.457	0.028
N. You felt that the pharmacy invaded your privacy.	0.437	-0.015
Y. You found the pharmacist's attitudes businesslike when you received your drugs.	0.425	0.060
P. You were kept waiting for a long time at the pharmacy until you received your drugs.	0.417	0.043
W. You found the pharmacist's counsel on the phone to be improper.	0.411	-0.014
O. You found the pharmacy made a dispensing mistake.	0.372	-0.036
V. You found your bill to be dubious.	0.364	0.003
X. You were solicited at the pharmacy.	0.298	-0.034
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F. The pharmacist cared about you when you revealed your worry or pain.	-0.003	0.511
E. The pharmacist answered your question by consulting books.	-0.084	0.509
G. You asked advice from the pharmacist on matters that you could not ask your doctor.	-0.023	0.488
I. Information provided by the pharmacist on side effects or interactions with other drugs was very helpful.	-0.026	0.482
M. The pharmacist kindly answered questions about your medication on the phone.	-0.038	0.451
B. You found the pharmacy paid attention to your privacy.	-0.028	0.449
A. The pharmacist provided information on inappropriate medication for a specific disease or potential interactions with other drugs.	-0.059	0.444
D. You felt that the pharmacist was polite and friendly.	0.138	0.434
H. You felt that the pharmacist's directions were clear and precise.	0.124	0.426
J. The pharmacist provided information on your medical care and health welfare.	-0.092	0.343
C. You felt that the pharmacist dispensed the medication much earlier than expected.	-0.002	0.335
L. The pharmacist clearly presented the drug charges.	0.059	0.293
K. The pharmacist delivered the prescribed drugs to your home.	-0.026	0.235
	Variance Explained	
	2.679	2.351

Note: 1)  $n=4077$ . 2) We excluded responses without indication of the degree of satisfaction/dissatisfaction. 3) Eigenvalues: 1st factor 2.693, 2nd factor 2.336, 3rd factor 0.472, 4th factor 0.326, 5th factor 0.223.

Tables 4, 5, and 6. The reasons for our name choices for each of the factors in Tables 4 and 5 are described below in the discussion section.

**DISCUSSION**

**Data Collection** We noted some inconsistencies in the frequency distribution of the responses to questions depending on whether a survey was carried out via method 1 or method 2 (Tables 1 and 2). For example, in question G, which examined the pharmacist's advice versus that of the doctors, the frequencies of responses in the method 1 group were 42%, 52%, and 6% for "satisfied to a great degree", "satisfied", and "rudimentary level only", respectively, while in method 2 the frequencies were 11%, 71%, and 18%. Such inconsistencies were observed in

5 questions out of 13 in Table 1 and in 9 questions out of 13 in Table 2. We attribute this to sampling biases for the two methods. The method 1 group consisted of only the community pharmacist's customers while members of the method 2 group consisted of the general public, most of whom were more critical in their assessment of community pharmacists due to their unfamiliarity with pharmacists. As members and families of pharmaceutical companies are less familiar with community pharmacists, their assessment may be more critical and stricter than those obtained from actual customers via method 1. Therefore, we interpreted the results from method 2 as being more of an opinion by the general public. Since the purpose of our survey was to try and establish an ideal basis for community pharmacies, we merged the

Table 4. Result of Factor Analysis on Satisfaction

Factor identified (Situation)	Factor loading	Service required
<b>1st Factor: Emotional satisfaction</b>		
G. You asked advice from the pharmacist on matters that you could not ask your doctor. (5.86)	0.499	• Free and easy atmosphere for consultation
F. The pharmacist cared about you when you revealed your worry or pain. (6.07)	0.494	• Understanding of the patient's psychology
E. The pharmacist answered your question by consulting books. (5.83)	0.374	• Response to patient's demands
M. The pharmacist kindly answered questions about your medication on the phone. (5.90)	0.290	• Phone consultation
<b>2nd Factor: Normative satisfaction</b>		
D. You felt that the pharmacist was polite and friendly. (5.61)	0.471	• Politeness
H. You felt that the pharmacist's directions were clear and precise. (5.02)	0.434	• Upgraded communication skills
C. You felt that the pharmacist dispensed the medication much earlier than expected. (5.99)	0.348	• Quick dispensing
L. The pharmacist clearly presented the drug charges. (3.89)	0.290	• Transparent accounting
B. You found the pharmacy paid attention to your privacy. (4.04)	0.288	• Protection of privacy
<b>3rd Factor: Utility satisfaction</b>		
I. Information provided by the pharmacist on side effects or interactions with other drugs was very helpful. (5.39)	0.477	• Active information gathering and provision
A. The pharmacist provided information on inappropriate medication for a specific disease or potential interactions with other drugs. (3.94)	0.451	• Expertise on drugs
<b>4th Factor: Unexpected utility satisfaction</b>		
K. The pharmacist delivered the prescribed drugs to your home. (7.01)	0.334	• Home delivery of drugs
J. The pharmacist provided information on your medical care and health welfare. (5.72)	0.316	• Provision of peripheral information

