

Table 1 Pharmacy attributes based on data match with patients

Items	Visiting Pharmacy ¹⁾		Non-visiting Pharmacy ²⁾		P
	N	average	N	average	
Actual number of prescriptions filled per day/pharmacist	34	19.5	37	21.9	0.608
Actual number of employee pharmacists (full-time equivalent)*	36	3.4	38	3.4	0.922
Actual number of pharmacists registered as "home visitor" (full-time equivalent)*	28	1.6	31	0.8	0.003

(Mann-Whitney U test)

Full-time equivalent* : A part-timer is counted as 0.5 person.

¹⁾ Pharmacy which practice home visiting (n=43)

²⁾ Pharmacy which not practice home visiting (n=41)

(unknown : 6)

Table 2 Relationship between pharmacy attributes and workload

Pharmacy Attributes	Ans.	Workload							
		Visit Frequency ¹⁾				Actual Work Time ²⁾			
		Once a week	Twice a month	Once a month, or once in more than a month	P	<5 min	5-15 min	>15 min	P
Actual number of prescriptions filled per day/pharmacist	≤19	14 (25.0%)	39 (69.6%)	3 (5.4%)	0.118	9 (16.1%)	37 (66.1%)	10 (17.8%)	0.445
	>20	5 (11.6%)	32 (74.4%)	6 (14.0%)		9 (20.9%)	23 (53.5%)	11 (25.6%)	
Number of employee pharmacists (full-time equivalent)*	3	14 (26.4%)	36 (67.9%)	3 (5.7%)	0.097	17 (32.1%)	25 (47.2%)	11 (20.8%)	0.023
	>3	7 (13.0%)	39 (72.2%)	8 (14.8%)		6 (11.1%)	37 (68.5%)	11 (20.4%)	
Number of pharmacists registered as "home visitor" (full-time equivalent)*	1.5	10 (18.9%)	37 (69.8%)	6 (11.3%)	0.932	18 (34.0%)	27 (50.9%)	8 (15.1%)	0.007
	>1.5	11 (21.2%)	36 (69.2%)	5 (9.6%)		5 (9.7%)	32 (61.5%)	15 (28.8%)	
Number of patients visited for the last month	≤5	5 (10.2%)	36 (73.5%)	8 (16.3%)	0.032	14 (28.6%)	25 (51.0%)	10 (20.4%)	0.320
	>5	15 (27.3%)	37 (67.3%)	3 (5.4%)		9 (16.4%)	34 (61.8%)	12 (21.8%)	

(Kruskal Wallis test)

¹⁾ Choices: Once a week, Twice a month, Once a month, Once in more than a month

²⁾ Choices: <5 min, 5-15 min, 15-30 min, >30 min

(S.D. 13.0). Actual number of prescribed drugs was 8.5 (S.D. 3.3), with the highest number being 8.

(2) Pharmacy Attributes

Table 1 shows the relationship between the presence of a home visiting service and pharmacy attributes. The factor related to the presence of a home visiting service was actual number of pharmacists registered as "home visitor."

(3) Workload Indicator

1) Visit Frequency (Choices : once a week, twice a month, once a month, once in more than a month)

69.1% of visiting pharmacists visited twice a month, followed by once a week (19.1%), once a month (7.3%), and once in more than a month (2.7%). 1.8% was unknown.

2) Actual Work Time (Choices : <5 min, 5-15 min, 15-30 min, >30 min)

The highest number of pharmacists visited patients for 5 to 15 minutes (56.4%), followed by less than 5 minutes (20.9%), 15 to 30 minutes (19.1%), and more than 30 minutes (1.8%). 1.8% was unknown.

(4) Relationship between Pharmacy Attributes and Workload (Examination by Kruskal Wallis test)

1) Visit Frequency

Between the group of patients who received visits once a week and the group that received visits less frequently, there was a significant difference in number of patients visited for the last month. Also, the group of patients who received "Once a week" visits had a tendency of fewer staff members than the group of patients who received less frequent visits (Table 2).

2) Actual Work Time

Between the group of patients for whom the actual work time during pharmacists' home visits was 5 or more minutes and the group for whom the actual work time was less than 5 minutes, there was a significant difference in the average number of pharmacists registered as "home visitor" and staff pharmacists compared to the shorter-period group (Table 2). It was confirmed that the longer-period groups had more pharmacists registered as "home visitor" and fewer

staff members compared to shorter-period group.

(5) Distribution of Outcome Indicators

The amount of unused drugs decreased for 40.0% of the patients since the start of home visits, while the amount either did not change or increased for 54.5% of them. Furthermore, pharmacists detected signs of side effects or other adverse events arising from drugs during home visits for 23.6% of the patients. Decreases in the administration amounts, changes in dose regimens, and changes in types of prescribed drugs occurred after pharmacists contacted or discussed with the physicians for 17.3%, 14.5%, and 25.5% of the patients, respectively (Table 3).

(6) Relationship between Workload and Outcome Indicators (Examination by Kruskal Wallis test)

1) Relation of Visit Frequency and Outcome Indicators

For patients who received home visiting service once a week, pharmacists tended to detect signs of side effects or other adverse events arising from medication during home visits and change in prescription more frequently than for the less-frequency groups (Table 4).

