

PREVALÊNCIAS DE DOENÇAS DE GRANDE IMPACTO NA SAÚDE PÚBLICA EM IDOSOS FRÁGEIS RESIDENTES NA ZONA DA MATA MINEIRA-BRASIL: UM ESTUDO DE BASE POPULACIONAL

Prevalence of major Public Health impact diseases among frail elderly residents in the Zona da Mata region in the state of Minas Gerais-Brazil: a population-based study

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RESUMO

O objetivo deste estudo transversal, descritivo, observacional e de base populacional foi identificar as prevalências de certas doenças de elevado custo e impacto no setor de Saúde Pública e de alguns hábitos de vida de idosos frágeis residentes na zona da Mata Mineira (Brasil). A pesquisa envolveu 7.113 idosos frágeis, de ambos os sexos, com idade igual ou superior a 60 anos. As informações foram obtidas, a partir do banco de dados eletrônico mantido e organizado pelo Centro Mais Vida. Observou-se um maior número de idosos do sexo feminino (67,6%), com idade entre 60 a 69 anos (40,4%) e casados (48,5%). 9,3% da população pesquisada apresentavam comprometimento cognitivo leve, 11,8% incapacidade cognitiva, 5,0% depressão, 9,0% demências, 7,9% insuficiência cardíaca, 21,6% diabetes *Mellitus*, 44,5% dislipidemias. Quanto aos hábitos de vida, 69,6% eram sedentários, 11,1% fumavam tabaco e 2,7% eram etilistas. Esses dados permitem comparações em nível internacional e são essenciais para a elaboração de políticas efetivas e intervenções primárias, secundárias e terciárias a nível populacional.

PALAVRAS-CHAVE: Idoso Fragilizado; Comprometimento Cognitivo Leve; Demência; Insuficiência Cardíaca; Diabetes *Mellitus*; Dislipidemias.

ABSTRACT

This cross-sectional, descriptive, observational and population-based study aimed to identify the prevalence of costly diseases and their impact on the public health sector, as well as lifestyle habits of frail elderly residents in Zona da Mata, Minas Gerais (Brazil). The research involved 7,113 frail elderly of both genders, aged over 60 years. Data were obtained from the electronic database maintained and organized by the institution Centro Mais Vida. A greater number of frail elderly females (67.6%) aged from 60 to 69 years old (40.4%) and married (48.5%) was observed. 9.3% of the surveyed population had mild cognitive impairment, 11.8% had cognitive disability, 5.0% had depression, 9.0% had dementia, 7.9% had heart failure, 21.6% had diabetes Mellitus and 44.5% had dyslipidemia. For lifestyle, 69.6% were sedentary, 11.1% smoked tobacco and 2.7% were alcoholics. Such data allow comparisons at international level and are critical for the development of effective policies as well as primary, secondary and tertiary-level interventions among the population.

KEYWORDS: Frail elderly; Mild Cognitive Impairment; Dementia; Heart Failure; Diabetes Mellitus; Dyslipidemia.

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INTRODUCTION

According to data from the Brazilian Institute of Geography and Statistics (IBGE), in the past two decades, the composition of the population by sex and age groups has experienced significant changes, such as narrowing in the base of the pyramid, increase in the relative participation of the population regarding groups aged 25 to 29 years old and noticeable enlargement of the top of the pyramid, indicating increased longevity.¹ This notorious aging process will require social policy adjustments, particularly those designed to meet the growing demands in the health areas.²

The population aging process is associated with increased chronic degenerative diseases (diabetes mellitus, hypertension, stroke, cancer, dementia and others), which turn into long-term problems and involve a great extent of materials and human resources in order to provide appropriate care.³ It is noteworthy that given the growing importance of this segment, studies involving the elderly are an emerging theme in the various knowledge areas, particularly regarding what is currently known as "frail elderly".

There is no consensus in the definition of frail elderly, but according to the "Health Care of the Elderly / Ministry of Health – MG"⁴ guidelines, individuals aged 80 or older are to be considered frail, as well as those aged 60 or over presenting at least one of the following characteristics: polyopathologies, polypharmacy, partial or total immobility, urinary or fecal incontinence, postural instability, cognitive impairment, a history of frequent hospitalizations and / or post-hospital discharge or inability to perform basic activities of daily life.

