

## Patient Perspectives on Provision of Drug Information Services in Japan

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Today pharmacists provide indispensable drug information to patients, however, few studies have examined the kind of information that patients want, or their satisfaction with pharmacists' advice. Therefore, we have examined a variety of factors, including individual patient characteristics, in order to identify ways to provide useful and appropriate drug information on an individual basis. In short, the aim of this study was to develop a drug information service that addresses patient needs. A prospective survey of patient satisfaction with the level of care provided by pharmacists, before and after a telephone counseling session, was performed over a 9 month period (2000–2001). Along with satisfaction ratings, the content of the interviews was assessed, along with patient characteristics. Correspondence analysis was used to classify the content of the consultations, and cluster analysis was performed to classify caller characteristics. In total, 2022 people were counseled. It should be noted that, on occasion, family members were interviewed instead of the patients themselves. The average counseling session was 11.5 minutes ( $n=1876$ ). Patients expressing the least dissatisfaction prior to counseling tended to have the highest satisfaction levels after counseling. Almost all patients were satisfied with the counseling they received. An association was found between levels of pre-counseling dissatisfaction and time spent counseling patients over the telephone. No dimensions of high inertia were identified by correspondence analysis of consultation content and patient characteristics ( $n=1667$ ), however, questions regarding "efficacy and indications", "dosages and administration", "anxiety of adverse events", "realization of adverse events", and "interactions" were deemed similar by correspondence analysis. This study shows that patient perceptions regarding drug information services differ from those of pharmacists. Furthermore, several subtypes of patients were identified, based on their responsiveness to counseling. Pharmacists should take this into consideration when standing face-to-face with patients in the setting of their pharmacy practice.

**Key words**—drug information service; Japan; pharmacist; telephone counseling; patient perspective

### INTRODUCTION

Pharmacists are indispensable in their role as providers of drug information to patients through the use of package inserts and other forms of documentation.<sup>1–3)</sup> However, the difficulty of providing more comprehensive information to patients due to time constraints, among other factors, prevents pharmacists from addressing the specific concerns of individual patients.

In order to address this problem, The Japan Pharmaceutical Association (JPA) offers drug counseling to the public and meets requests for as many as 4500 drug counseling sessions a year. One reason for this barrage of counseling calls might be a mismatch between the information provided by pharmacists and that which patients actually need, due to a lack of

communication. In other words, patients and pharmacists might hold different beliefs about the kind of information that is important for patients to know.

Prefectural Pharmaceutical Associations, in addition to the Organization for Pharmaceutical Safety and Research (OPSR), as well as pharmaceutical companies and the JPA, have all performed surveys on telephone drug counseling. However, reports on these surveys<sup>4–6)</sup> are restricted to case studies and reports on the counseling methods employed, rather than an examination of the nature or success of counseling, which by themselves cannot assist pharmacists in the context of their pharmacy practice.

The purpose of our study was to obtain useful information about the content and success of patient counseling so that pharmacists in hospital practices, clinics, or community pharmacies might use the results to improve their ability to counsel effectively. We performed correspondence analysis to investigate

differences in the perceived importance of each question or explanation item on the counseling agenda to the pharmacist or patient. This was done to identify areas in which pharmacists and the public have different perspectives regarding the benefit of a pharmacist providing particular drug information. In addition, we used cluster analysis to identify how the appropriateness of information provided varies according to certain patient characteristics.

**METHODS**

Six pharmacists with good communication skills and considerable experience as drug information specialists with the Central Pharmaceutical Information Center of JPA, accepted phone calls by rotation from 09:00 to 17:00 on weekdays. The tenets of counseling were as follows: 1) neutrality with regard to the

provision of information, 2) no evaluation of treatment advised, or prescriptions given, by doctors, 3) no recommendation of any medical institutions to patients, and 4) no counseling pertaining to lawsuits.

For each patient, age, sex, and reason for the consultation (15 areas were assessed), as well as counseling time spent, pre-counseling dissatisfaction level, and post-counseling satisfaction level were recorded on drug consultation forms after counseling (Fig. 1 and 2). The age of each caller was questioned and confirmed during each counseling session. Both “pre-counseling dissatisfaction” and “post-counseling satisfaction” levels were subjectively scaled from 1 to 5 using criteria that we established at the start of the study.