Note: 1)  $n=3727$ . 2) We excluded responses of "no experience". 3) Indexes A–M are the same as in Table 1. 4) Values in parentheses are Satisfaction Scores from Table 1. (Average Score: 5.22) 5) Eigenvalues: 1st factor 2.163, 2nd factor 0.428, 3rd factor 0.239, 4th factor 0.133. 6) Variance Explained: 1st factor 0.967, 2nd factor 0.837, 3rd factor 0.728, 4th factor 0.432.

data sets obtained for both methods 1 and 2.

#### Non-symmetry of Satisfaction and Dissatisfaction

As the first factor was strongly correlated with questions N–Z in Table 2 while the second factor was strongly correlated with questions A–M in Table 1, the factor analysis of the 26 questions (A–Z; Table 3) confirms that the first factor represents dissatisfaction while the secondary factor represents satisfaction.

One of the most important findings of our analysis is the non-symmetry relationship between satisfaction and dissatisfaction, part of which can be observed in Table 3. For example, if we assume symmetry for question B, which deals with protection of patients' privacy and their satisfaction about protection, and N, which is concerned with the invasion of privacy or patients' dissatisfaction about the invasion, we could expect that question B (N) would be positively correlated with the second factor (the first factor) and that factor loadings of the two factors would be symmetric, which means they would have approximately

the same absolute value. However, as shown in Table 3, there is no such symmetry as the factor loadings for the first factor for questions B and N are  $-0.028$  and  $0.437$  while for the second factor they are  $0.449$  and  $-0.015$ . We found similar observations in the case of questions R–D, which all dealt with courtesy, questions P–C, which were concerned with time, and questions V–L, which were concerned with accounting.

From these observations, we can infer that patients' dissatisfaction is not necessarily diametrically opposed to a patients' satisfaction, i.e., satisfaction and dissatisfaction are not symmetrically related. From a marketing perspective on customers' satisfaction, our observation supports Shimaguchi<sup>7)</sup> who advocated that the converse of "being satisfied (dissatisfied)" is not "being dissatisfied (satisfied)" but rather is "not being satisfied (dissatisfied)". Our observations also support Herzberg's data<sup>8)</sup> whose findings on the motivation theory on work suggested that satisfaction and dissatisfaction cannot be classified on

Table 5. Result of Factor Analysis on Dissatisfaction

Factor identified (Situation)	Factor loading	Service required
<b>1st Factor: Dissatisfaction in the form of disappointment</b>		
Z. The pharmacist replied in a businesslike way that you need to talk to the doctor when you asked for advice on your prescribed drugs. (−4.76)	0.469	• Response to patient's demands
S. You asked for counsel from the pharmacist, but he/she did not consult with you in earnest. (−5.54)	0.412	• Free and easy atmosphere for consultation
U. You felt that there were discrepancies between the pharmacist's and doctor's explanations. (−4.36)	0.396	• Active information gathering and provision
X. You were solicited at the pharmacy. (−6.73)	0.288	• Appropriate merchandise provision
W. You found the pharmacist's counsel on the phone to be improper. (−6.53)	0.277	• Phone consultation
Q. You found there was a sanitation problem at the pharmacy. (−5.74)	0.274	• Sanitation
V. You found your bill to be dubious. (−5.25)	0.258	• Transparent accounting
<b>2nd Factor: Dissatisfaction with privacy protection</b>		
N. You felt that the pharmacy invaded your privacy. (−5.20)	0.485	• Protection of privacy
T. You felt the pharmacist's questions were inquisitive. (−5.17)	0.477	• Understanding of the patient's psychology
<b>3rd Factor: Dissatisfaction with a lack of attention</b>		
Y. You found the pharmacist's attitudes businesslike when you received your drugs. (−3.38)	0.390	• Upgraded communication skills
R. You found the pharmacist's or clerk's attitude improper. (−6.15)	0.364	• Politeness
<b>4th Factor: Dissatisfaction caused by inconveniences</b>		
P. You were kept waiting for a long time at the pharmacy until you received your drugs. (−4.70)	0.260	• Quick dispensing
O. You found the pharmacy made a dispensing mistake. (−6.32)	0.257	• Expertise on drugs

Note: 1)  $n=2414$ . 2) We excluded responses of "no experience". 3) Indexes N-Z are the same as in Table 2. 4) Values in parentheses are Dissatisfaction Scores from Table 2. (Average Score: −4.85) 5) Eigenvalues: 1st factor 2.149, 2nd factor 0.276, 3rd factor 0.184, 4th factor 0.111. 6) Variance Explained: 1st factor 1.027, 2nd factor 0.737, 3rd factor 0.511, 4th factor 0.445.

