

Prevalence of multimorbidity in elderly attending to public health care services in Mexico.

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Background:

- Mexican Institute of Social Security (IMSS), is a nationwide institution that provide social security and healthcare benefits to approximately 47% of the 112 million Mexican people.
- The IMSS has a nationwide network of 1,516 family medicine units (FMU) that provide primary care; 240 hospitals and 10 highly specialized hospitals.
- And, IMSS supplies primary health care to 34.5% the older adults.
- In 2003, IMSS introduced its electronic health record (EHR).



The objective of this study was to estimate the prevalence and patterns of multimorbidity in a sample of older adults (≥ 60 years) that attending in four Family Medicine Units located in Mexico City.

Materials and Methods:

- We used data from four family medicine units.
- Each unit had between 15 and 30 physician offices (2 physicians per office, morning and afternoon shifts), a laboratory and pharmacy.
- The units were selected for convenience.
- The electronic health record consists of several linked databases which include information on appointments; medical history; physical examination; aspects of care and progress for patients with specific conditions (diabetes, hypertension, etc.)
- In the study we included the diagnosis of chronic diseases of patients who attended at least once to receive medical care during the year 2009.
- Diagnosis were coded by ICD-10.

Table 1. Chronic diseases in older adults.

Variable	n (%)
Electronic health records	47,345
Number of chronic diseases	
0	4,075 (8.7)
1	12,550 (26.5)
2	13,835 (29.2)
3	10,763 (22.7)
4	6,122 (12.9)
Female sex	29,078 (61.4)
Age in years, mean (standard deviation)	71.3 (8.1)
Age groups	
60-74 years	31,651 (66.8)
75 years	15,694 (33.2)

Table 2. Frequency of the 17 problems selected for further analysis of combinations

Problem (CIE 10)	Frequency (%)
Hypertension (I10-I15)	30,364 (64.1)
Musculoskeletal and connective tissue (M05, M06.8, M06.9, M13, M13.0-M13.9, M15-M19, M20, M54, M54.0-M54.9, M79, M79.0-M79.9, M80, M81)	20,705 (43.7)
Diabetes Mellitus (E10-E14)	14,373 (30.4)
Dyslipidemia (E78.0-E78.5)	11,118 (23.5)
Vascular (I83, I87.2, I70)	7,393 (15.6)
Respiratory (J40-J42)	5,251 (11.1)
Upper gastrointestinal (K21, K25-K28, K29.7)	4,824 (10.2)
Cardiac (I20, I20.0-I20.9, I25, I49.8, I49.9, I50.0)	4,082 (8.6)
Obesity (E66.0, E66.8, E66.9)	3,862 (8.2)
Neurotic disorders (F40-F48)	3,586 (7.6)
Prostatic hyperplasia (N40, N41.1, N41.8; N41.9)	2,938 (6.2)
Neurological disorders (G20, G25.9, G30.0-G30.9, G43, G44, G45, G57, G61-G63)	2,782 (5.9)
Malignant neoplasm (C00-D48)	2,318 (4.9)
Glaucoma (H40-H42)	2,325 (4.9)
Lower gastrointestinal (K59.0, K59.1)	1,756 (3.7)
Chronic renal failure (N18, N18.0-N18.9, N19)	1,409 (3.0)
Depression (F32, F32.0, F32.1, F33, F33.0-F33.4)	277 (0.6)

