

Factor Analysis of Patient Satisfaction Using Logistic Regression Analysis at an HPH Pharmacy



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Background/Objective

Today, pharmacies are located in neighborhoods in Japan, but it is difficult for the general public to access them when they don't have a prescription; thus, they are less open to the public compared to the ones in Europe.

In case of Aozora Pharmacy, it makes daily efforts to visualize its performance through ISO9001 and HPH standards, and adopted PDCA cycle to provide better access for the users. In addition, in October 2016, it was accredited as the first Health Support Pharmacy in Osaka Prefecture, and has enhanced its HPH activities since then. As a part of such efforts, it facilitates an annual survey on user satisfaction.

In this study, an attempt was made to determine the factors for improvement of accessibility to an HPH pharmacy by analyzing the results of latest annual survey with logistic regression.

Methods

The target of the survey was set for the patients who used our pharmacy in September 2018 (500 persons). The first-time users were excluded from the subject.

Research Items

- (1)Overall Evaluation of the pharmacy
- (2) Staff's Greeting
- (3) Staff's Attitude
- (4)Pharmacist's Explanation
- (5) Easy Language Use
- (6) Waiting Time
- (7) Waiting Room Environment
- (8) Patient's privacy

Method of analysis

Factor "Highly Satisfied" was set as the objective variable of logistics regression analysis in order to verify the influences by other factors shown as (2) to (8). For comparison between groups, Fisher's exact test was performed. For statistics, EZR was used, and it was considered to be significant if $P < 0.05$.

Ethics Review

This study was made in conformity with the "Ethical Guidelines for Medical and Health Research Involving Human Subjects", and was pre-approved by the "Nishiyodo Hospital Ethics Committee" (Approval number: 2018Rin22).

Results

Among all collected responses, 422 (84%), the ones which had markings for "overall evaluation", were considered as effective. In 5-point rating system, "overall satisfaction" scored 3.90 ± 0.70 (95%CI: 3.88 ~ 3.92).

See table 1 for the share of gender and age in classification of "highly satisfied" (5 points) and "other responses" (4 points or less).

As a result of logistic regression analysis, it became clear that "staff's greeting" (Odds Ratio 6.89, $P=0.0020$), "pharmacist's explanation" (Odds Ratio 3.16, $P=0.0081$) and "waiting time" (Odds Ratio 2.82, $P=0.0251$) are the factors that had statistically significant effect against the "highly satisfied" factor among "overall evaluation" (Table 2).

Table 1 : Gender and Age of Respondents

	Highly satisfied		Other Responses	
	Number of Persons	Share(%)	Number of Persons	Share(%)
Male	31	39.3%	115	33.5%
Female	37	46.8%	179	52.2%
No response	11	13.9%	49	14.3%
Total	79	100.0%	343	100.0%

Fisher's exact test $P = 0.609$

	High Satisfied		Other Responses	
	Number of Persons	Share(%)	Number of Persons	Share(%)
19 or younger	1	1.3%	3	0.9%
20's	1	1.3%	8	2.3%
30's	2	2.5%	10	2.9%
40's	13	16.5%	40	11.7%
50's	11	13.9%	40	11.7%
60's	16	20.2%	69	20.1%
70's	18	22.8%	103	30.0%
80 or over	10	12.6%	45	13.1%
No response	7	8.9%	25	7.3%
Total	79	100.0%	343	100.0%

Fisher's exact test $P = 0.881$

Table 2 : Results of Logistic Regression Analysis

Explanatory variable	VIF	Odds ratio	95% CI	P value
Staff's Greeting	2.59	6.89	2.03 ~ 23.40	0.002
Staff's Attitude	2.47	2.58	0.87 ~ 7.65	0.870
Pharmacist's Explanation	1.82	3.16	1.35 ~ 7.42	0.008
Easy Language Use	2.07	0.74	0.30 ~ 1.84	0.525
Waiting Time	1.24	2.82	1.14 ~ 7.00	0.025
Waiting Room Environment	1.39	1.52	0.71 ~ 3.24	0.280
Patient's privacy	1.44	0.95	0.43 ~ 2.11	0.904

VIF : Variance Inflation Factor

Conclusions

Although customer satisfaction survey is performed by many pharmacies, no one has ever tried a multi-variable factor analysis before. This is the first trial of that kind using logistics regression analysis, and as a result, it became clear that "staff greetings", "pharmacist's explanation" and "waiting time" have statistically significant effect on high satisfaction of pharmacy users. HPH pharmacy must work to enhance Health Promotion of patients, community people and staff, and as the presumption, it is important to create an "accessible pharmacy".

In that effort, we should focus on the factors with high significance from now on in order to improve the score of "overall satisfaction", possibly with those which significance may not be so high but OR is more than 2 (such as Staff's Attitude).



Aozora Pharmacy



COI Disclosure Information
Noritake HIROTA
I have no financial relationships to disclose.