Table 6. Fifteen Services: Scores and Category

Service	Satisfaction Score	Dissatisfaction Score	Service category
Expertise on drugs	3.94	−6.32	<i>Instrumental</i>
Transparent accounting	3.89	−5.25	<i>Instrumental</i>
Protection of privacy	4.04	−5.20	<i>Instrumental</i>
Sanitation	—	−5.74	<i>Instrumental ?</i>
Appropriate merchandise provision	—	−6.73	<i>Instrumental ?</i>
Politeness	5.61	−6.15	<i>Instrumental/Expressive</i>
Free and easy atmosphere for consultation	5.86	−5.54	<i>Instrumental/Expressive</i>
Phone consultation	5.90	−6.53	<i>Instrumental/Expressive</i>
Understanding of the patient's psychology	6.07	−5.17	<i>Instrumental/Expressive</i>
Active information gathering and provision	5.39	−4.36	<i>Expressive</i>
Response to patient's demands	5.83	−4.76	<i>Expressive</i>
Quick dispensing	5.99	−4.70	<i>Expressive</i>
Provision of peripheral information	5.72	—	<i>Expressive ?</i>
Home delivery of drugs	7.01	—	<i>Expressive ?</i>
Upgraded communication skills	5.02	−3.38	Not classifiable
<b>Average</b>	<b>5.22</b>	<b>−4.85</b>	

Note: 1) Classification of services were made based on the following criteria: A) *Instrumental* Service: below-the-average scores of both satisfaction and dissatisfaction. B) *Expressive* Service: above-the-average scores of both satisfaction and dissatisfaction. C) *Instrumental/Expressive* Service: above-the-average score of satisfaction and a below-the-average score of dissatisfaction. 2) A question mark (?) represents that either a satisfaction or dissatisfaction score was gained.

the same scale.

The main benefit gained by measuring the degree of satisfaction and that of dissatisfaction on a different scale is that it allows us to examine new aspects of pharmaceutical services, which otherwise would be impossible to discover. For example, the satisfaction score for question L, which concerns the transparency of accounting, is 3.89, well below the average of 5.22 (Table 1). Thus it appears that transparency is not important with respect to patients' satisfaction. However, if we look at another side of accounting that is addressed by question V, the dissatisfaction score itself is  $-5.25$ , well below the average of  $-4.85$  (Table 2). Therefore, dubious accounting can arouse anger or dissatisfaction. The implication of these observations is 1) transparent accounting is a must for the patients and the public, and when it is absent it will inevitably lead to their great dissatisfaction and 2) such a service should not be curtailed even if it is not satisfying for the patients and the public. Both satisfaction and dissatisfaction should be taken into account when discussing any service provision within community pharmacies.

The management strategies that community pharmacies need to concentrate their resources on are the services that provide the greatest satisfaction. However, at the same time they still need to pay careful attention to services that could arouse patients' anger. Therefore it is wise not to curtail services that may only provide small amounts of satisfaction.

**Factor Analysis of Patients' Satisfaction and Dissatisfaction** Now that we have established that patients' satisfaction and dissatisfaction are distinguishable, we need to be able to extract the factors of satisfaction/dissatisfaction through a factor analysis of Tables 1 and 2. The factors that can be identified are listed in Tables 4 and 5 for satisfaction and dissatisfaction, respectively.

On the satisfaction side (Table 4), the first factor we identified was "emotional satisfaction" that can be gained through emotional interactions with pharmacists. The second factor identified was "normative satisfaction" that is gained by rule-abiding attitudes of pharmacists such as politeness, well-informed dispensing, transparent accounting, and so on. The third factor identified was "utility satisfaction" that is gained through information provision. In addition to these three major factors, a fourth factor, which is closely related to the third, can be defined as an ex-

tremely large value of satisfaction and was named "unexpected utility satisfaction".