2) Relation of Actual Work Time and Outcome Indicators

The amount of unused drugs tended to decrease more for patients who received 5 or more minutes of visitor

Table 3 Distribution of outcome indicators

Outcome Indicator	Ans.	N	%
Change in the amounts of unused drugs (Has the amount of unused medication changed since the start of visits?)	1. Decreased	44	40.0
	2. No Change	55	50.0
	3. Increased	5	4.5
	4. No Response	6	5.5
Side effects detected (Have signs of side effects or other adverse events arising from drugs been detected?)	1. Yes	26	23.6
	2. No	73	66.4
	3. No Response	11	10.0
Change in prescription (Has the prescription changed after contact or discussion with the doctor?); Multiple choice	1. Decreased	19	17.3
	2. Increased	13	11.8
	3. Change in Use Regimen	16	14.5
	4. Change in Medication	28	25.5
	5. No Change	47	42.7

Table 4 Relationship between workload and outcome indicators

Outcome Indicators	Ans.	Workload							
		Visit Frequency				Actual Work Time			
		Once a week	Twice a month	Once a month, or once in more than a month	P	<5 min	5-15 min	>15 min	P
Change in the amount of unused medication (Has the amount of unused medication changed since the start of visits?) ¹⁾	Yes	4 (9.1%)	35 (79.5%)	5 (11.4%)	0.168	4 (9.1%)	28 (63.6%)	12 (27.3%)	0.072
	No	14 (23.3%)	40 (66.7%)	6 (10.0%)		16 (26.7%)	33 (55.0%)	11 (18.3%)	
Side effects detected (Have signs of side effects or other adverse events arising from medication been detected?) ²⁾	Yes	9 (34.7%)	14 (53.8%)	3 (11.5%)	0.061	7 (26.9%)	11 (42.3%)	8 (30.8%)	0.142
	No	10 (13.7%)	55 (75.3%)	8 (11.0%)		11 (15.1%)	47 (64.4%)	15 (20.5%)	
Change in prescription (Has the prescription changed after contact or discussion with the doctor?) ³⁾	Yes	14 (26.4%)	32 (60.4%)	7 (13.2%)	0.085	9 (17.0%)	28 (52.8%)	16 (30.2%)	0.187
	No	6 (12.8%)	38 (80.9%)	3 (6.3%)		11 (23.4%)	29 (61.7%)	7 (14.9%)	

(Kruskal Wallis test)

¹⁾ Decreased=Yes ; No change/increased=No. No response is treated as a missing value.

²⁾ No response is treated as a missing value.

³⁾ No change=No ; Other responses=Yes. No response is treated as a missing value.

pharmacists' actual work than for the shorter period (less than 5 minute visits) group (Table 4).

4. Discussion

This survey was implemented in order to secure a certain amount of data on home-visit patients. The authors requested cooperation of the local pharmaceutical association to which authors belong, and received recommendation of two branches where their pharmacies are actively visiting patients' homes. We received data from the two branches at approximately the same level of collection rate, and thus we do not expect that the regional differences between the two branches will have a serious effect on the results. We also believe that this survey afforded us a general idea of the attributes of the patients who receive home visiting service from community pharmacists, and the current situation on the home visits for individual patients.

Of the pharmacy attributes used in this survey, the number of pharmacists registered as "home visitor" was the factor that showed relation with the presence of a home visiting service. This led to the confirmation that it is essential to ensure at least two pharmacists who can visit patients' homes.

Home visits of twice a month for 5 to 15 minutes of actual work time each session was the average situation for pharmacists' home visits. Elderly, living alone or with the spouse, and using multiple drugs were typical attributes of patients who received home visits. We also found that approximately 10% of these patients were suffering complications from brain infarction and dementia.

The workload involved in a pharmacist's home visit is related to the number of patients to visit, and the number of staff members. It was indicated that pharmacists whose workload for prescription filling was relatively light and who visited homes of more patients tended to provide more frequent home visits.

In the area of relation of workload and its outcomes, it was indicated that the workload indicators "visit frequency" and "actual work time" had relation with different outcome indicators. Specifically, it was implied that higher visit frequencies allowed for easier detection of signs of side effects or other adverse events and change in prescription. In addition, ensuring a certain minimum actual work time proved to be effective in resolving the unused drug issues.

A limitation of this study may be that it was difficult to closely compare workload using patients' attributes. This is because, in addition to the limitation of the number of patients, visit frequencies and actual work time were collected as categorical data instead of actual numbers. Another limitation of this study may be that the sampling cannot really be random because: (1) the visit lengths and frequencies were obtained from the pharmacists' visit records, and not from the measurements that researchers actually obtained in the field, and (2) selection of patients to be studied was left to the pharmacists. We will continue to prepare for our nationwide survey in a fashion that will enable us to obtain high-accuracy data that can survive statistical analysis by conducting detailed examination of the survey forms based on the knowledge acquired from the current study, and by carefully examining the investigation method.

5. Conclusion

This study examined the relations of the workload and its outcomes involved in the safety management and guidance on medication for community pharmacists' visits to patients' homes. The results implied that ensuring 5 or more minutes of actual work time at a patient's home resolves the unused drug issues more effectively, and ensuring the visit frequency of once a week increases the chance of detecting side effects or other adverse events arising from medication, securing safety by change in prescription. Therefore, it is imperative that the workload of the safety management and guidance on medication for home visits be properly ensured in order to alleviate patients' financial burden involved in medication and to improve the safety of drug therapy.

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