

Comorbidity and multimorbidity in the medical practice: A literature review

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Abstract

Worldwide, healthcare systems face an increasing demand and are currently more and more involved with the management of chronic diseases and chronic conditions. In all cases, there is already well-established scientific evidence about the impact and costs associated with comorbidity and multimorbidity in both younger and older patients.

Yet, the available evidence on the health care provided to individuals with multimorbidity is limited, regardless of the high prevalence of multimorbidity and its negative impact on patients and healthcare systems. To date, the available interventions have resulted in mixed effects. However, it is suggested that such interventions may be more effective if targeted at core risk factors or specific functional difficulties. In any case, there is a clear need to identify patients with comorbidity and multimorbidity and develop cost-effective and specifically targeted interventions that can improve health outcomes in these individuals.

In Albania, the burden of comorbidity and multimorbidity is high in both men and women, especially among the older population subgroup. However, future studies should inform about the exact magnitude and distribution of comorbidity and multimorbidity in the general population in Albania.

Keywords: comorbidity, concomitant disease, internal medicine, multimorbidity.

Comorbidity in the clinical practice

To date, at an international scientific level, there is still lack of consensus about a single definition and unique measurement of the concept of comorbidity (1,2). This issue complicates the study of impact of comorbidity in the medical practice. As a matter of fact, there are several related constructs which are used interchangeably with the concept of comorbidity including multimorbidity, burden of disease, or frailty (1). Therefore, based on this multitude of concepts and constructs, there is a general agreement that internationally accepted definitions are required in order to advance the study of comorbidity in the routine medical practice (2-4). In any case, regardless of the large number of different definitions and related concepts, medical care and health services should promptly and effectively address the issue of comorbidity and provide adequate care and perform an efficient management of the patients with multiple coexisting diseases who, for decades already, have been very prevalent in the clinical practice in most of the countries worldwide (1,5). Since 15 years ago, in the USA, around 80% of Medicare spending was dedicated to patients with at least four chronic diseases, with costs increasing considerably with the increase in the number of chronic conditions (6). The situation at present is much more complex given the unabated aging of the population which is unavoidably associated with presence of more comorbid conditions among the older population subgroup. Therefore, there is currently an enormous interest on the part of health practitioners and medical researchers in the impact of comorbidity on a wide range of clinical outcomes including mortality, health-related quality of life, physical functioning, but also quality of health care services (1-3).

Comorbidity versus other related constructs

Conventionally, comorbidity is defined as the presence of additional diseases in relation to an index disease in one individual (1). In turn, multimorbidity is defined as the presence of multiple diseases in

one individual. On the other hand, the current terminology in the clinical practice employs also other useful constructs such as morbidity burden, or patient's complexity. From this point of view, morbidity burden is referred to the overall impact of the different diseases in an individual taking into account their severity (1). Conversely, patient's complexity refers to the overall impact of the different diseases in an individual taking into account their severity and other health-related attributes (1). In any case, little is known about the ways that patients with multiple conditions consider and perceive their illness, or how their perspective relates to professional constructs (7). Hence, unfortunately, the meaning of comorbidity is commonly examined and restricted only to the perspective of health care professionals (1).

Impact and cost of comorbidity and multimorbidity

Worldwide, healthcare systems face an increasing demand and are currently more and more involved with the management of chronic diseases and chronic conditions. In all cases, there is already well-established scientific evidence about the impact and costs associated with comorbidity and multimorbidity in both younger and older patients (2,8-11). From this perspective, individuals with comorbidity or multimorbidity have a higher risk of dying at a younger age compared with their counterparts with single conditions (12). Similarly, patients with multimorbidity have a higher risk of hospitalization, and experience also a longer hospitalization period (11,12). Furthermore, patients with comorbidity experience a poorer quality of life, have loss of physical functioning, and are more likely to develop depression and consequently receive multiple drugs entailing all the side effects of the polypharmacy phenomenon (13,14). Evidence of the impact of socioeconomic deprivation is also clear given the fact that the commencement of multimorbidity occurs usually 10-15 years earlier in individuals living in the most deprived areas compared with individuals residing in the least deprived areas (14,15).

