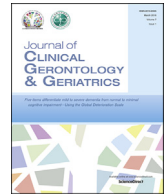




Contents lists available at ScienceDirect

Journal of Clinical Gerontology & Geriatrics

journal homepage: www.e-jcgg.com



Original article

Comparisons of annual health care utilization, drug consumption, and medical expenditure between the elderly and general population in Taiwan



Wan-Hsuan Lu, MS^a, Wei-Ju Lee, MD, MS^{b, c, d}, Liang-Kung Chen, MD, PhD^{c, d, e, *},
Fei-Yuan Hsiao, PhD^{a, f, g, *}

^a Graduate Institute of Clinical Pharmacy, College of Medicine, National Taiwan University, Taipei, Taiwan

^b Department of Family Medicine, Taipei Veterans General Hospital Yuanshan Branch, Yiland, Taiwan

^c Institute of Public Health, School of Medicine, National Yang-Ming University, Taipei, Taiwan

^d Aging and Health Research Center, National Yang-Ming University, Taipei, Taiwan

^e Center for Geriatrics and Gerontology, Taipei Veterans General Hospital, Taipei, Taiwan

^f School of Pharmacy, College of Medicine, National Taiwan University, Taipei, Taiwan

^g Department of Pharmacy, National Taiwan University Hospital, Taipei, Taiwan

ARTICLE INFO

Article history:

Received 21 August 2015

Accepted 23 August 2015

Available online 9 October 2015

Keywords:

elderly

health care utilization

medical expenditure

National Health Insurance Research

Database

polypharmacy

ABSTRACT

Background/Purpose: The aim of this study was to present an overview of health care utilization (outpatient, inpatient, and emergency visits), total medical expenditure, and drug consumption between the elderly and general population under Taiwan's National Health Insurance program.

Methods: We conducted a cross-sectional analysis using the 2010 Taiwan's Longitudinal Health Insurance Database. Our analysis included 999,418 beneficiaries with eligible records under the National Health Insurance system. Among them, 10.43% ($n = 104,273$) were elderly (65 years and older). Health care utilization [including outpatient, emergency department (ED), and inpatient visits], medical expenditure, as well as drug consumption for the entire study cohort ("the general population") and the elderly were estimated using patient-level data from the Longitudinal Health Insurance Database. Specifically, "polypharmacy" and "excessive polypharmacy" defined as the concomitant use of five or more drugs and 10 or more drugs, respectively, were used to quantify drug consumption.

Results: The annual use of outpatient visits [mean (standard deviation): elderly 26.7 (21.5) vs. 12.2 (14.5)] per elderly individual doubled that of the general population. Approximately one-in-five of the elderly were admitted to hospital (20.9%) and went to ED (22.6%) at least once annually. Only 7.7% and 14.0% of the general public were admitted to hospital and went to ER at least once annually. The elderly had higher drug consumption and were more likely to be users of polypharmacy than the general population (elderly 15.5% vs. 3.7%). The annual medical expenditure per elderly individual tripled that of the general population (elderly 1846 US\$ vs. 554 US\$).

Conclusion: Elderly people had higher medical utilization than the general population, which may contribute to a fragmented health care system. Strategies to integrate health care for older people would be considered a first priority task of policymakers and health professionals.

Copyright © 2015, Asia Pacific League of Clinical Gerontology & Geriatrics. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

* Corresponding authors. Fei-Yuan Hsiao, Graduate Institute of Clinical Pharmacy, College of Medicine, National Taiwan University, Room 220, 33 Linsen South Road, Taipei 10050, Taiwan; Liang-Kung Chen, Center for Geriatrics and Gerontology, Taipei Veterans General Hospital, Number 201, Section 2, Shih-Pai Road, Taipei 11217, Taiwan.

E-mail addresses: lkchen2@vghtpe.gov.tw (L.-K. Chen), fyshsiao@ntu.edu.tw (F.-Y. Hsiao).

<http://dx.doi.org/10.1016/j.jcgg.2015.08.002>

2210-8335/Copyright © 2015, Asia Pacific League of Clinical Gerontology & Geriatrics. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

The population is aging rapidly in Taiwan. Up until the end of 2010, 11% of Taiwan's population was aged ≥ 65 years.¹ Estimates are that the ratio will rise to 14% (the threshold for an "aged" society) by 2017, and to 20% (the threshold for a "super-aged" society) by 2025. In 2060, older people could account for 42% of the entire

population.^{1,2} The increase of older people raises the concern about a growing strain on health care systems.^{3,4} Multicomorbidities⁵ and associated drug consumption⁶ in the elderly are believed to be the main cost drivers. Data from the Taiwan's National Health Insurance Administration reported that people aged ≥ 65 years accounted for 21% of outpatient visits and 39% of total medical expenditure.⁷ High burden in ambulatory and emergency services among the elderly were also reported by previous studies,^{8,9} especially among those with intellectual disabilities and catastrophic illness.^{7,10}

However, the majority of studies focused on specific health-related resources or patients with definite diseases,^{7,11} but not community-dwelling people. In addition, studies on the incremental increase of health care utilization including frequency of visits in several health-related services, drug consumption, and medical expenditure among older people versus the general population are scarce. The aim of this study was to present an overview of the health care utilization among the elderly and general population within Taiwan's National Health Insurance program in 2010. Our findings could provide empirical evidence for the limitations of literature and health policymaking.

