

Frequent emergency-department use by older adults with ambulatory care sensitive conditions: a population-based cohort study

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CONTEXT

A large proportion of older adults (65 years old or older) with **ambulatory care sensitive conditions (ACSCs)** are considered **frequent users** of emergency department (ED).¹

- **ACSCs:** Chronic conditions; Optimal care provided in primary care.²
- **Frequent users:** Small group of individuals; Disproportion ED visits;³ ≥ 4 visits/year.⁴

Frequent ED use for ACSCs implies a **high risk** of adverse effects:

- Health and quality of medical follow-up.³

The adequate identification of this population would allow health professionals to refer them more efficiently to services where their needs can be best managed and assisted:

- Primary care and case management.

OBJECTIVES

To identify factors associated with frequent ED use among older adults with ACSCs

METHODS

Design: Retrospective cohort study.

Data Source: Databases from the Régie de l'assurance maladie du Québec (RAMQ).

Study population:

- Community-dwelling individuals;
- Age 65 years or older;
- Residing in the Province of Quebec (Canada);
- Who consulted in an ED at least once between January 1, 2012 and December 31, 2013 (index period);
- Diagnosed with at least one ACSC in the 2 years preceding and including the index date.

Statistical analysis:

- 1) **Individuals characteristics:** The differences between subgroups were tested using the chi square test for categorical variables and the Kruskal-Wallis test for continuous variables.
- 2) **Multiple logistic regression:** The final model used a backward selection method and reported odd ratios (ORs) with the associated 99% confidence intervals.

