



Original Article

Chronic conditions, disability, and quality of life in older adults with multimorbidity in Spain



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ARTICLE INFO

Available online 24 February 2015

Keywords:

Aged
Morbidity
Disability evaluation
Quality of life
Cohort studies

ABSTRACT

Background: As the population ages, the prevalence of multimorbidity also increases, with consequences to several health outcomes such as disability and quality of life (QoL). This study aimed at analyzing the relationships between chronic conditions, disability, and QoL of older adults with multimorbidity in Spain.

Method: Data on older adults aged 65 years or more, with at least two chronic health conditions were drawn from three cohort studies. Sample size was 705, 443, and 4995, respectively. For each cohort, the impact of the following chronic health conditions was analyzed: asthma, cancer, cardiac, diabetes, hypertension, mental health disorders, osteoarticular conditions, and stroke. Disability and QoL measures varied according to the survey.

Results: In older adults with multimorbidity, the most prevalent conditions were osteoarticular (59.08–67.80%) and hypertension (50.64–60.03%). The presence of disability was significantly associated to having osteoarticular (OR range: 1.53 to 2.646), diabetes (OR: 1.86 to 1.71), or mental health disorders (OR: 2.19 to 3.36) in most cohorts. Disability (OR: 1.67 to 7.67), osteoarticular conditions (OR: 3.37 to 5.10), and mental health disorders (OR: 1.83 to 4.27) showed the highest effects on lower QoL than the population.

Conclusion: The presence of disability and diverse chronic conditions has a negative effect on QoL of older adults affected by multimorbidity in Spain. Public health and primary care interventions focusing on the integrated care of older adults with multimorbidity might give special attention to mental health and osteoarticular conditions.

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1. Introduction

European population is rapidly aging due to the rise in life expectancy and the decline in birth rates. Studies evidence that multimorbidity, the co-existence of several of these diseases in the same individual [1] is increasing, being present in up to 70% of people aged 65 or more. It represents a challenge for the health system, not only due to the cumulative effect of concurrent diseases but also due to the physical, cognitive, and psychosocial consequences [2].

Multimorbidity is strongly and consistently associated to adverse health outcomes, such as disability and dependence, mortality, increased use of health and social services and polypharmacy, and diminished quality of life (QoL) [2–4]. Most studies have found a relationship between the presence of chronic diseases and impaired QoL in older people [3,5], although this was not specifically studied in the population

with multimorbidity. The effect of the increasing number of chronic conditions and patterns of diseases on QoL has been also shown [5,6]. However, less is known about the variables that mediate this relationship. Socio-demographic, emotional, and economic aspects, such as age, sex, depression, social support, and socio-economic status, as well as some characteristics of the care process, have been suggested as intermediate factors between chronic conditions and QoL [7–9].

The International Classification of Functioning, Disability and Health (ICF) [10] model can provide the framework for the connection between multimorbidity and QoL. In the ICF system, disability is conceptualized as a deficit in any of three domains (body functions and structure, activity, and participation) and the negative result of the “dynamic interaction between a person’s health condition, environmental factors and personal factors” [11]. Any health condition that results in deficits in body function, activity limitation, or participation restriction can have a negative influence on QoL [12]. Multimorbidity has been directly related to disability [2,5], some studies showing not only additive effects of combination of diseases on disability but also multiplicative ones [13–15].

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The purpose of this study is to determine the impact of chronic conditions within multimorbidity on disability and QoL. Specifically, this study aimed at (1) describing the prevalence of individual chronic conditions in older people with multimorbidity in Spain, (2) ascertaining the impact of the chronic conditions on functional status and QoL, and (3) analyzing how disability influences the relationship between chronic conditions and QoL.

To increase external validity, the same research question was analyzed in three different population-based cohorts that measured similar variables. It allows seeing if, despite methodological differences between the cohorts, results are consistent, and drawing trustworthy conclusions. Therefore, this study contributes to the previous literature on QoL, disability, and chronic conditions by adding three novel aspects: it provides information about how disability acts in the relationship between QoL and chronic conditions, it specifically focuses on older adults with multimorbidity, and it answers the same research question simultaneously in several cohorts.