2. Methods

Data of this population-based cross-sectional study was obtained from Taiwan's National Health Insurance Research Database (NHIRD).² The NHIRD is a claims-based database which contains enrollment information as well as claims data of medical service, prescriptions, and service costs of all beneficiaries. We used a subset of the NHIRD, the Longitudinal Health Insurance Database, which contains data of 1 million beneficiaries randomly sampled from the NHIRD in 2010. Details of the database have been described on the NHIRD web site and in previous studies.^{12,13}

All beneficiaries with available records in the year 2010 in the Longitudinal Health Insurance Database were selected as our study population and defined as the general population. Those who were

aged ≥ 65 years on January 1, 2010 were further identified as the elderly.

Annual health care utilization included outpatient, inpatient, and emergency department (ED) visits among the general population and the elderly population were derived from the dataset. We did not include visits regarding Traditional Chinese medicine and dentistry. We further examined the type of specialty visited in outpatient settings as well as primary admission diagnoses (International Classification of Disease, Ninth Revision, Clinical Modification code).¹⁴ The annual total medical expenditure in US\$ was calculated for each study participant.

Information about drug consumption was retrieved from outpatient visit data. The collected data included the prescribing date, number of supply days, and daily dosage. We included only those drugs with more than a 28-day supply to measure the number of drugs used. "Polypharmacy" and "excessive polypharmacy" defined as the concomitant use of five or more drugs and 10 or more drugs, respectively, were used to further quantify drug consumption. Preplanned subgroup analyses were done to further present drug consumption among individuals who had at least one outpatient visit in 2010 ("outpatient visitors") and individuals who received at least one 28-day-supply medication in 2010 ("patients with chronic diseases").

Descriptive statistics including mean and standard deviation (SD; or 95% confidence interval) were used to present the health care utilization and drug consumption per capita. Differences between groups were examined using Kruskal-Wallis or Wilcoxon rank-sum tests for continuous variables and by Chi-square test for categorical variables. All analyses were performed with SAS, version 9.3 (SAS Institute, Cary, NC, USA).

3. Results

We included 999,418 individuals in our study cohort. Among them, 10.43% ($n = 104,273$) were the elderly. Table 1 presents the health care utilization among the two groups. The annual use of

Table 1
Annual health care utilization among the general and the elderly population.

	General population ($n = 999,418$)	Elderly ($n = 104,273$)	p^a
Outpatient visits	12.2 (± 14.5)	26.7 (± 21.5)	<0.01
Specialty	1. Internal medicine (22.95) 2. Family medicine (19.99) 3. Otolaryngology (11.31) 4. Pediatrics (10.25) 5. Ophthalmology (6.55)	1. Internal medicine (34.04) 2. Family medicine (23.14) 3. Ophthalmology (8.08) 4. Orthopedics (5.67) 5. Neurology (4.70)	
Hospital admission	0.13 (± 0.61)	0.39 (± 1.08)	<0.01
1+ admissions	76926 (7.70)	21830 (20.94)	<0.01
3+ admissions	9444 (0.94)	4252 (4.08)	<0.01
5+ admissions	3352 (0.34)	1441 (1.38)	<0.01
Primary diagnosis	1. Antineoplastic chemotherapy (6.03) 2. Pneumonia, organism unspecified (3.68) 3. Urinary tract infection, site not specified (2.34) 4. Normal delivery (2.31) 5. Bronchopneumonia, organism unspecified (1.58)	1. Pneumonia, organism unspecified (6.48) 2. Antineoplastic chemotherapy (4.66) 3. Urinary tract infection, site not specified (4.46) 4. Unspecified cerebral artery occlusion with cerebral infarction (2.77) 5. Coronary atherosclerosis of native coronary artery (2.38)	
ED visits	0.22 (± 0.90)	0.43 (± 1.30)	<0.01
1+ visits	140326 (14.04)	23588 (22.62)	<0.01
3+ visits	15027 (1.50)	4464 (4.28)	<0.01
5+ visits	3854 (0.39)	1417 (1.36)	<0.01
Total medical expenditure per person (US\$)	554.4 (549.6–559.2)	1846.0 (1821.6–1870.3)	<0.01
Outpatient	354.3 (350.8–357.8)	1055.8 (1040.9–1070.6)	<0.01
Hospital admission	182.1 (179.5–184.7)	732.4 (716.1–748.7)	<0.01
ED	17.9 (17.7–18.2)	57.8 (56.6–59.1)	<0.01

Data are presented as %, n (%), mean (\pm SD), or mean (95% CI)

CI = confidence interval; ED = emergency department; SD = standard deviation.

^a Wilcoxon rank-sum test or Chi-square test for comparison between the elderly and general population.

Download English Version:

<https://daneshyari.com/en/article/3325647>

Download Persian Version:

<https://daneshyari.com/article/3325647>

[Daneshyari.com](https://daneshyari.com)