The criteria for assessing “pre-counseling dissatisfaction” were as follows: extreme dissatisfaction with

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DATE \_\_\_/\_\_\_/\_\_\_  
TIME \_\_\_/\_\_\_/\_\_\_

**DRUG CONSULTATION FORM I**

<b>Name of Caller</b>		Age: _____yr Sex: Male, Female	Tel: _____ Fax: _____
	<b>Subject of the consultation:</b> Caller himself/herself, Other	<b>Counseling time spent:</b> _____minutes	
<b>Caller Classification</b>	Member of the public, Prefectural Pharmaceutical Association, Administrative official, Pharmaceutical company, Wholesale drug dealer, Community pharmacy, Hospital/Clinic, Mass media, etc.:		
<b>Content of Consultation &amp; Answers given:</b>			
<p><b>Counseling categories:</b></p> <p>1. "Efficacy and Indications"    2. "Dosages and Administration"                  3. "Anxiety of adverse events"    4. "Realization of adverse events"                  5. "Interactions"    6. "Potential effect on embryo after taking medicines"                  7. "Potential effect on embryo before taking medicines"    8. "Lactation"                  9. "Diseases"    10. "Pharmaceutical items"    11. "Public health"                  12. "Regulations/Notifications"    13. "References"                  14. "Identification of medicines"    15. "Others ( _____ )"</p>			
<b>To be filled in only if caller is a member of the public:</b>			
<b>Object of consultation:</b> prescription medication, OTC medication, Healthcare supplement, other ( _____ )			
<b>Grade of Pre-counseling Dissatisfaction</b> (Extremely dissatisfied) 5 → 4 → 3 → 2 → 1 (No dissatisfaction)			
<b>Grade of Post-counseling Satisfaction</b> (Highest gratitude) 5 → 4 → 3 → 2 → 1 (Complaints)			

Fig. 1. Drug Consultation Form I

Central Pharmaceutical Information Center of  
The Japan Pharmaceutical Association

DATE \_\_\_/\_\_\_/\_\_\_

TIME \_\_\_/\_\_\_/\_\_\_

**DRUG CONSULTATION FORM II**

<b>Name of Caller</b>	<b>Age:</b> _____yr	<b>Tel:</b>
	<b>Sex:</b> Male, Female	<b>Fax:</b>
	<b>Subject of the consultation:</b> Caller himself/herself, other	<b>Counseling time spent:</b>  _____minutes
<b>Caller Classification</b>	Member of the public, Prefectural Pharmaceutical Association, Administrative official, Pharmaceutical company, Wholesale drug dealer, Community pharmacy, Hospital/Clinic, Mass media, etc.:	
<b>Content of Consultation &amp; Answers given:</b>		
<p><b>Counseling categories:</b></p> <p>1. "Efficacy and Indications"    2. "Dosages and Administration"          3. "Anxiety of adverse events"    4. "Realization of adverse events"          5. "Interactions"    6. "Potential effect on embryo after taking medicines"          7. "Potential effect on embryo before taking medicines"    8. "Lactation"          9. "Diseases"    10. "Pharmaceutical items"    11. "Public health"          12. "Regulations/Notifications"    13. "References"          14. "Identification of medicines"    15. "Others (                    )"</p>		
<b>To be filled in only if caller is a member of the public:</b>		
<b>Object of consultation:</b> prescription medication, OTC medication, Healthcare supplement, other (                    )		
<b>Purpose for calling: Check only one</b>		
<input type="checkbox"/> Seeking advice <input type="checkbox"/> Searching for information but not seeking advice <input type="checkbox"/> Wanting to discuss a complaint		
<b>Issues touched upon in counseling: Check all that apply</b>		
<input type="checkbox"/> Potential problems <input type="checkbox"/> Issues that have already been encountered <input type="checkbox"/> Clarification of issues of importance <input type="checkbox"/> Issues of concern <input type="checkbox"/> Issues of direct concern to the caller <input type="checkbox"/> Issues involving someone other than the caller		
<b>With regard to prescription medication:</b>		
List 2 drugs that the consultation focused on (generic name where possible):  _____		
<b>Grade of Pre-counseling Dissatisfaction</b> (Extremely dissatisfied) 5 → 4 → 3 → 2 → 1 (No dissatisfaction)		
<b>Grade of Post-counseling Satisfaction</b> (Highest gratitude) 5 → 4 → 3 → 2 → 1 (Complaints)		

Fig. 2. Drug Consultation Form II

anger and more than three complaints made during the course of counseling (Level 5), a high level of dissatisfaction with much less anger and only 1-2 complaints made during the course of counseling (Level 4), a moderate level of dissatisfaction with only a few areas of concern and almost no complaints made during the course of counseling (Level 3), no dissatisfac-

tion, some concern and no complaints made during the course of counseling (Level 2), and no dissatisfaction or areas of concern (ie. the callers had no specific reason for seeking counseling) (Level 1). The criteria for assessing "post-counseling satisfaction" were as follows: a high level of gratitude expressed after counseling (Level 5), only a polite level of grati-

tude expressed after counseling (Level 4), caller satisfaction or dissatisfaction unclear after counseling (Level 3), caller not completely satisfied with counseling received (ie. some questions remained unanswered) (Level 2), and complaints made about counseling received (Level 1).