RESULTS

Table 1. Characteristics of the study cohort

Variables, n (%) or mean ± SD	Total Population	Infrequent ED Users	Frequent ED Users
Total	264,473 (100)	247,141 (100)	17,332 (100)
Age	76.5 ± 7.7	76.5 ± 7.7	77.7 ± 7.8 *
Female	147,061 (55.6)	137,399 (55.6)	9,662 (55.8)
ACSC Coronary heart disease (CHD)	25,404 (9.6)	21,826 (8.8)	3,578 (20.6) *
ACSC Congestive heart failure (CHF)	87,947 (33.3)	79,814 (32.3)	8,133 (49.9) *
ACSC Chronic obstructive pulmonary disease (COPD)	45,124 (17.1)	39,220 (15.9)	5,904 (34.1) *
ACSC Asthma	15,300 (5.8)	13,698 (5.5)	1,602 (9.2) *
ACSC Diabetes	90,469 (34.2)	83,403 (33.8)	7,066 (40.8) *
ACSC High blood pressure (HBP)	169,141 (64.0)	157,009 (63.5)	12,132 (70.0) *
ACSC Epilepsy	3,827 (1.5)	3,382 (1.4)	445 (2.6) *
Comorbidity index (CI)			
0-2	92,259 (34.9)	89,476 (36.2)	2,783 (16.1) *
1-2	72,875 (27.6)	69,069 (28.0)	3,806 (22.0)
3-4	40,904 (15.5)	37,565 (15.2)	3,339 (19.3)
≥ 5	58,435 (22.1)	51,031 (20.7)	7,404 (42.7)
Common mental disorder	42,170 (15.9)	37,554 (15.2)	4,616 (26.6) *
Severe mental disorder	15,114 (5.7)	13,208 (5.3)	1,906 (11.0) *
Dementia	21,792 (8.2)	19,481 (7.9)	2,311 (13.3) *
Chronic pain	63,231 (23.9)	57,582 (23.3)	5,649 (32.6) *
Cancer	83,941 (31.7)	77,425 (31.3)	6,516 (37.6) *
Alcohol abuse	5,199 (2.0)	4,452 (1.8)	747 (4.3) *
Medication			
0-4	78,401 (29.6)	75,479 (30.5)	2,922 (16.9) *
5-9	112,106 (42.4)	106,173 (43.0)	5,933 (34.2)
≥ 10	73,966 (28.0)	65,489 (26.5)	8,477 (48.9)
Benzodiazepine	65,362 (24.7)	59,260 (24.0)	6,102 (35.2) *
Antipsychotic	15,758 (6.0)	13,991 (5.7)	1,767 (10.2) *
Opioid	18,336 (6.9)	16,268 (6.2)	2,068 (11.3) *
Past ED visits			
0	84,638 (32.0)	83,103 (33.6)	1,535 (8.9) *
1-2	107,385 (40.6)	102,999 (41.7)	4,386 (25.3)
3-4	41,787 (15.8)	37,962 (15.4)	3,825 (22.1)
5-9	25,745 (9.7)	20,536 (8.3)	5,209 (30.1)
≥ 10	4,918 (1.7)	2,541 (1.0)	2,377 (13.7)
Hospitalization length of stay			
None	132,859 (51.0)	127,829 (52.5)	5,030 (29.9) *
1-2	52,088 (20.0)	49,049 (20.1)	3,039 (18.1)
≥ 3	75,555 (29.0)	66,788 (27.4)	8,767 (52.1)
Past visits to general practitioner			
0-6	113,389 (42.9)	107,177 (43.4)	6,212 (35.8) *
≥ 7	151,084 (57.1)	139,964 (56.6)	11,120 (64.2) *
Past visits to specialists			
0-6	145,069 (54.9)	138,658 (56.1)	6,411 (36.9) *
≥ 7	119,404 (45.2)	108,483 (43.9)	10,921 (63) *
Residential area			
Metropolitan area	165,960 (63.0)	156,043 (63.3)	9,917 (57.5) *
Small town	38,011 (14.4)	35,482 (14.4)	2,529 (14.7)
Rural	59,686 (22.6)	54,879 (22.3)	4,807 (27.9)
Material deprivation			
Q1 - Q2	86,090 (32.5)	81,270 (32.8)	4,790 (27.9) *
Q3	48,880 (18.5)	45,787 (18.5)	3,093 (17.9)
Q4 - Q5	116,037 (43.9)	107,627 (43.6)	8,410 (48.5)
Social deprivation			
Q1-Q2	83,225 (31.5)	78,190 (31.7)	5,035 (29.1) *
Q3	50,122 (19.0)	46,942 (19.0)	3,180 (18.4)
Q4-Q5	117,660 (44.5)	109,552 (44.3)	8,108 (46.8)

* p-value < 0.001

Figure 1. Percentages relative to total ED use by geriatric frequent and infrequent users, during the year following the index date

