

## Multimorbidity: What is the Next Step?

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### Abstract

**Introduction:** Multimorbidity has been the target of increasing interest from government entities, both for its high representativeness as well as for its economic, social and health impact.

**Objective:** Understand the implications of multimorbidity for the Portuguese National Health Service, understand the implications of multimorbidity for individuals and propose strategies for more effective management of multimorbidity.

**Method:** It was developed a bibliographic review on the subject.

**Results:** Multimorbidity has been widely exploited worldwide and nationally. Old age, low socioeconomic status and unhealthy lifestyles have all been associated risk factors.

**Conclusion:** Collaborative tools are a new era in the fight against multimorbidity.

**Keywords:** Multimorbidity; Collaborative Architectures; Health Management; Portugal

### Introduction

In recent years, multimorbidity has been the target of growing worldwide [1], essentially justified by its high prevalence, as well as negative consequences as it accounts for 63% of deaths worldwide.

The number of people in the European Union affected by this condition is estimated to reach over 50 million, making it the most common chronic condition. The number of people affected by multiple chronic diseases (multimorbidity) has increased considerably worldwide, creating numerous health care challenges [2]. Portugal follows this trend, with data pointing to a prevalence of over 70% in adult patients [3].

These patients need complex health care, resulting in increased demand for health care, these are more expensive and challenging patients in health management. While recognizing the need to develop sustainable management models for multimorbidity, there is a need for reflection on where to go.

### Epidemiology, risk factors and consequences of multimorbidity

Multimorbidity is defined as the coexistence of two or more chronic diseases [4], providing poor quality of life, increased demand, utilization and cost of health care, longer hospital stays and readmissions, and higher mortality.

The most common pattern of multimorbidity includes the clustering of cardiovascular, metabolic and psychiatric diseases. Circulatory diseases remain the leading cause of death in almost all European Union (EU) member states, about 37% of all deaths in all countries in 2015 [5].

Several authors identify the main risk factors for multimorbidity as advanced age, female gender and low socioeconomic status. In recent decades we have seen an increase in life expectancy, with the 28 EU member states achieving an average life expectancy at birth of 81 years [5]. Currently 8.5% of the world's population is over 65 years of age [6]. As such aging is the most consistent risk factor and needs further investment and attention.

The consequences of multimorbidity are diverse and severe. These include earlier death, more frequent hospital visits, longer hospital stays, greater use of physical, human and even medicinal resources [7].

One study reported that patients with multimorbidity are part of the 5% of patients who incur the most costs to the healthcare system and elderly patients with multimorbidity, use two to five times more medical appointments than elderly without chronic disease [8].

To better take care of our patients with multimorbidity, we need to change paradigms. Our services need restructuring to provide more personalized care, more effective care management. Greater multidisciplinary mobility and teaming and technology optimization are needed to educate the patient for more efficient self-management [9].

The focus must be on primary prevention, intervening in younger patients with multimorbidity and developing better-equipped health systems to meet the needs of our aging population [2].

### Multimorbidity in Portugal: National commitment to more effective management

Portugal is a European country, which is part of the Iberian Peninsula, situated southwest of Europe. To the east and north it borders Spain, while along its south and west coast stretches the Atlantic Ocean. The country has a population of over 10 million people [10], including two archipelagos: Madeira e Açores. Despite being a relatively small country, it has a wide geographical diversity, ranging from mountainous regions to vast plains. However, it is this variation in relief that makes many populations live in isolation and away from large urban centers. Due to its geographical location, it offers quick access to several continents: European, American and Asian.

Portugal has had a National Health Service since 1979 [11] and our country is a good example of a comprehensive primary approach, with a trend-free health system available to the population.

### An aging population and its risk factors

As in the EU countries, the Portuguese population is aging rapidly. In 2016, Portugal reaches an average life expectancy at birth of 81,3 years, in the sum of both sexes [5], with a prospect of an increase of almost 8 years until the year 2050 [6].

Recent data refer to a synthetic fertility index of 1.36 children and an average maternity age of 31.1 years. In Portugal, only 14.1% of the resident population is under 15 years old, compared to 20.9% of the population aged 65 and over [12]. Alongside this problem arises Multimorbidity. It has a high prevalence in primary care and is often associated with a lower quality of life. Portuguese data follow this global trend, with a prevalence of 72.7% in adult patients using primary health care [13].

It is among some vulnerable groups such as the elderly, the least educated and pensioners, that there is a higher prevalence of multimorbidity, which makes them a target public to be considered in terms of public policies in the areas of health promotion and disease prevention [3].