Phone drug counseling data were prospectively collected over two periods, a 6 month period (period 1: 08/01/2000–1/21/2001), during which drug consultation form I was used (shown in Fig. 1), and a 3 month period (period 2: 08/01/2001–10/31/2001), during which drug consultation form II was used. Two additional items were added to form II, including the caller's "purpose for calling" and "issues touched upon in counseling" (shown in Fig. 2). The results were examined as described below.

**Examination of the Callers' Level of Pre- and post-Counseling Satisfaction** We examined the relationship between "pre-counseling dissatisfaction" and "post-counseling satisfaction", as well as that between "pre-counseling dissatisfaction" and time spent counseling.

#### Correspondence Analysis of Counseling Categories

We performed a correspondence analysis of 15 categories of counseling content and related patient characteristics. Overlap among the 15 content categories was permitted in light of the possibility that callers might touch upon more than one content category.

**Cluster Analysis of Caller Characteristics** Prior to performing a cluster analysis of patient characteristics, some counseling categories were grouped together based on the results of the correspondence

analysis. This new group of categories was labeled "Group 1". We then conducted correspondence analysis on data collected within the framework specified in Fig. 2 ("Purpose for calling", and "Issues touched upon in counseling"), along with the "Group 1" category. Callers were then classified based on the results of cluster analysis. Cluster analysis of callers for whom age and sex were known was performed. A hierarchical method using Ward's joining procedure was used, using the data obtained during period 2.

All correspondence and cluster analyses were performed with SAS vers 6.12 (SAS Institute, Inc., Cary, NC).

**Statistical analysis** Any associations between age and patient classification were analyzed by the Chi-squared test. Associations between average age, average time spent counseling, pre-counseling dissatisfaction level, post-counseling satisfaction level, and cluster category were analyzed by the Kruskal-Wallis and Mann-Whitney U-tests. All statistical analyses were performed using SAS ver 6.12 (SAS Institute, Inc., Cary, NC).

## RESULTS

**Descriptive Statistics** A total number of 2,022 persons were counseled over 117 working days. Although family members were sometimes counseled instead of the patients themselves, the results of these sessions were included in our data. The ages of 770 (38.1%) patients were known, from which an average age of 49.3 years was calculated. The percentage of females was 85% among people aged 14–29

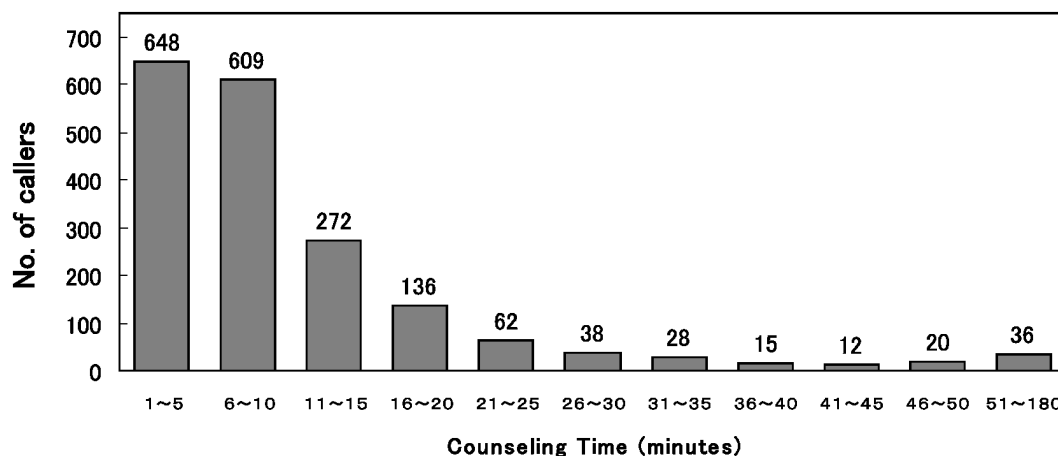


Fig. 3. Distribution of Time Spent Counseling ( $n=1876$ )