The Mais Vida Center (MVC), located in the city of Juiz de Fora, in the state of Minas Gerais, Brazil, is an initiative of the State Department of Health (SDH) of the government of Minas Gerais, which offers specialized care and psychosocial support to third age patients as well as to those patients with poor health. In this program, elderly patients undergo a complete functional assessment by several professionals in the areas of pharmacy, social work, physiotherapy, psychology, occupational therapy, nutrition, speech therapy, nursing, geriatrics and general medicine - so they can grow old with quality of life and autonomy.⁵

In the MVC, the elderly are assessed regarding their overall health and the information is stored in electronic medical records, composing a valuable database for epidemiological studies in Brazil. In order to better understand aging at regional level and in Brazil as a whole, the analysis of such material is a unique opportunity. The quality and

the elevated number of measurements can drive health policies both at regional level and nationwide, seeking the implementation of strategic and feasible projects for the diagnosis, prevention and rehabilitation of individuals among the population.

Considering what has been shown, the aim of this study was to identify the prevalence of certain costly diseases and their impact on the Public Health sector, as well as the lifestyle of some of the frail elderly assisted at the MVC during the year of 2010, which can be representative of the Brazilian population as a whole.

METHODS

This cross-sectional, descriptive, observational and population-based study included all frail elderly ($n = 7,113$) of both sexes, 60 years of age or over, assisted at the MVC during the period from January to December of 2010. The protocol of the present study was approved by the Human Research Ethics Committee of the Federal University of Juiz de Fora (Opinion 264/2010).

The information was obtained from the electronic database, maintained and organized by the MVC, and the diagnosis of the elderly was defined by means of clinical and laboratory evaluations. The descriptive statistical analysis of the data was performed with the aid of the Statistical Package for Social Sciences (SPSS), version 14.0.

Emphasis must be placed on the fact that the MVC professionals followed the criteria of Petersen et al.⁶ for the diagnosis of Mild Cognitive Impairment; the recommendations of the Scientific Department of Cognitive Neurology and Aging of the Brazilian Academy of Neurology⁷ for the diagnosis of dementia; the Brazilian Medical Association guidelines⁸ for the diagnosis of depression; the Brazilian Society of Cardiology guidelines^{9,10} for the diagnosis of heart failure and dyslipidemia; and the Brazilian Society of Endocrinology and Metabology¹¹ guidelines for the diagnosis of diabetes mellitus.

RESULTS

Data were collected from 7,113 elderly people, out of whom 4,805 (67.6%) were women. The age of the population studied ranged from 60 to 103 years old (mean \pm SD = 72.4 ± 8.0 years), with most of the elderly (40.4%) within the range of 60 to 69 years old. Regarding marital status, married individuals prevailed in the population surveyed (48.5%), followed by widows/widowers (36.2%), as seen in Table 1.

Table 1 - Sociodemographic characteristics of frail elderly residents in the area of Zona da Mata Mineira (n = 7,113), Brazil.

Characteristic	N	%
<i>Gender</i>		
Female	4,805	67.6
Male	2,308	32.4
<i>Age (years)</i>		
60-69	2,872	40.4
70-79	2,699	37.9
≥ 80	1,523	21.4
No information	19	0.3
<i>Marital status</i>		
Married	3,450	48.5
Widower	2,571	36.2
Single	584	8.2
Divorced	414	5.8
No information	94	1.3

Source: survey data.

Regarding the assessment of cognitive ability, 665 (9.3%) patients had mild cognitive impairment, while 838 (11.8%) had a diagnosis of cognitive disability. We observed 354 (5.0%) cases of depression and 637 (9.0%) of dementia. Among the dementia syndromes, Alzheimer's disease had a prevalence of 4.3%, whereas 2.2% was found for vascular dementia and 0.9% for mixed dementia. Only five cases of frontotemporal dementia and two cases of dementia with Lewy bodies were identified.

With regard to other severities, a prevalence of 7.9% for heart failure, 21.6% for diabetes mellitus and 44.5% for dyslipidemia was shown. As for lifestyle, 69.6% of the elderly were sedentary, 11.1% smoked tobacco and 2.7% were alcoholics.

Such information related to the elderly's diseases and lifestyles are detailed in Table 2.

Table 2 - Prevalence of diseases, physical inactivity, smoking and alcohol consumption in frail elderly residents in the area of the Zona da Mata Mineira (n = 7,113), Brazil.