Turning to patients' dissatisfaction (Table 5), the first factor identified was "dissatisfaction in the form of disappointment" that can be characterized by unfriendly attitudes of the pharmacists, information provision that is different from doctors, and solicitation. The second identified was "dissatisfaction with privacy protection" and the third was "dissatisfaction with a lack of attention". We also identified a fourth factor, "dissatisfaction caused by inconveniences" that included failures in dispensing, long waiting times, and so on.

Identification of these factors helps us to narrow down appropriate services that need to be provided. For example, it is natural to assume that respondents to question G (Table 4), which concerns the pharmacist's advice, will express their satisfaction with the expertise or secrecy of the pharmacists. However, considering that the first factor is related to "emotional satisfaction", we can infer that the creation of an atmosphere where patients can ask for advice from their pharmacists might be a possible service. The same logic applies to question Z (Table 5), which concerns the pharmacist's bureaucratic attitude toward patients, which is strongly associated with "dissatisfaction in the form of disappointment". A quick response to a patients' need might be a remedy for this.

Crucial services for the situations in question are summarized in Tables 4 and 5.

**Classification of Pharmaceutical Services** Swan<sup>9)</sup> was the first to advocate a distinction between *instrumental* and *expressive* aspects of services in the context of CS. Later, Shimaguchi<sup>7)</sup> came up with a classification of services that firms should provide, i.e., *instrumental* service and *expressive* service. The former is defined as a kind of service that a customer strongly expects in exchange for payment while the latter is a kind of service that is not strongly required but desirable. To be more precise, *instrumental* services are characterized by two aspects: 1) reduction of its provision below a specific level triggers customers' anger and protest; 2) an increase in its provision will not necessarily lead to an increase in customers' satisfaction. In contrast, two different aspects characterize *expressive* service: 1) a lack of provision will not necessarily trigger customers' anger or dissatisfaction; 2) an increase in its provision will lead to an in-



crease in customers' satisfaction in a degree-type fashion. That is to say, *instrumental* services are deeply concerned with dissatisfaction and pharmacists need to provide *instrumental* services at a minimum level to patients. On the other hand, *expressive* services are deeply concerned with satisfaction, and the greater extent to which they are provided to patients, the more likely that they will raise the degree of satisfaction. Use of this knowledge should allow pharmacies to more effectively solidify their reputations with their patients.

In the context of our analysis, we regard *instrumental* (*expressive*) service as one that is both low (high) in satisfaction score and dissatisfaction score. By following this framework and adopting a greater-than-average criterion of satisfaction/dissatisfaction scores, in Table 6 we were able to classify the required services that were identified in Tables 4 and 5.

Although some elaboration might be needed on the adoption of this criterion, we believe that our classification will be helpful in identifying service priorities for management purposes that pharmacists will need to pay attention to. For example, transparent accounting and protection of privacy, which are classified as *instrumental* services (Table 6), are themselves urgent managerial tasks for which the minimum level of service needs to be provided or otherwise will arouse patients' anger. However, once achieved, it is hard for a manager to improve the level of patients' satisfaction even if more resources are invested. Thus in this case, a quick dispensing and delivery of drugs (*expressive* services) would be a more effective measure for improving patient satisfaction.

Additionally, more attention needs to be paid to *instrumental/expressive* services, i.e., high in satisfaction and low in dissatisfaction, because patients/the public might be much more sensitive to these kinds of services. There might be several reasons for the dual character of the *instrumental/expressive* services. One possibility is that we may need to assume there is symmetry of satisfaction and dissatisfaction. Although the factor analysis of Table 3 revealed different dimensionality between satisfaction and dissatisfaction, it might not be the case for all of these kinds of services if they were to be examined using different analyses. Another possibility is that due to a change in the patients' assessment of services, we may not yet have clearly identified each one, as a shift from the *expressive* to *instrumental* service can occur

if the patients take a pharmacist's information provision for granted, something that we ourselves hope will occur in the future.<sup>10)</sup>

## CONCLUSION

Our study shows that true evaluation of satisfaction and dissatisfaction can only be captured when using separate dimensions. On the assumption that there is a different dimensionality for patient satisfaction and dissatisfaction, research that focuses on both of these can provide insights on new aspects that are impossible to obtain through traditional research that focuses only on satisfaction. We believe that our analysis is useful not only for examination of the ideal community pharmacy, but also for discussions on questionnaire design for examination of patient satisfaction. In addition, our classification of pharmaceutical services into *instrumental* and *expressive* services will help identify effective measures that can be used to maximize managerial resources. However, our satisfaction/dissatisfaction scheme needs to be further refined in the future, as perspectives from the medical community are indispensable for the treatment of patients and the use of pharmaceutical services.

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