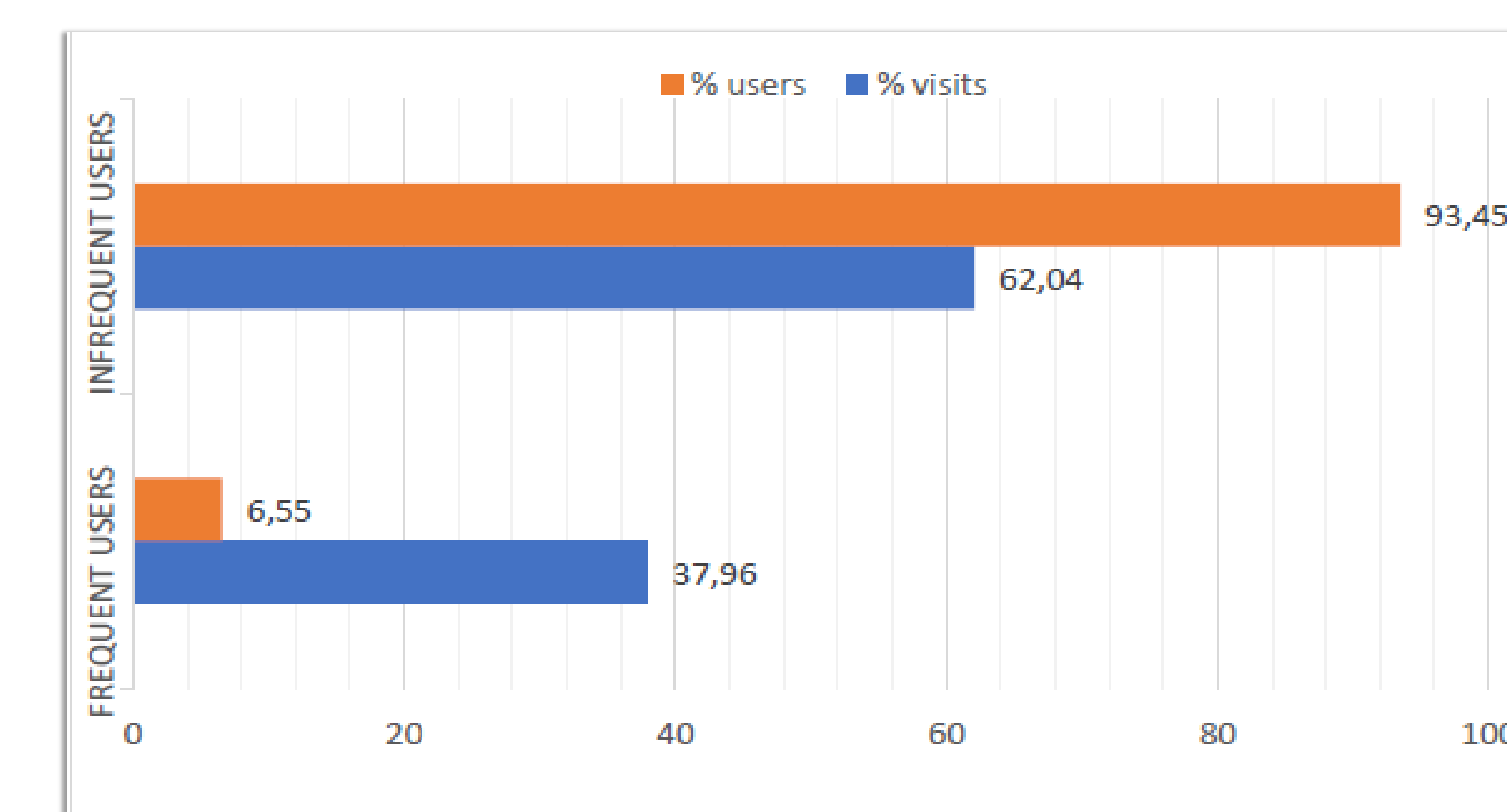
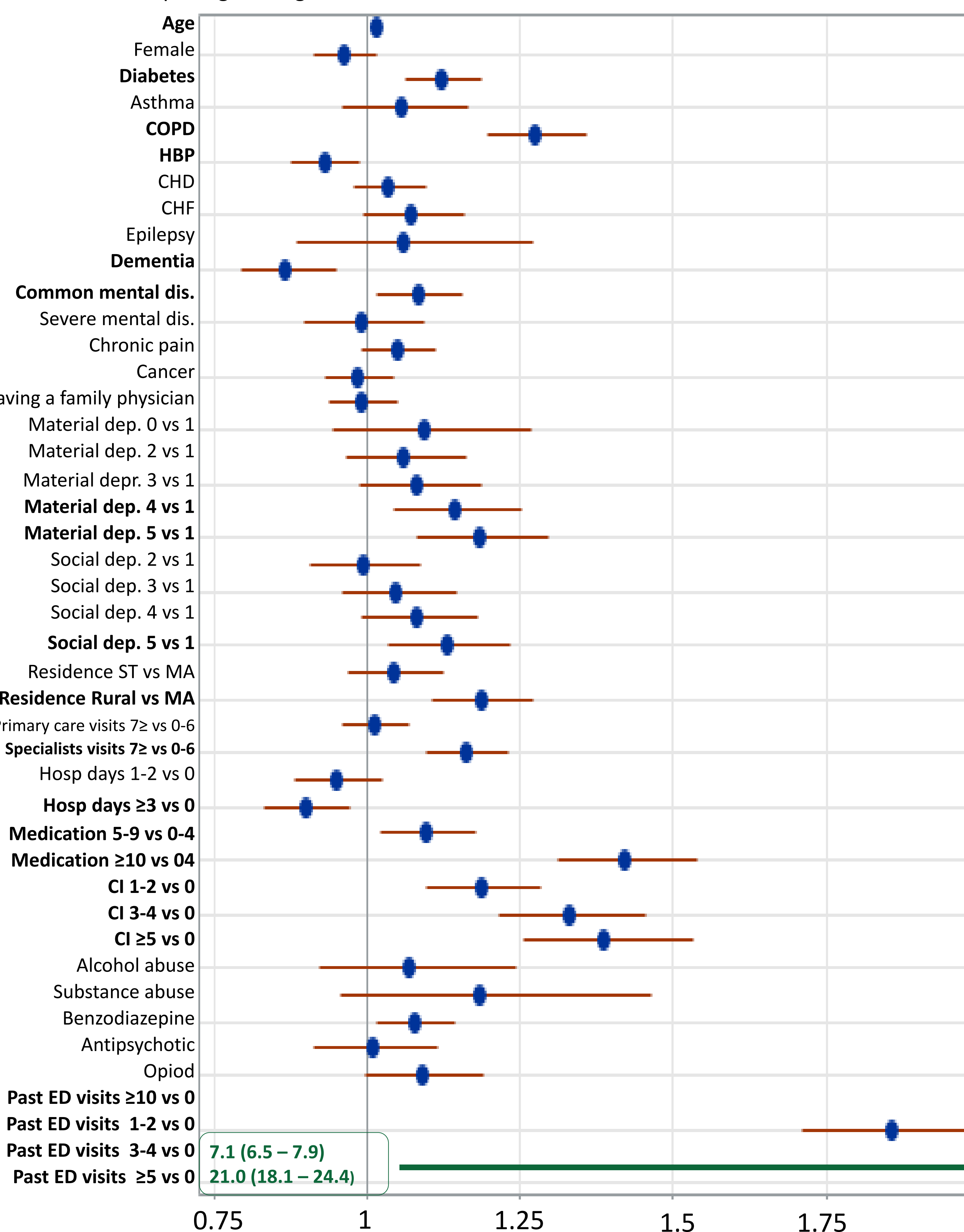