Note: Counseling time was recorded in minutes. A mean counseling time of 11.5 minutes was observed.

years old (total  $n=155$ ), 76% among people aged 30—64 years old (total  $n=404$ ), and 81% among people aged 65—95 years old (total  $n=211$ ). Thus, an overwhelming number of callers were women. The large number of callers for whom age was not known was due to reluctance on behalf of the caller to give their age, or failure of the counselor to ask. A distri-

bution curve of time spent counseling ( $n=1876$ ) is shown in Fig. 3. The average time spent was 11.5 minutes per counseling session. The classification system used for categorizing counseling content is shown in Table 1 ( $n=1667$ ). Time spent counseling could not be established for some calls since some patients had to be called back after their questions were researched. In addition, some counseling items could not be categorized because the meaning of some questions was unclear.

Table 1. Counseling Subject Classification ( $n=1667$ )

Counseling categories	No. of callers (% of 1667 callers)
Efficacy and indications	758 (45.5%)
Anxiety of adverse events	755 (45.3%)
Dosages and administration	242 (14.5%)
Realization of adverse events	197 (11.8%)
Interactions	165 ( 9.9%)
Diseases	88 ( 5.3%)
Potential effect on embryo after taking medicines	81 ( 4.9%)
Lactation	81 ( 4.9%)
Pharmaceutical items	49 ( 2.9%)
Identification of medicines	39 ( 2.3%)
Potential effect on embryo before taking medicines	35 ( 2.1%)
Regulations/Notifications	17 ( 1.0%)
References	8 ( 0.5%)
Public health	5 ( 0.3%)
Others	82 ( 4.9%)
Total	2602 ( — )

Note: The sum (2602) is greater than the number of callers because more than one category was discussed during some counseling sessions.

**Examination of Caller Satisfaction** The observed association between time spent counseling and level of “pre-counseling dissatisfaction” is shown in Fig. 4. A close association was noted between dissatisfaction levels 1 and 2 and shorter lengths of counseling, while dissatisfaction levels 4 and 5 were associated with longer periods of counseling. Thus, the most dissatisfied callers required the most time for counseling.

Associations between “pre-counseling dissatisfaction” levels and “post-counseling satisfaction” levels are plotted in Fig. 5 ( $n=1581$ ). Pre-counseling dissatisfaction levels were primarily 1 and 2, while post-counseling satisfaction levels were mostly 4 and 5. This observation indicates that callers were generally satisfied with the counseling received. We were unable to judge the pre- and post-counseling changes in satisfaction for all callers, since some requested more information by mail and fax.

**Correspondence Analysis of Reasons for Counseling**

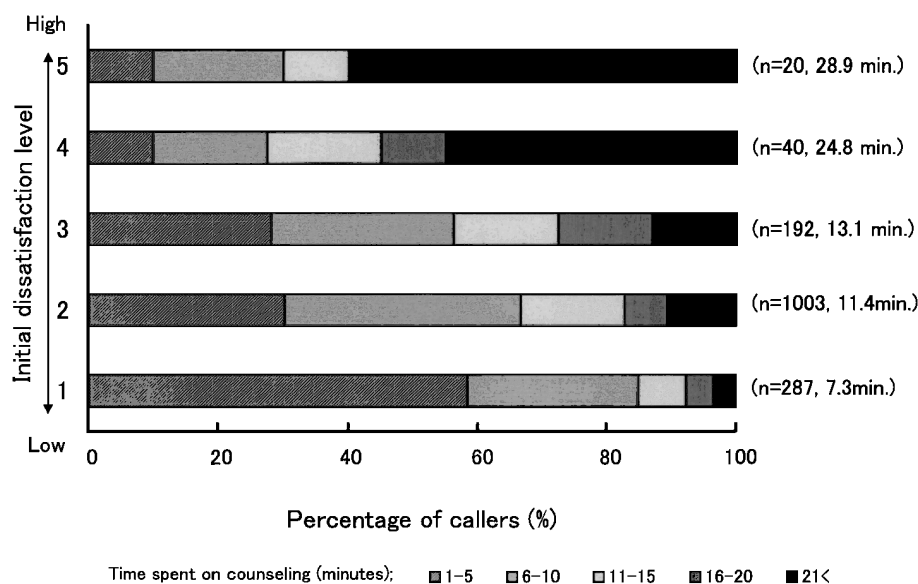


Fig. 4. Relationship between Initial Level of Dissatisfaction and Time Spent Counseling ( $n=1572$ )  
 \*mean counseling time according to pre-counseling dissatisfaction levels