Characteristic	N	%
Mild cognitive impairment	665	9.3
Cognitive disability	838	11.8
Depression	354	5.0
<i>Dementia</i>		
Alzheimer disease	309	4.3
Vascular dementia	154	2.2
Mixed dementia	63	0.9
Frontotemporal dementia	5	0.1
Lewy Body type dementia	2	0
Other	103	1.5
Cardiac failure	562	7.9
Diabetes Mellitus	1,539	21.6
Dyslipedemia	3,163	44.5
<i>Sedentary</i>		
No information	899	12.6
Smoking	788	11.1
No information	71	1.0
<i>Alcoholism</i>		
No information	114	1.6

Source: survey data.

DISCUSSION

Elderly population growth is a worldwide phenomenon which has been taking place at a very fast pace in Brazil.¹ The health needs of this population have been changing in light of the demographic and epidemiological changes, with a consequent and significant increase in chronic diseases.^{12,13} Brazil is experiencing a health situation which combines unsurpassed infectious and

deficiency diseases, a major load of external causes and a dominant presence of chronic conditions.¹³ The latter takes increasingly larger proportions in public and private budgets, because diseases are complex, costly, often multiple, characterized by long period of treatment, and they demand constant care, continuous medication and periodic examinations.¹⁴

Many chronic conditions are linked not only to an aging society, but also to lifestyle choices such as smoking, alcohol consumption, poor diet and physical inactivity, sexual behavior, and genetic predisposition.^{13,14} Given this scenario, managers and researchers throughout the world increasingly consider chronic disease management an important issue. They seek interventions and strategies to combat such diseases, which require profound changes in the health system.^{14,15}

It is likely that spending on healthcare will substantially increase the burden on individuals, families and health systems, thus presenting itself as one of the greatest fiscal challenges in the coming decades.¹⁶ On the one hand, older people have a higher burden of disease and disability, thus demanding a wider range of health services; on the other hand, the current models of health care for the elderly, lined in dressings and traditional services, are shown to be inefficient and costly.^{14,15} The technical reason for the crisis in the health care systems is due to addressing chronic conditions in the same way as acute conditions.¹³ Promotion and prevention health policies are strong trends and challenges to be met worldwide. Prevention has been proven to be effective at any level, while the reduction of healthcare costs raises the quality of life level.^{15,17} There is international evidence that those countries which have adopted strong Primary Health policies have had better health and economic outcomes than those which have not.¹³

In the context of public health, epidemiological information plays an important role in preventing events, and enables early diagnosis and interventions. More effective policies and guidance for prevention strategies are best drawn from the management of chronic health conditions of a given population, as well as the factors associated with these conditions. According to the literature, prevention strategies should aim at: participating positively in the natural history of the disease, anticipating the emergence of complications, preventing exacerbations and complications which are common in chronic diseases, increasing patient involvement in self-care, encouraging the establishment or maintenance of a database on the chronically ill, among other issues.¹⁵

The predominance of females (67.6%) observed in this study corroborates the phenomenon of old age

feminization. Although more male than female children were born in the population as a whole, one can notice the prevalence of more women than men, because of differences in mortality between the sexes. Male mortality is higher than female throughout life.¹ Among the elderly in São Paulo (Brazil), Andrade et al.¹⁸ conducted a large longitudinal study and found a higher total life expectancy of women (an average of 5 years longer) than men. However, it is noteworthy that these women showed a greater number and severity of disabilities. In addition, although women receive more years of personal care assistance than men, they have more health-related needs that are not met.

The prevailing age group in a population is a feature to be taken into consideration in epidemiological studies since, as age advances, there is an increased risk of illness, as well as a higher level of dependence.¹⁹ A greater number of elderly aged 60 to 69 years (51.1%) was observed in São Paulo (Brazil), followed by those between 70 and 79 years (36.6%).²⁰ In the present study conducted in the Zona da Mata region in the state of Minas Gerais, most of the group was also represented by younger participants (40.4%), however, it is worth mentioning the high percentage of individuals aged 80 and over (21.4%). This age group is considered to be the fastest growing, both in developed and developing countries.²¹