2. Methods

2.1. Study design and participants

This study used observational, retrospective cross-sectional design with three independent cohorts (Table 1). The analyzed samples were restricted to participants that met the following inclusion criteria: aged 65 years or older and positive for multimorbidity status, defined as having two or more chronic health conditions [16].

The first cohort was drawn from the survey “Quality of life in older adults–Spain” (Spanish acronym: CadeVima), which collected information in 2008 about 1,106 community-dwelling older adults in a representative sample [17]. Of these, 705 older adults met inclusion criteria.

The second cohort used data from Ageing in Spain Longitudinal Study, Pilot Survey [18] (ELES). In 2011, the ELES sampled 1,747 community-dwelling older adults, using complex sample design to ensure representativeness. We selected 443 older adults who met inclusion criteria.

Finally, the third cohort was the National Health Survey in Spain (ENSE), administered to community-dwelling people during the period of 2011–2012. The ENSE used a complex sample design and 4,995 subjects met inclusion criteria.

All cohort studies were approved by their respective institutions' ethics committees, participants gave informed consent, and anonymity was preserved.

2.2. Instruments

2.2.1. Chronic health conditions checklists

All studies used checklists for chronic health conditions. The one used in the CadeVima was adapted from the Cumulative Illness Rating Scale (CIRS-G) and inquired about 20 chronic medical problems [19]. The ELES survey contained a 21-item questionnaire specifically designed for that study. Finally, the ENSE contained a list of 30 chronic medical conditions. For this study, we selected the chronic health problems that were common to all data bases (Table 1).

2.2.2. Quality of life measures

The analyzed studies applied two QoL questionnaires. The EQ-5D index is a generic measure of health-related QoL [20–22]. It is formed by 5 dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The EQ-5D index is calculated based on the profile of the dimensions scores, and it ranges from worse to better health state (–1 to 1). Negative values indicate a health status valued as worse than death. The EQ-5D was used in the CadeVima cohort in its 3-level (EQ-5D-3L) version, and in its new 5-levels (EQ-5D-5L) version in the ENSE cohort.

The Personal Wellbeing Index (PWI) is a general measure of QoL with seven questions about standard of living, health, achievements in life, personal relationships, safety, feeling part of the community, and future security [23,24]. The total score ranges from 0 to 100, with higher scores indicating a better QoL. This instrument was used in the CadeVima and ELES studies.

Each sample was divided into two groups, with lower or higher QoL than population values [25]. In the CadeVima data base, the EQ-5D-3L index was divided according to the 64 to 75 years population mean (0.891). Due to the lack of population data, the PWI was grouped by the median of each sample: 71.4 years for CadeVima and 75.7 years for ELES. Since the ENSE is a population survey based on a very large, representative sample, the median of the EQ-5D-5L (0.849) was used.

Table 1
Sample size, measures, and chronic health conditions by study.

Study focus	CadeVima	ELES	ENSE
	Quality of life	Aging	General population national health survey
Initial sample size	1,106	1,747	21,007
Sample size for the analyses ^a	705	443	4,995
Quality of life measure	EQ-5D-3L/PWI [20,22,23]	PWI [23]	EQ-5D-5L [21]
Disability measure	Barthel Index [26]	Specific disability measure (24 items)	Specific disability measure (27 items)
<i>Chronic health conditions</i>			
Asthma	Respiratory problems (asthma, bronchitis)	Asthma	Chronic allergy (allergic asthma excluded), asthma
Cancer	Tumors, cancer	Malignant tumors/cancer	Malignant tumors
Cardiac	Heart problems (circulatory)	Cardiac insufficiency; circulatory problems (varices excluded)/intermittent claudication	Other heart problems
Diabetes	Diabetes	Diabetes	Diabetes
Hypertension	Hypertension (high tension)	High tension	High tension
Mental health disorders	Alzheimer; other mental disorders, senile dementia; Parkinson; depression, sadness, anxiety	Diseases related with memory; depression, anxiety; Parkinson	Chronic depression; chronic anxiety
Osteoarticular	Bone problems (osteoarthritis, arthritis, rheumatism)	Osteoarthritis/arthritis	Osteoarthritis, arthritis, or rheumatism
Stroke	Cerebral infarction	Cerebral infarction/embolism	Cerebral infarction/embolism/hemorrhage

Note: Chronic health conditions presented by alphabetical order.

^a Age 65+ years, with multimorbidity.

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