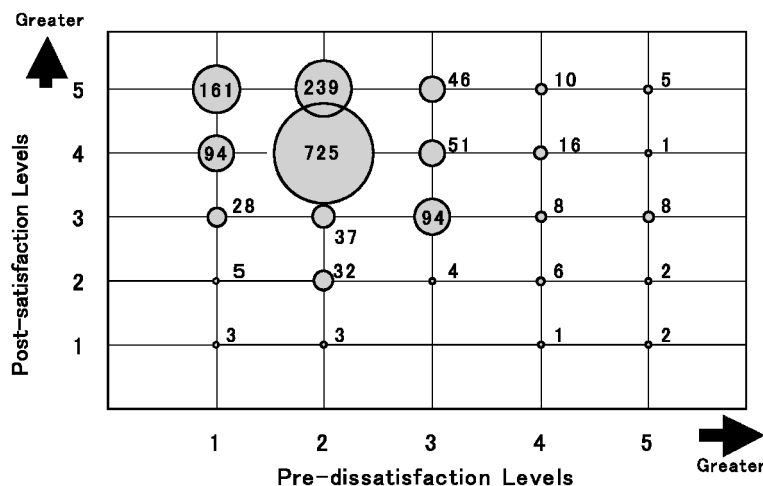


Fig. 5. Relationship between Pre-Counseling Dissatisfaction and Post-Counseling Satisfaction (n=1581)  
 Note: The circled number indicates the number of relevant counseling sessions.

Table 2. Scores for Contents in Correspondence Analysis

	Dim 1	Dim 2	Dim 3	Dim 4	Dim 5
(Inertia)	(9.45%)	(9.39%)	(9.18%)	(8.88%)	(8.23%)
Efficacy and indications	-0.0018	-0.2568	-0.2144	0.0486	-0.0418
Anxiety of adverse events	0.0079	-0.2672	-0.2058	0.0636	-0.0275
Dosages and administration	0.0154	-0.2623	-0.2463	0.0595	-0.0750
Realization of adverse events	0.0343	-0.2971	-0.2655	0.0443	-0.1250
Interactions	-0.0265	-0.2769	-0.2544	0.0750	-0.0591
Diseases	0.1060	-0.1981	-0.3193	0.1014	-0.2137
Potential effect on embryo after taking medicines	0.5694	-0.0915	3.1669	-4.1780	0.0352
Lactation	-4.4644	3.0062	0.4925	-0.0617	0.0202
Pharmaceutical items	0.1106	-0.2445	0.2459	-0.0027	0.7287
Identification of medications	-0.2032	-0.1682	-0.2379	0.0761	-0.0436
Potential effect on embryo before taking medicines	0.4177	-0.6549	6.3797	4.9824	-0.1111
Regulations/Notifications	1.5079	1.8772	-0.2475	0.3931	10.7902
References	0.0420	-0.3321	-0.3608	0.1076	-0.2932
Public health	2.8276	3.9406	-0.3138	0.4949	-2.9650
Other	2.9655	4.1207	-0.1975	0.3273	-0.9401

Dim: Dimension. Note: The results included up to 5 dimensions (n=1667).

Correspondence analysis of various counseling categories and patient characteristics was performed (n=1667) and scores assigned to the data, which are presented in Table 2. We did not find any dimensions of high inertia, however, we observed that questions regarding “efficacy and indications”, “dosages and administration”, “anxiety of adverse events”, “realization of adverse events” and “interactions” all approximated to corresponding dimensions.

**Cluster Analysis of Caller Characteristics**

**Examination of categories** Based on the results of correspondence analysis, we clustered “efficacy and

indications” “dosages and administration”, “anxiety of adverse events”, “realization of adverse events” and “interactions” into one group, which we called “Group 1”. We then performed a new correspondence analysis over the re-coded data, including the remaining counseling categories, as well as the two additional items specified in Fig. 2. No category accounted for more than 10% inertia. Then, we re-grouped the content categories in order to maximize inertia without affecting our ability to interpret the ensuing cluster analysis. Inertia slightly increased by re-grouping the following categories into a general