Management of comorbidity and multimorbidity in the medical practice

Notwithstanding the increasing numbers of patients with several chronic conditions, or multimorbidity, the health care delivery is usually built around single diseases (14,16). Of note, regardless of the increase in the number of patients with multimorbidity, there is limited evidence on the effectiveness of the respective medical interventions aiming at improving the clinical outcomes among these individuals (14). As a matter of fact, the clinical care of patients with comorbidity is rather complex. Furthermore, the evidence base for managing chronic conditions is based largely on randomized trials of interventions for single conditions/diseases, which often times exclude patients with multimorbidity (14). In addition, it has been convincingly documented that the clinical care is often fragmented, involving both primary care and multiple secondary care specialists who may not be communicating effectively, which points to a clear need for integrated care of multiple conditions (14,17). A recent systematic review of interventions in primary care and community settings included ten studies examining a range of complex interventions totaling 3407 patients with multimorbidity (14). All these studies consisted of randomized controlled trials with a limited risk of bias (14). Two studies described interventions for patients with specific comorbidities. The remaining eight studies focused on multimorbidity, generally in older patients (14). Overall findings of this systematic review were mixed, with a trend towards improved

prescribing and drug adherence (14). On the whole, findings of this systematic review indicated that it is difficult to improve outcomes in patients with multimorbidity, but interventions focusing on particular risk factors in comorbid conditions or functional difficulties in multimorbidity may be more effective (14). On the other hand, the authors stated that no economic analyses were included in their review, although the improvements in prescribing and risk factor management in some studies could provide potentially important cost savings (14).

Multimorbidity in Albanian patients

According to the national health report published in 2014, the overall, burden of non-communicable diseases in Albania has increased by 34% from 1990 (which marked the collapse of the communist regime) to 2010 (18,19). Hence, only in men, the Disability-Adjusted Life Years (DALYs) per 100,000 were about 17,498 in 1990 compared with 23,448 in 2010 (18,19). In both sexes, the overall proportion of non-communicable diseases to the total burden of disease increased from 59% in 1990 to 79% in 2010 (18,19). The pace of increase was similar in both sexes, according to the official data both from the Albanian institutions and the international estimates (18,19). Of note, many of Albanian patients suffer from at least two chronic conditions (19). Table 1 presents the sex-specific DALYs for the overall non-communicable diseases in Albania in 1990 and 2010.

Table 1. Sex-specific DALYs for the overall non-communicable diseases in Albania in 1990 and 2010 (crude estimates, all ages) (source: GBD, 2010)

Sex	Year: 2010		Year: 1990	
	DALYs (per 100,000)	Percent DALYs	DALYs (per 100,000)	Percent DALYs
Males	23447.5	75.3	17497.6	55.9
Females	19800.9	82.9	16337.9	62.5
Both sexes	21625.7	78.6	16.932.2	58.9

A more refined analysis reveals a particularly sharp increase of the overall non-communicable diseases

in Albanian males during the period 1995-2000, which includes the year 1997 characterized by the collapse

of the financial saving schemes and its related political and socioeconomic turmoil. Subsequently, during 2000-2010, there was a stable increase in the burden of non-communicable diseases, although less strong (19). On the other hand, in females, there was evidence of a smoother yet steady increase in the overall non-communicable diseases burden in the past two decades (19). Again, many of cases with non-communicable diseases had evidence of comorbid conditions.

On the other hand, the age-standardized burden of the overall non-communicable diseases in Albanian males in 2010 (22,683 DALYs per 100,000) was among the highest in the South Eastern European region together with Macedonia (the highest) and Montenegro (18,19). Conversely, the age-standardized proportional DALYs from non-communicable diseases in Albanian males in 1990 was about 74%, which was the lowest in the region. In females, Macedonia and Montenegro exhibit the highest rates, followed by Albania (18,368 DALYs per 100,000) and Serbia. The age-standardized proportional DALYs from non-communicable diseases in Albanian females in 2010 was about 80% which, again, was the lowest in the region. This evidence in both sexes, indicates that other ill-health conditions including infectious diseases still constitute a larger share in the total burden of disease in Albania compared with the other countries in the South Eastern European region (18,19).

Interestingly, in 1990, the age-standardized proportional DALYs (to the total burden of disease) for the overall non-communicable diseases in

Albania were much lower than the average value of the South Eastern European region (only 65% in males and 69% in females). This relatively low figure was due to the relatively high value for other categories in the burden of disease, e.g. infectious diseases and accidents and injuries, including also suicide and homicide (18,19). This gap has been considerably reduced in the past two decades, regardless the fact that Albania's share of non-communicable diseases continues to be the lowest in the South Eastern European region (18,19).

Nevertheless, the burden of comorbidity and multimorbidity is high in Albanian men and women, especially among the older population subgroup. However, future studies should inform about the exact magnitude and distribution of comorbidity and multimorbidity in the general population in Albania.

Conclusion

The available evidence on the health care provided to individuals with multimorbidity is limited, regardless of the high prevalence of multimorbidity and its negative impact on patients and healthcare systems. To date, the available interventions have resulted in mixed effects. However, it is suggested that such interventions may be more effective if targeted at core risk factors or specific functional difficulties. In conclusion, there is a clear need to identify patients with comorbidity and multimorbidity and develop cost-effective and specifically targeted interventions that can improve health outcomes in these individuals.

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