The prolongation of life can be considered a real achievement in that it contributes additional quality to years. So any social and health policy towards the elderly must take into account functional capacity, need for independence, participation, and care. It should also fundamentally encourage prevention, care and comprehensive health care.¹⁵ The National Health Policy for the Elderly, under the Unified Health System (SUS), aims at a multidimensional approach, ensuring comprehensive health care of the elderly, emphasizing healthy and active aging based on the paradigm of functional capacity.^{22,23}

As to marital status, the majority of the population was represented by married individuals (48.5%), followed by widowed (36.2%). According to Del Cuca et al.,²⁴ the marital status reflects the elderly's social participation and well-being and the literature shows that social isolation and loneliness at old age may be linked to the decline of physical and mental health among the elderly. Gomes et al.²⁵ provided information on the differentials in mortality by marital status among the elderly (60 or older) living in the city of São Paulo (Brazil), based on the survival rate of the participants of the study SABE (the Portuguese acronym for "Health, Wellness and Aging"). The authors have indicated that, among elderly males, the mortality rate for singles is 61.0% greater than that observed for

married elderly males. On the other hand, separation/divorce or widowhood appears to increase the chance of death among the older women analyzed. Overall, separated and widowed elderly women had mortality rates 82.0% and 35.0% higher than the observed for married women.

Regarding the cognitive ability of the individuals surveyed, 9.3% had mild cognitive impairment and 11.8% had cognitive disability. In low and middle income countries such as Cuba, Dominican Republic, Peru, Venezuela, Mexico, Puerto Rico, India and China, the prevalence of amnesic mild cognitive impairment in the elderly ranges from 0.8% to 4.3%.²⁶ In Italy, a prevalence of 6.0% was found for mild cognitive impairment,²⁷ with nonamnesic single domain being the most frequent form. In Brazil, a cohort study conducted by Godinho et al.,²⁸ in the southern region, indicated a prevalence of 6.1% (n = 21). Out of these, 24.0% were stable and 38.0% developed dementia (annual rate of conversion of mild cognitive impairment to Alzheimer disease equal to 8.5%). This type of syndrome involves cognitive impairment compared to normal people of the same age without substantially interfering with the autonomy and independence of the subject.⁶ However, the increased risk for dementia and other severities implies that an early diagnosis is important for preventive measures.²⁸

From a public health perspective, prevention related to the functional capacity of the elderly is critical, since independence and ability to exercise autonomy allow individuals to improve health care conditions, reflected in quality of life, even with one or more chronic diseases.^{14,15} The basic guidelines of the National Elderly Health Policy have concerns with the promotion of healthy aging, with the health recovery of those who fall ill and rehabilitation of those who may have a restricted functional capacity. Therefore, all health promotion initiatives, assistance and health rehabilitation must have the target of improving, maintaining or restoring the functional capacity of the individual as long as possible, enhancing their autonomy as well as their physical and mental independence.¹⁵

With respect to depression, a prevalence of 5.0% was found among participants of the present study. This figure is close to the results found in Peru (4.9%), Cuba (4.5%) and Venezuela (4.6%),²⁶ but in some other countries it is possible to verify a larger percentage. Chang et al.²⁹ reported a value of 16.7% for the elderly in a community in northern Taiwan. Depression can affect health by changing the functioning of the central nervous system, as well as the immune, endocrine and circulatory systems, and also by causing adverse influences on health-related behavior.³⁰ Alexandre et al.,³¹ using information from the referred SABE study, showed that symptoms of depres-

sion, based on strong evidence, constitute risk factors for the development of inability to perform Activities of Daily Living (ADL) among elderly people of both sexes, over 60 years old and residing in the city of São Paulo (Brazil).

Regarding dementia, a consensus of experts at the request of Alzheimer's Disease International organized a major worldwide study to estimate the prevalence of the disease among individuals aged 60 years or over.³² The Delphi study demonstrated the existence of 24.3 million people with dementia worldwide in 2001, predicting an increase to 42.3 million in 2020 and 81.1 million in 2040. The countries or regions with the highest prevalence were North America (6.4%), Western Europe (5.4%), Latin America (4.6%), developed countries of the Western Pacific (4.3%), China and developing countries of the Western Pacific (4.0%). Herrera Júnior et al.³³ conducted an epistemological-based survey in the state of São Paulo (Brazil) and found a prevalence of 7.1% for individuals aged 65 or over, slightly lower than that of the present study (9.0%). Bottino³⁴ describes that the prevalence of dementia in Brazil is similar or higher when compared to other regions worldwide, with Alzheimer disease and vascular dementia being the most frequent types. It should be mentioned that these two kinds of dementia predominated in the studied population with prevalence rates of 4.3% and 2.2%, respectively.