Table 3. Correspondence Analysis Scores

	Dim 1	Dim 2	Dim 3	Dim 4	Dim 5
(Inertia)	(15.06%)	(13.16%)	(12.03%)	(10.53%)	(9.73%)
Group 1	0.2076	0.0117	-0.1986	-0.1385	-0.1106
Pregnancy-lactation	-1.2610	-0.9451	1.5761	0.6656	-1.1199
Diseases	-0.0420	0.0559	0.0134	0.8677	1.0466
Pharmaceutical items	-0.0821	-0.1450	-0.4577	1.3312	0.5828
Identification of medicines	-0.1823	-0.9927	1.5096	-1.9902	1.0423
Other	2.1201	1.2967	2.6310	0.9814	3.0556
Seeking advice	-0.3743	0.1037	-0.1241	0.2098	0.0805
Searching for information but not seeking advice	1.6467	-1.0403	0.1909	-0.6995	-0.2427
Wanting to discuss a complaint	1.7832	5.1083	2.7530	-0.0485	-2.9852
Potential problems	0.5342	-0.5350	-0.0843	1.1784	-0.4541
Issues that have already been encountered	-0.3382	0.3423	-0.0356	-0.3840	0.0060
Clarification of issues of importance	-0.1495	-0.0424	-0.0799	-0.3078	0.2010
Issues of concern	-0.3333	0.1122	-0.1307	-0.1314	0.1232
Issues of direct concern to the caller	0.1931	0.1571	-0.2086	0.0843	-0.0921
Issues involving someone other than the caller	-0.9931	-0.9721	1.7127	-0.2136	-0.0468

Dim: Dimension. Note: The results included up to 5 dimensions ( $n=432$ ).

“pregnancy-lactation” category: “potential effect on embryo after taking medicines”, “potential effect on embryo before taking medicines”, and “lactation”. The following categories, which accounted for as many as 10 cases, were excluded for the purposes of analysis: “public health”, “regulations/notifications” and “references”. The results of correspondence analysis ( $n=432$ ) are summarized in Table 3.

**Cluster Analysis** Upon close examination of the inertia and category scores, we performed cluster analysis over the first three principal coordinates (Dim1-3). The relationship between number of clusters and Semi-Partial R-Squared (SPRSQ) values is shown in Fig. 6. We inferred that the appropriate number of clusters was 4 or 5. Based on close examination of the cross-tabulation results among certain items (age and sex, etc.), which were excluded in the correspondence analysis, we set the number of clusters to 4. Cross-tabulation results between clustered samples and the original data are shown in Table 4. Significant differences between sex and cluster category were not observed. The average age of patients in cluster group no.4 (complainer type) was significantly greater than the average age of patients in other cluster groups. Significantly less time was spent counseling (average time), and a significantly lower pre-counseling dissatisfaction level was observed among, patients in cluster group no. 3

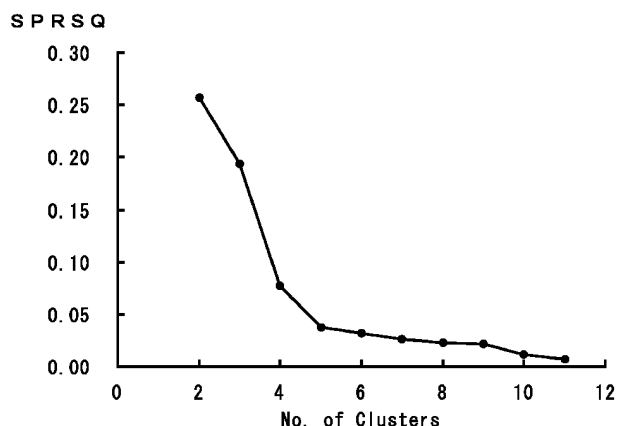


Fig. 6. Semi-Partial R-Squared Values and Cluster Numbers

(self-made type) compared to patients in other cluster categories. Post-counseling satisfaction was lowest among patients in cluster group no. 4 (Complainer type).

**DISCUSSION**

**Patient Satisfaction With Counseling** Several surveys have been conducted to assess patient satisfaction levels with counseling in the field of healthcare.<sup>7-9</sup> Although these surveys have brought several important considerations to light, it is as of yet unclear how specific interventions modify patient satisfaction as a result of counseling, and to what ex-