Table 2. Multiple logistic regression results



DISCUSSION

Variables positively associated with frequent geriatric ED use:

- Presence of COPD or diabetes
- Higher comorbidity index
- Common mental-health disorders
- Polypharmacy
- Higher number of past ED and specialist visits
- Rural residence
- Higher material and social deprivation.

Variable negatively associated with frequent geriatric ED use:

- Dementia
 - The effective management of needs related to dementia might decrease ED use.⁵

In comparison with the adult population, frequent geriatric users of ED are:⁶

- More prone to **urgent and semi-urgent ED visits**, requiring specialized care and to present adverse effects related to their ED visits
- Less prone to avoidable ED visits and unmet care needs in primary-care services.

• A large proportion of ED visits by older adults could be attributed to **acute problems** that could not have been prevented through follow-up in primary health-care services.⁷⁻⁸

- Medico-administrative databases do not provide access to self-perceived variables:
 - Do not give a comprehensive picture of the population characteristics
 - **Pairing data** from multiple sources could support accurate measurement of clinical performance and patient health results as well as help design interventions based on relevant variables.⁹

CONCLUSION

Frequent geriatric ED users constitute a complex population whose characteristics need to be managed thoroughly in order to enhance the quality and efficiency of their care.

Further studies should address their description in administrative databases so as to combine self-perceived and professionally evaluated variables.

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