Figure 1. Percentage of cases with 2, 3 or 4 chronic diseases

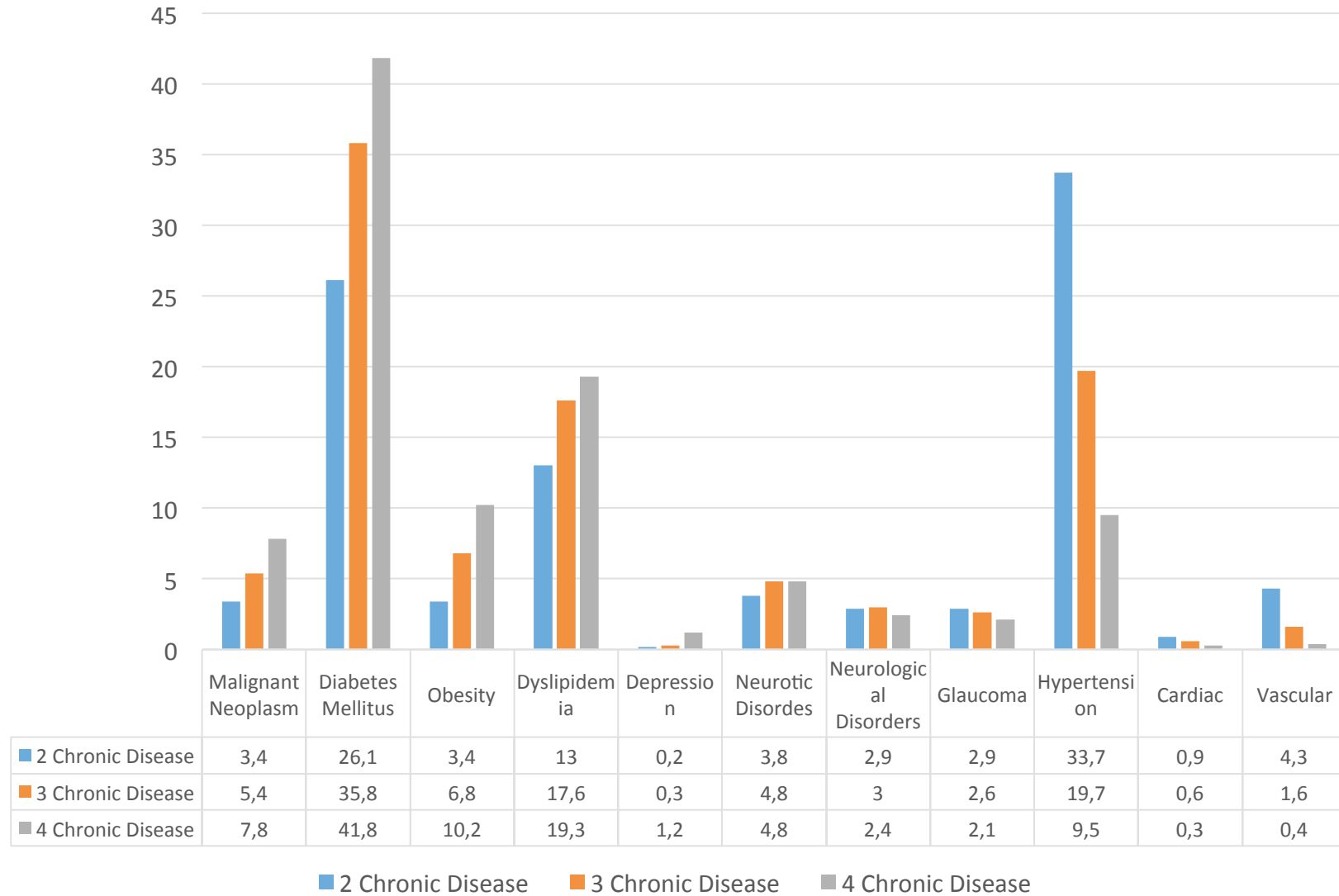


Table 5. Disease combination with hypertension (frequency over 5 %)

Two Chronic Diseases (n=4673)	n	%
Hypertension + Musculoskeletal and connective tissue	2557	54.7
Hypertension + Vascular	510	10.9
Hypertension + Respiratory	502	10.7
Hypertension + Cardiac	443	9.4
Hypertension + Upper gastrointestinal	250	5.3
Hypertension + Prostatic hyperplasia	239	5.1
Three Chronic Diseases (n=2126)	n	%
Hypertension + Vascular + Musculoskeletal and connective tissue	538	25.3
Hypertension + Upper gastrointestinal + Musculoskeletal and connective tissue	316	14.8
Hypertension + Respiratory + Musculoskeletal and connective tissue	284	13.3
Hypertension + Cardiac + Musculoskeletal and connective tissue	216	10.1
Hypertension + Cardiac + Respiratory	114	5.3

Table 5. Disease combination with hypertension (frequency over 5 %)