Table 4. Cross-Tabulation on the Basis of Cluster Analysis

No. of clusters	1	2	3	4	Total
Clustered categories	<ul style="list-style-type: none"> <li>• Issues of concern</li> <li>• Seeking advice</li> <li>• Pharmaceutical items</li> <li>• Group 1</li> <li>• Diseases</li> <li>• Clarification of issues of importance</li> <li>• Issues of direct concern to the caller</li> <li>• Issues that have already been encountered</li> </ul>	<ul style="list-style-type: none"> <li>• Issues involving someone other than the caller</li> <li>• Identification of medications</li> <li>• Pregnancy-lactation</li> </ul>	<ul style="list-style-type: none"> <li>• Potential problems</li> <li>• Searching for information but not seeking advice</li> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• Wanting to discuss a complaint</li> </ul>	15 categories (See Table 3)
No. of persons	251 (58.1%)	77 (17.8%)	94 (21.8%)	10 ( 2.3%)	432 ( 100%)
Sex					
Male	74 (29.5%)	19 (24.7%)	32 (34.0%)	1 (10.0%)	126 (29.2%)
Female	177 (70.5%)	58 (75.3%)	62 (66.0%)	9 (90.0%)	306 (70.8%)
Average age (years)	50.4	38.3 <sup>1)</sup>	48.8 <sup>2)</sup>	58.0 <sup>3)</sup>	48.0
Average time spent (minutes)	12.2	13.1	8.0 <sup>4,5)</sup>	13.9 <sup>6)</sup>	11.5
Counseling issues					
Prescription drugs	210 (83.7%)	58 (75.3%)	80 (85.1%)	6 (60.0%)	354 (81.9%)
OTC drugs	11 ( 4.4%)	11 (14.3%)	2 ( 2.1%)	0 ( 0.0%)	24 ( 5.6%)
Healthcare supplements	7 ( 2.8%)	3 ( 3.9%)	2 ( 2.1%)	1 (10.0%)	13 ( 3.0%)
Other	11 ( 4.4%)	3 ( 3.9%)	7 ( 7.4%)	0 ( 0.0%)	21 ( 4.9%)
Unclassifiable	12 ( 4.8%)	2 ( 2.6%)	3 ( 3.2%)	3 (30.0%)	20 ( 4.6%)
Pre-counseling dissatisfaction level (average)	2.14	2.24	1.99 <sup>7,8)</sup>	2.70	2.14
Post-counseling satisfaction level (average)	4.05	4.04	4.10	3.50 <sup>9-11)</sup>	4.04
Patient "Types" (see Table 5)	Perfectionist type	Focused type	Self-made type	Complainer type	—

1)  $p < 0.001$  (Cluster No. 1 vs No. 2; Kruskal-Wallis & Mann-Whitney U test); 2)  $p < 0.001$  (Cluster No. 2 vs No. 3; Kruskal-Wallis & Mann-Whitney U test); 3)  $p < 0.001$  (Cluster No. 2 vs No. 4; Kruskal-Wallis & Mann-Whitney U test); 4)  $p < 0.001$  (Cluster No. 1 vs No. 3; Kruskal-Wallis & Mann-Whitney U test); 5)  $p < 0.001$  (Cluster No. 2 vs No. 3; Kruskal-Wallis & Mann-Whitney U test); 6)  $p < 0.001$  (Cluster No. 3 vs No. 4; Kruskal-Wallis & Mann-Whitney U test); 7)  $p < 0.05$  (Cluster No. 1 vs No. 3; Kruskal-Wallis & Mann-Whitney U test); 8)  $p < 0.05$  (Cluster No. 2 vs No. 3; Kruskal-Wallis & Mann-Whitney U test); 9)  $p < 0.01$  (Cluster No. 1 vs No. 4; Kruskal-Wallis & Mann-Whitney U test); 10)  $p < 0.005$  (Cluster No. 2 vs No. 4; Kruskal-Wallis & Mann-Whitney U test); 11)  $p < 0.05$  (Cluster No. 3 vs No. 4; Kruskal-Wallis & Mann-Whitney U test)

tent. Surveying patient responses to telephone drug counseling allows us to monitor the effect of such interventions. In the present study, callers with an initial "Dissatisfaction" level of 1 were more likely to have a "Satisfaction" level of 5 after counseling. Similarly, those with a pre-counseling "Dissatisfaction" level of 2 were more likely to end up with a "Satisfaction" level of 4 after counseling. Moreover, callers with a pre-counseling "Dissatisfaction" level of 3 were more likely to have a "Satisfaction" level of 3 after counseling (Fig. 5). It should be noted that, since classification of pre- and post-counseling satis-

faction levels were performed by six different counselors, the possibility of some inter-examiner variability exists. Nonetheless, these results are consistent with those of consumer psychology reports in the field of marketing. According to Shimaguchi,<sup>10)</sup> dissatisfaction can involve anger and repulsion or merely a complete lack of satisfaction. People who do not exhibit repulsion or anger but merely a complete lack of satisfaction are more likely to respond to positive intervention. Assuming that the closer a caller's "pre-counseling dissatisfaction level" is to 5, the stronger their repulsion or anger, Shimaguchi's theory ex-



plains the more marked increase in satisfaction noted among callers with low repulsion (or anger) ratings prior to counseling. We thus infer that it is possible to change almost dissatisfied patients into completely satisfied patients through appropriate counseling.

