

A STUDY ON THE PERCEPTION OF ELDERLY PATIENTS ON THE EXPIRATION DATE AND STORAGE OF PRESCRIBED MEDICATION: A QUESTIONNAIRE STUDY

Eunjin Byun^o, Sumin Hong, Nayoung Kim, Soyoung Baek, Kyungsook Yeon
Department of Pharmacy, Veterans Health Service Medical Center



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PURPOSE

Due to the increase in the elderly population in Korea, the number of powdered medicines and long-term repackaging prescriptions has increased. As a result, the safety of medicines is becoming vulnerable. This study aims to find out how elderly patients perceive the expiration date and storage of prescription drugs and to consider appropriate patient education for the safe use of drugs.

MATERIALS & METHODS

A cross-sectional study was conducted among 221 elderly outpatients from December 14, 2022 to April 21, 2023 at Veterans Health Service (VHS) medical center in Seoul, South Korea. The questionnaire was divided into five parts: general characteristics, familiarity with medicines, awareness of the expiration date of oral medicines, awareness of medicine storage, and awareness of powdered medicines. Chi-squared test and fisher's exact test were used to compare each group. Data were analyzed using R statistical package version 4.1.2 and $p < 0.05$ was considered statistically.

RESULTS

A survey of 213 people was analyzed, excluding 8 who dropped out. When asked about the expiration date of the prescribed medicines, the most people responded '3 months'. The main storage place for medicines was the 'living room/bedroom drawer' at 30.52%. The main storage places for powdered medicine were 28.64% for 'refrigerator/Kimchi refrigerator' and 26.29% for 'living room/bedroom drawer.' There were 136 people (63.85%) who responded that they would grind 3 months' worth of powdered medicine at once, and the most common reason given by 66 people (30.99%) was 'difficulty in grinding'. 77 people (36.15%) said they would crush the pill every time they took it, and the most common reason was 'risk of deterioration' at 37 people (17.37%). There was no statistically significant difference when analyzing the perception of expiration date and storage of medicines according to drug managers and perception of powdered medicine according to whether or not to prescribe powdered medicine.

Result 1) Baseline characteristics of respondents

	Characteristics	N	(%)
Sex	Male	200	(93.9)
	Female	13	(6.1)
Age(years)	65-74	49	(23.0)
	75-84	158	(74.2)
	≥ 85	6	(2.8)
Drug managers	Yourself	193	(90.6)
	Family	17	(8.0)
	Caregivers	3	(1.4)

Result 2) Familiarity with medications

Question	Answer	N	(%)
How frequently visit pharmacy	1-2	6	(2.8)
	3-4	88	(41.3)
	5-6	17	(8.0)
	7-8	5	(2.3)
	≥9	97	(45.5)
Is there any medication taking for more than 3 months?	No	2	(0.9)
	Yes	211	(99.1)
Is there anyone taking pulverized medication after grinding pills?	Yourself	12	(5.6)
	Family	10	(4.7)
	None	191	(89.7)

Result 3) Awareness of expiration dates of repackaged prescription medications(at room temperature)

Answer	N (%)			
	After opening the original package	Repackaged in plastic packaging (zipper bag)	Unit-dose at pharmacy	Pulverized powder for unit-dose at pharmacy
<1 month	1 (0.5)	6 (2.8)	3 (1.4)	23 (10.1)
1 month	6 (2.8)	13 (6.1)	14 (6.6)	40 (18.8)
2 months	3 (1.4)	22 (10.3)	13 (6.1)	38 (17.8)
3 months	81 (38.0)	88 (41.3)	106 (49.8)	60 (28.2)
6 months	38 (17.8)	45 (21.1)	42 (19.7)	31 (14.6)
9 months	4 (1.9)	6 (2.8)	7 (3.3)	8 (3.8)
1 year	52 (24.4)	22 (10.3)	22 (10.3)	9 (4.2)
1.5 years	1 (0.5)	3 (1.4)	1 (0.5)	1 (0.5)
2 years	17 (8.0)	8 (3.8)	5 (2.4)	3 (1.4)
Same as the date printed in the original package	10 (4.7)	-	-	-
Total	213 (100)	213 (100)	213 (100)	213 (100)