Four Chronic Diseases (n=582)	n	%
Hypertension + Vascular + Upper gastrointestinal + Musculoskeletal and connective tissue	79	13.5
Hypertension + Vascular + Respiratory + Musculoskeletal and connective tissue	70	12
Hypertension + Respiratory + Upper gastrointestinal + Musculoskeletal and connective tissue	56	9.6
Hypertension + Cardiac + Respiratory + Musculoskeletal and connective tissue	47	8.0
Hypertension + Cardiac + Vascular + Musculoskeletal and connective tissue	42	7.2

Table 4. Disease combination with diabetes mellitus (frequency over 5 %)

Two Chronic Diseases (n=3611)	n	%
Diabetes Mellitus + Hypertension	2224	61.5
Diabetes Mellitus + Musculoskeletal and connective tissue	447	12.3
Diabetes Mellitus + Dyslipidemia	335	9.2
Three Chronic Diseases (n=3862)	n	%
Diabetes Mellitus + Hypertension + Musculoskeletal and connective tissue	894	23.1
Diabetes Mellitus + Dyslipidemia + Hypertension	720	18.6
Diabetes Mellitus + Hypertension + Vascular	262	6.7
Four Chronic Diseases (n=2559)	n	%
Diabetes Mellitus + Dyslipidemia + Hypertension + Musculoskeletal and connective tissue	361	14.1
Diabetes Mellitus + Hypertension + Vascular + Musculoskeletal and connective tissue	163	6.3

Table 3. Disease combination with malignant neoplasm (frequency over 5 %)

Two Chronic Diseases (n=481)	n	%
Malignant neoplasm + Hypertension	181	37.6
Malignant neoplasm + Musculoskeletal and connective tissue	99	20.5
Malignant neoplasm + Diabetes Mellitus	56	11.6
Malignant neoplasm + Prostatic hyperplasia	45	9.3
Three Chronic Diseases (n=586)	n	%
Malignant neoplasm + Hypertension + Musculoskeletal and connective tissue	104	17.7
Malignant neoplasm + Diabetes Mellitus + Hypertension	59	10.0
Malignant neoplasm + Hypertension + Prostatic hyperplasia	31	5.2
Four Chronic Diseases (n=483)	n	%
Malignant neoplasm + Diabetes Mellitus + Hypertension + Musculoskeletal and connective tissue	29	6.0
Malignant neoplasm + Dyslipidemia + Hypertension + Musculoskeletal and connective tissue	29	6.0
Malignant neoplasm + Diabetes Mellitus + Dyslipidemia + Hypertension	27	5.5

Table 6. Disease combination with neurological disorders (frequency over 5 %)

Two Chronic Disease (n=410)	n	%
Neurological disorders + Hypertension	189	46
Neurological disorders + Musculoskeletal and connective tissue	145	35.3
Neurological disorders + Vascular	23	5.8
Three Chronic Disease (n=331)	n	%
Neurological disorders + Hypertension + Musculoskeletal and connective tissue	123	37.1
Neurological disorders + Vascular + Musculoskeletal and connective tissue	26	7.8
Neurological disorders + Hypertension + Cardiac	24	7.2
Neurological disorders + Hypertension + Upper gastrointestinal	23	6.9
Neurological disorders + Upper gastrointestinal + Musculoskeletal and connective tissue	23	6.9
Neurological disorders + Hypertension + Vascular	20	6.0

Table 6. Disease combination with neurological disorders (frequency over 5 %)

Four Chronic Disease (n=151)	n	%
Neurological disorders + Hypertension + Vascular + Musculoskeletal and connective tissue	31	20.5
Neurological disorders + Hypertension + Upper gastrointestinal + Musculoskeletal and connective tissue	16	10.5
Neurological disorders + Glaucoma + Hypertension + Musculoskeletal and connective tissue	11	7.2
Neurological disorders + Vascular + Hypertension + Musculoskeletal and connective tissue	9	5.9
Neurological disorders + Hypertension + Respiratory + Musculoskeletal and connective tissue	8	5.2

Conclusions:

1. The proportion of patients suffering multimorbidity was higher (64.8%); similar to other reports (Australia 83% and Spain 95.1%).
2. The most frequent chronic diseases were hypertension, musculoskeletal and connective tissue and diabetes mellitus type 2.
3. Hypertension was more frequent in patients with two chronic diseases, and diabetes in patients with three or four chronic diseases.
4. Knowledge of the common combinations of multimorbidity may help to planning the health services and developing guidelines for people with specific combinations.