**The Differing Perspectives of Patients and Pharmacists**

When pharmacists provide drug information or ask questions about related matters to the public and/or patients, they unconsciously use medical terms such as “adverse events”, “side effects”, “interactions”, etc. Although these words might be in popular usage among the public, to our knowledge, no studies have examined the public’s understanding of the meaning of these words. We used correspondence analysis to objectively analyze the public’s understanding of 15 categories of drug information (ie. “efficacy and indications”, “adverse events”, “interactions”, etc.), all of which are detailed in drug consultation forms I and II. The distinction between these categories is known to all health care professionals, thus, the forms are representative of health care workers’ perceptions of important categories of drug information. The main reason why we chose to perform a correspondence analysis was because it was the most appropriate method by which to analyze the type of data collected in this study. Another reason was that this method allowed a distinction to be made between questions pertaining to “adverse events” and “interactions”, something the public might confuse.

As a result, we observed that questions regarding “efficacy and indications” “dosages and administration”, “anxiety of adverse events”, “realization of adverse events” and “interactions” are near to each other in every dimension (Table 2). Although we

must guard against making overly strong conclusions based on this data due to low inertia, we might infer that these five items are commonly considered together by patients, while pharmacists might see them as very distinct categories of information. This confirms that the public views the specifics of drug counseling differently from pharmacists. It might be useful for pharmacists to present these five items of information together in order to meet patient expectations in the future. Of course, pharmacists should remember that, in addition to the provision of drug information, their opinion as health care professionals is also valued by patients.

**Caller Classification**

Cluster analysis is often applied to opinion polls and job-hunting surveys within the field of marketing. According to Kobayashi,<sup>11)</sup> there are two major types of responders to commercial advertisements among Japanese consumers, and the media targets consumers with these two types of responders in mind. Likewise, people might also vary in their response to healthcare intervention efforts. As such, it might be useful to differentiate between the different “types” of patient encountered in order to successfully target health care interventions. Thus, we ran a cluster analysis on several categories of drug information identified by correspondence analysis and patient characteristics. The results depicted in Table 4 allowed us to identify certain patient “types”, which are described in Table 5. We hope these observations will assist pharmacists in their approach to pharmacy practice in the future.

Table 5. Patient “Types” Identified through Telephone Drug Counseling

Perfectionist type	The most common type of caller. This person wants to know everything about efficacy and the various indications for a drug. The caller is not apprehensive about taking medication. His/her questions cover divergent topics. He/she tends to be dependent on others.
Focused type	This type of caller wants to obtain specific information about a drug, such as its effect on pregnancy, etc. The caller is apprehensive about taking medication and is not easily persuaded. The caller focuses on the effect of medication on pregnancy and lactation, and this type of caller is relatively young. He/she tends to be sensible.
Self-made type	This type of caller tends to rely on their own judgment. He/she does not appear to be unhappy with the advice given but appears uncertain. He/she asks questions but ultimately decides for himself/herself. Relatively little time is spent on counseling these callers. He/she sometimes does the opposite of what he/she is advised.
Complainer type	This type of caller tends to require a lot of time for counseling. Callers in this category are of relatively advanced age. The caller discusses pharmaceutical issues but also life in general. Counselors have to be good listeners to deal with this type of person. They tend to tell long and repeated stories. This type of caller is not as common and requires a long time for counseling

## CONCLUSION

This study shows that several different “types” of patients might request telephone drug counseling. Moreover, this study illustrates that it is possible to significantly alter patient satisfaction through targeted counseling based on a patient classification system. Pharmacists should take this into consideration when standing face-to-face with patients in the setting of their pharmacy practice. Although the type of patients who request telephone drug counseling do not necessarily reflect those encountered in a pharmacy setting, we believe that this study clarifies the importance of recognizing certain patient “types” in order to assist pharmacists in their approach to providing drug information. At JPA, we will continue to provide useful strategies with regard to the provision of drug information based on patient expectations to promote the separation of dispensing and prescribing drugs (“Bungyo” in Japanese).

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