

Drugs - Real World Outcomes (DRWO)

Prevalence and Associated Factors of Drug-Related Problems among Older People: A Cross Sectional Study at King Chulalongkorn Memorial Hospital in Bangkok

Running heading

Prevalence and Associated Factors of Drug-Related Problems in a Thai Geriatric Center

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Table 1 Vaccination and health problems of the 466 older people at the Geriatric Excellence Center, KCMH, Bangkok (May to October, 2019)

Characteristics	Total	(%)
	<i>n</i> = 466	(100)
Vaccination		
Pneumococcal vaccination ^a	73	(15.7)
Influenza vaccination ^b	200	(42.9)
Types of comorbidities (ICD-10 classification)		
Endocrine, nutritional and metabolic diseases	383	(82.2)
Diseases of the musculoskeletal system and connective tissue	265	(56.9)
Diseases of the circulatory system	241	(51.7)
Diseases of the eye and adnexa	163	(35.0)
Mental and behavioral disorders	76	(16.3)
Diseases of the genitourinary system	62	(13.3)
Diseases of the digestive system	56	(12.0)
Diseases of the nervous system	56	(12.0)
Neoplasms	41	(8.8)
Others	78	(16.7)

ICD-10 International Statistical Classification of Diseases and Related Health Problems 10th Revision

^aOne dose of pneumococcal vaccine at age 65 years or older

^bAnnual influenza vaccination

Table 2 Univariate and multivariate analysis for factors associated with non-adherence in the 466 older people at the Geriatric Excellence Center, KCMH, Bangkok (May to October, 2019)

Factors	Univariate							Multivariate	
	Total <i>n</i> = 466	(%) (100)	With non- adherence <i>n</i> = 113	(%) (24.2)	With adherence <i>n</i> = 353	(%) (75.8)	<i>p</i> Value	Adjusted OR ^b	(95% CI)
Age							0.048*	-	
65-69 years	254	(54.5)	52	(46.0)	202	(57.2)			
≥ 70 years	212	(45.5)	61	(54.0)	151	(42.8)			
Risk of cardiovascular events (<i>n</i> = 464)^a									
Low to moderate risk (< 20%)	288	(62.1)	57	(50.4)	231	(65.8)			
High risk (≥ 20%)	176	(37.9)	56	(49.6)	120	(34.2)	0.005*	1.60	(1.02- 2.50)
Risk of cognitive impairment (MoCA < 26 points) (<i>n</i> = 460)^a							0.088	-	
Yes	133	(28.9)	40	(35.7)	93	(26.7)			
No	327	(71.1)	72	(64.3)	255	(73.3)			

Factors	Univariate							Multivariate	
	Total	(%)	With non-	(%)	With	(%)	<i>p</i>	Adjusted	(95%
	<i>n</i> =	(100)	adherence	(24.2)	adherence	(75.8)	Value	OR ^b	CI)
	466		<i>n</i> = 113		<i>n</i> = 353				
Sleeping problem (<i>n</i> = 465) ^a							0.050	-	
Yes	115	(24.7)	36	(32.1)	79	(22.4)			
No	350	(75.3)	76	(67.9)	274	(77.6)			
Frequency of health products intake							0.010 [*]	-	
≤ 3 times per day	416	(89.3)	93	(82.3)	323	(91.5)			
> 3 times per day	50	(10.7)	20	(17.7)	30	(8.5)			
Polypharmacy (≥ 5 products)									
Yes	257	(55.2)	80	(70.8)	177	(50.1)	< 0.001 [*]	1.89	(1.16-3.10)
No	209	(44.8)	33	(29.2)	176	(49.9)			
PIMs used							0.089	-	
Yes	122	(26.2)	37	(32.7)	85	(24.1)			
No	344	(73.8)	76	(67.3)	268	(75.9)			
Healthcare facilities for									

Factors	Univariate							Multivariate	
	Total	(%)	With non-	(%)	With	(%)	<i>p</i>	Adjusted	(95%
	<i>n</i> =	(100)	adherence	(24.2)	adherence	(75.8)	Value	OR ^b	CI)
	466		<i>n</i> = 113		<i>n</i> = 353				
receiving									
prescription									
drugs									
0-1 facility	359	(77.0)	69	(61.1)	290	(82.2)			
≥ 2 facilities	107	(23.0)	44	(38.9)	63	(17.8)	<	2.18	(1.33-
							0.001*		3.60)
Comorbidities							0.001*	-	
0-2 conditions	202	(43.3)	33	(29.2)	169	(47.9)			
≥ 3 conditions	264	(56.7)	80	(70.8)	184	(52.1)			

CI confidence interval, *OR* odds ratio, *PIMs* potentially inappropriate medications

**p* Value of less than 0.05 was considered statistical significance

^aMissing data

^bAdjusted factors: age, risk of cognitive impairment, sleeping problem, frequency of health products intake, potentially inappropriate medications used, and comorbidities