Result 4) Main storage place of repackaged prescription medications

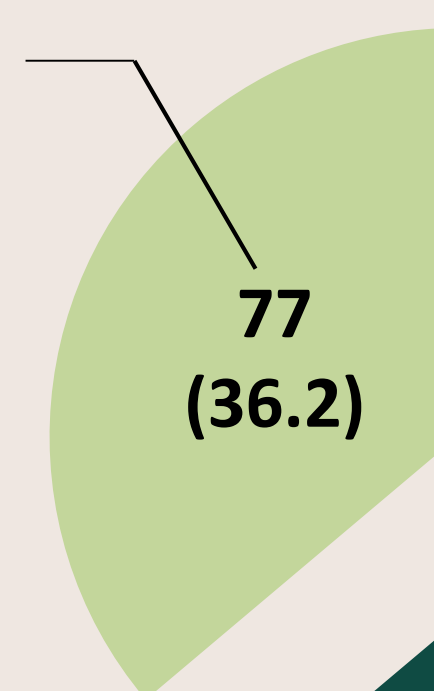
Places	N (%)*	
	Oral medicines	Powder medicines
Living room /Bed room drawers	65 (30.5)	56 (26.3)
Closet	6 (2.8)	3 (1.4)
Sink drawer/cupboard	14 (6.6)	9 (4.2)
On the table	24 (11.2)	15 (7.0)
On the dressing table	9 (4.2)	4 (1.9)
On the desk	21 (9.9)	7 (3.3)
Refrigerator /Kimchi refrigerator	8 (3.8)	61 (28.6)
Others	72 (33.8)	66 (30.1)

* For multiple selections, percentages may not add up to 100%

Result 5) How to grind 3 months' worth of powdered medicines and why to choose

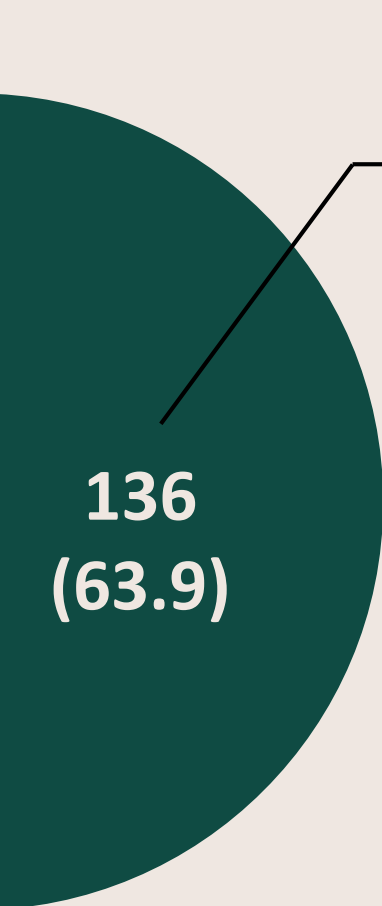
Every time they took it

- Difficulty in grinding 66 (30.1)
- Convenience 20 (9.4)
- A bothersome task 19 (8.9)



At once

- Risk of deterioration 37 (17.4)
- Diminishing efficacy 9 (4.3)
- Difficult to store 6(2.8)



CONCLUSION

Elderly patients recognized the expiration date of oral medicines was shorter than recommended by the Korean Pharmaceutical Association. There was also a lack of awareness of how to properly store medicines. Therefore, in consideration of drug safety, long-term prescriptions, repackaged prescriptions, and powdered preparations should be avoided if possible. If medical institutions conduct patient education for the safe use of medicines, they will be able to provide proper pharmacist services that consider the safety of medicines.