Among cardiovascular diseases, the prevalence of heart failure is increasing worldwide, being the most common cause of hospitalization for individuals aged 65 or more in the United States.³⁵ Nielsen et al.³⁶ described a prevalence of 6.4% for people aged 50 or over in Denmark, while Cortina et al.³⁷ demonstrated a percentage around 10% for subjects aged over 70 and 18% for those aged over 80 in Spain. The results found in the literature are difficult to compare due to the different methods used, yet they suggest that heart failure is a prevailing problem in the elderly population, as shown in the present study (7.9%).

Diabetes mellitus is also a serious public health problem, being one of the most common chronic diseases in almost all countries. The rapid growth of this disease is associated with decreased physical activity and increased obesity, a consequence of changes in life habits among the population.³⁸ It is also noteworthy that diabetes mellitus is an important risk factor for other costly morbidities.^{39,40} There is evidence that good management of this problem still in primary care prevents hospitalizations and deaths from cardiovascular and cerebrovascular complications. It is estimated that the costs of care related to diabetes mellitus are about two to three times higher than that dispensed to patients without diabetes and is direct-

ly related to the occurrence of chronic complications.⁴¹ A review based on population-based studies suggests a worldwide prevalence of 6.4% (aged 20 to 79 years), however this ratio tends to increase when the population aged 60 years or over is separately analyzed.³⁸ The present study found a prevalence of 21.6%, which is consistent with a national survey conducted by the Ministry of Health (22.0%)⁴² and with the study called National Health and Nutrition Examination Survey (NHANES) in the United States (21.2%).⁴³

Dyslipidemias are characterized by alterations in lipid profile and, similarly to diabetes mellitus, are associated with poor living habits, as well as compose risk factors for other diseases, especially cardiovascular ones.⁴⁴ Among the population surveyed, 44.5% presented that diagnosis. Population-based studies on the prevalence of dyslipidemias involving only the elderly are scarce. However, there are some recent works in the literature which have identified a 56.1% prevalence of dyslipidemia in subjects aged 45 to 89 years old in China⁴⁵ and 50.8% in subjects aged from 58 to 74 years old in Canada.⁴⁶

There is evidence that behaviors and lifestyles are important social determinants of chronic conditions.¹³ Some estimates indicate that if the risk factors were controlled (among behavioral factors, smoking, unhealthy diet, physical inactivity, overweight, excessive use of alcohol and others stand out), 80.0% of cardiovascular diseases and diabetes and more than 40.0% of cancers could be prevented.^{13,47} The majority of chronic diseases have no cure, but many can be prevented or controlled through early detection, adoption of healthy diets and habits, exercise and access to appropriate treatment.¹⁴ It should be noted that having sedentary habits is a common situation for most of the subjects involved in this study (69.6%), which may represent an aggravating factor for the diseases analyzed, as well as for other morbidities. It is emphasized that physical activity is an important mechanism for preventing and minimizing the deleterious effects of aging.⁴⁸ Cigarette smoking and alcohol consumption, seen in 11.1% and 2.7% of participants, respectively, also comprise damaging factors to individuals' overall health. The Strategic Action Plan for dealing with chronic noncommunicable diseases in Brazil from 2011 to 2022¹⁶ highlights the success in tobacco policy obtained in recent years, as being of utmost importance in the decline of chronic disease prevalence among the population in general. Regulatory actions, such as a ban on tobacco advertising, promotion and sponsorship (with the exception of retail outlets), warning images on tobacco product packages, ban of flavor additives in cigarettes, among others, were cited as major positive effects.

CONCLUSION

A greater number of frail, married, elderly women, aged from 60 to 69 years old, was observed in the Zona da Mata region in the state of Minas Gerais. The differences observed between the results of this study, when compared with the national and international literature, may be due to the specific characteristics of the population, health status, demographic and social models of health care, as well as the methods used in epidemiological studies. However, it emphasizes the high quality and reliability of such results, which, besides allowing comparisons at the international level, are essential in the development of effective policies, as well as primary, secondary and tertiary interventions among the population.

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