Table 3 Univariate and multivariate analysis for factors associated with adverse drug reactions in the 466 older people at the Geriatric Excellence Center, KCMH, Bangkok (May to October, 2019)

Factors	Univariate							Multivariate	
	Total	(%)	With	(%)	No	(%)	<i>p</i>	Adjusted	(95%
	<i>n</i> =	(100)	ADR	(17.4)	ADR	(82.6)	Value	OR ^b	CI)
	466		<i>n</i> = 81		<i>n</i> = 385				
Risk of falling (<i>n</i> = 464)^a									
Yes	53	(11.4)	17	(21.3)	36	(9.4)	0.004*	2.05	(1.01-4.16)
No	411	(88.6)	63	(78.8)	348	(90.6)			
Urinary incontinence							0.094	-	
Yes	172	(36.9)	37	(45.7)	135	(35.1)			
No	294	(63.1)	44	(54.3)	250	(64.9)			
Sleeping problem (<i>n</i> = 465)^a									
Yes	115	(24.7)	32	(39.5)	83	(21.6)	0.001*	2.05	(1.17-3.60)
No	350	(75.3)	49	(60.5)	301	(78.4)			
Medication management							0.077	-	

Factors	Univariate						Multivariate		
	Total	(%)	With	(%)	No	(%)	<i>p</i>	Adjusted	(95%
	<i>n</i> =	(100)	ADR	(17.4)	ADR	(82.6)	Value	OR ^b	CI)
	466		<i>n</i> = 81		<i>n</i> = 385				
Caregiver	10	(2.1)	4	(4.9)	6	(1.6)			
Self-management	456	(97.9)	77	(95.1)	379	(98.4)			
History of adverse drug reactions							0.020*	-	
Yes	158	(33.9)	37	(45.7)	121	(31.4)			
No	308	(66.1)	44	(54.3)	264	(68.6)			
Frequency of health products intake									
≤ 3 times per day	416	(89.3)	58	(71.6)	358	(93.0)			
> 3 times per day	50	(10.7)	23	(28.4)	27	(7.0)	< 0.001*	2.56	(1.32-4.95)
Polypharmacy (≥ 5 products)									
Yes	257	(55.2)	74	(91.4)	183	(47.5)	< 0.001*	10.67	(4.46-25.55)
No	209	(44.8)	7	(8.6)	202	(52.5)			
Healthcare facilities for receiving prescription drugs							< 0.001*	-	
0-1 facility	359	(77.0)	49	(60.5)	310	(80.5)			
≥ 2 facilities	107	(23.0)	32	(39.5)	75	(19.5)			

Factors	Univariate							Multivariate	
	Total	(%)	With	(%)	No	(%)	<i>p</i>	Adjusted	(95%
	<i>n</i> =	(100)	ADR	(17.4)	ADR	(82.6)	Value	OR ^b	CI)
	466		<i>n</i> = 81		<i>n</i> =				
					385				
Comorbidities							<	-	
							0.001*		
0-2 conditions	202	(43.3)	14	(17.3)	188	(48.8)			
≥ 3 conditions	264	(56.7)	67	(82.7)	197	(51.2)			

ADR adverse drug reaction, *CI* confidence interval, *OR* odds ratio

**p* Value of less than 0.05 was considered statistical significance

^aMissing data

^bAdjusted factors: urinary incontinence, medication management, history of adverse drug reactions, healthcare facilities for receiving prescription drugs, and comorbidities

Table 4 The top ten prescription drugs used by the 466 older people at the Geriatric Excellence Center, KCMH, Bangkok (May to October, 2019)

Rank order	Prescription drugs	Total	(%)
		<i>n</i> = 1,793	(100)
1	Artificial tear	122	(6.8)
2	Simvastatin	120	(6.7)
3	Calcium	100	(5.6)
4	Vitamin D	95	(5.3)
5	Amlodipine	79	(4.4)
6	Aspirin	57	(3.2)
7	Metformin	56	(3.1)
8	Losartan	55	(3.1)
9	Atorvastatin	51	(2.8)
10	Vitamin B 1, B 6, and B 12	48	(2.7)

Table 5 The top ten dietary supplements used by the 466 older people at the Geriatric Excellence Center, KCMH, Bangkok (May to October, 2019)

Rank order	Dietary supplements	Total <i>n</i> = 758	(%) (100)
1	Vitamin C	82	(10.8)
2	Fish oil	58	(7.7)
3	Multivitamins and minerals	49	(6.5)
4	Vitamin B 1, B 6, and B12	46	(6.1)
5	Calcium with vitamin D	43	(5.7)
6	Glucosamine	35	(4.6)
7	Vitamin B-complex with other combinations	32	(4.2)
8	Collagen	30	(4.0)
9	Calcium	27	(3.6)
10	Turmeric	20	(2.6)