Another worrying factor is the 54% of single-person households aged 65 and over in the country's total single households (22% of total households) [12]. On the other hand, although Portuguese women at 65 have an Average Life Expectancy at EU level (21.8 years), only 29% of this life expectancy is healthy (about 6 years). This is one of the lowest values observed in the EU (average 47%) [14].

Cardio metabolic and mental disorders are the most common chronic health problems identified in the Portuguese population, with multimorbidity, following Portugal's trend towards global pattern of Multimorbidity. However, in Portugal the socioeconomic status of patients still seems to play a major role in the management of multimorbidity, as well as in improving the quality of life, with financial insufficiency figuring as the main reason for not meeting individual health needs [15].

Thus, aging, coupled with isolation, cardio-metabolic and mental problems, as well as household economic needs are the main risk factors for a Portuguese population living daily with multimorbidity [5].

### The national health service and the national health plan

Portugal has had a National Health Service (NHS) since 1979 [11]. According to Article 64 of the Constitution of the Portuguese Republic, point 2 states that "the right to protection of health is realized through a universal and general national health service and, given the economic and social conditions of citizens, tending to be free of charge" [16], also referred to in the Basic Health Act [17]. So, the NHS is one of the pillars on which the entire health system of the population is based. Primary health care has been the target of several reinforcements, the most recent being the creation of several functional units within Health Center Groups, each with well-defined lines of action, in the care to be provided to the population [18]. Portugal has a non-fragmented health system, ideal for developing actions to prevent and reduce multimorbidity [2].

Our national health plan tells us about a new health pact, based on a model of health co-production, in which, parallel to clinical governance, the citizen's contribution emerges, from a perspective where "health begins at home, in the family, in the community and in society" [19]. The main goals of this plan are: to reduce premature mortality ( $\leq 70$  years) to less than 20%; increase healthy life expectancy at age 65 by 30%; reduce the prevalence of tobacco use in the  $\geq 15$  year old population and eliminate exposure to environmental smoking and control the incidence and prevalence of overweight and obesity in the child and school population, limiting growth by 2020. It has 4 strategic axes, represented in figure 1.

Despite these measures General Directorate of Health, Multimorbidity is a reality of the Portuguese population, particularly in primary health care, primary focus policies should begin to address this issue as a priority [3].

To deal with it, it is important to invest in certain areas, as other countries have done. We know that both social deprivation, associated with socioeconomic problems, as mental health problems are risk factors for multimorbidity. As such, we need to ensure that professionals work with these most vulnerable groups, particularly in investing in mental health patients, with targeted actions tailored to each individual. On the other hand, as multimorbidity is not only a problem of the elderly population, it is necessary to invest in education and health promotion programs, among younger populations, with the burden of this problem as a central debate, carried out by health professionals such as family doctors, as well as by professionals from both family health units, community care units and public health [2].

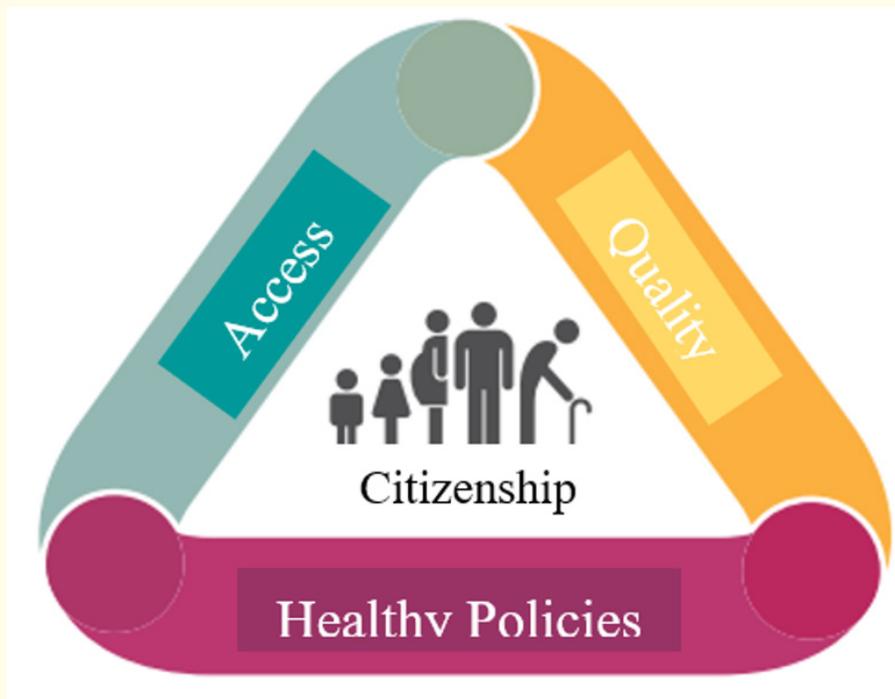


Figure 1: Conceptual Model of the National Health Plan. Source: 19, p. 13.

Multimorbidity requires a coordinated response, addressing people’s needs, necessarily encompassing:

- “Integrating care by managing people’s pathways through the services they need, including those resulting from their acute care, the various forms of care at home and close collaboration with social services;
- Support for new instruments, such as individual care plans, well integrated into the health information system;
- More informed participation (greater health literacy) in preventing multiple morbidity (promoting and protecting health) and minimizing its effects” [14].

At the same time, our national health plan shows the importance of the country following the technological development, namely in terms of technical and pharmacological innovations, ensuring, from a perspective of continuous improvement, that these advances are generally integrated into daily practices [19]. Alongside this, collaborative architectures emerge, which could be an important step in a volatile and challenging future.

#### Collaborative architectures: A step into the future

We live the age of science and technology, producing many changes in the daily lives of people. The healthcare industry has been embracing new technologies in an attempt to make daily operations more efficient [20]. Thus, coupled with innovation and the technological age, the time has come to invest and strengthen the intrinsic resilience of our healthcare systems.

We know that health systems need to be bolder and more efficient in responding to the demographic challenge we face, strengthening care and prevention, and exploring the potential of the new age of digital technologies. “New digital technologies have the potential

to promote healthier aging and more people-centered care” [5, p. 14]. In 9 years (2008 - 2017) health spending in the EU as a whole has risen from 8.8% of GDP to 9.6% of GDP. This is one of the short-term reflexes of the aging population, in a growing search for health care, namely continuing care. New technologies could be a key tool, providing the opportunity to promote healthy, active aging with more patient-centered care. In fact, across the EU there has been an increase in the use of technology in health by both professionals (e.g. with electronic prescriptions) and patients (using the internet to access services and information in Cheers).

Population aging, often combined with multimorbidity, imposes within countries the demand for new transformations in health systems, with paradigm shifts, decentralizing the means of intensive care in hospitals for more integrated and people-centered care. in a community. Portugal follows the EU average, reaching one of the lowest numbers of inpatient evictions (26%), with outpatient care accounting for about half of health spending (49%) [5].

In an age of high complexity, the collaboration, formulation and implementation of adaptive policies is indispensable. “Collaborative intelligence” will be an imperative element in shaping health policies that lead to change [21]. Collaborative architectures thus bring a “breath of fresh air” to health, figuring as new “weapons” for its transformation, as follows:

- Health co-creation, with shared decisions between health professional and client, with a view to achieving results. McColl-Kennedy, Vargo, Dagger, Sweeney, & Kasteren [22] define health co-creation as “the benefits realized from integrating resources through activities and interactions with employees in a service client network” that include the user himself, family members, other users, healthcare professionals and the wider community. According to the authors the essential characteristics are: a) These activities are defined as “doing for themselves and others”; b) These activities include cognitive and behavioral components; c) These activities involve dedication and commitment on the part of the consumer.
- Organizations need to work on the collaborative interface, not their identity cores, because system transformation is ultimately about transforming the relationships between the people who shape those systems. The incorporation of integrated health systems in 2018 into the English National Health Service seems to be the next step in health, with preliminary results stating that organizations work more collaboratively, including in finance and performance management. Report signs of progress in service delivery with changes, for example, in strengthening primary care and developing integrated care teams [23].
- Health Mediation so that organizations can find similar ideals and goals, with convergence points. This figure is an alternative (extra-judicial) means of conflict resolution, in which (mediated) parties assisted by an impartial third party (mediator) seek to reach an agreement that resolves the conflict between them [24].
- Collaborative ethics based on cooperation as a social value.
- Creating Collaborative Intelligence to achieve a shared understanding of the world for conversion into common problem solving. To make this possible, it is necessary to select information in a simple and understandable way, to understand desirable trends, to share in a timely and effective manner and to communicate effectively in times of discord, to converge on common solutions [21].

As such, time is urgently needed for the establishment of a collaborative intelligence, where there is a shared understanding of the world, in order to converge on a shared solution to contemporary challenges, with management that takes place through people and with people [25,26].

## Conclusion

Multimorbidity is a reality in Portugal and in the world. Population aging is one of the factors to consider when addressing this issue. The new age of technology, coupled with collaborative tools may be the key to success in managing Multimorbidity more effectively.

### Conflict of Interests

The authors declare no conflicts of interest.

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