Association of sociodemographic factors to fragility and chronic diseases in aged populations

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ABSTRACT. The growth of the aging population exceeds more than 30 million elderly people in Brazil from 2012 to 2017. In general, the aging phenomenon can be explained by the wear and tear of phenotypes in the body, and consequently, cause the loss of cognitive functions, physical and psychological aspects of the elderly. Aging is favorable to make them vulnerable and subject to a series of adverse health complications, such as chronic diseases, multimorbidities and even severe levels of frailty. The objective was to investigate the association of frailty and chronic diseases with sociodemographic factors in the elderly. This study is a qualitative, descriptive narrative review, using the PUBMED database, with the following descriptors: Chronic diseases, Multimorbidity, Aging, Elderly, Frailty, Sociodemographic. It was found that frailty, together with chronic diseases, had a prevalence in variables associated with advanced age, female sex, low level of education and marital status, it is worth noting that frailty can occur in the absence of chronic diseases. Adverse health conditions in the elderly community, such as frailty and chronic diseases, need policies aimed at combating them, considering the promotion, prevention and formulation of strategies in order to offer a better quality of life to the elderly.

INTRODUCTION

In global terms for the World Health Organization (WHO), the chronic non-communicable diseases (NCDs) that cause the most death are: cardiovascular diseases, cancers, respiratory diseases and diabetes, such complications are associated with inadequate lifestyle, smoking, unhealthy eating and alcohol (Who, 2018).

In the scenario of the incidence of NCDs, the recurrence of Diabetes Mellitus (DM) and Systemic Arterial Hypertension (SAH) stands out, both acting as assiduous agents and compromising the functional capacity of the elderly (Ribeiro *et. al*, 2019). Concatenated to this, there is a compromise in the ability to perform daily activities due to NCDs, and consequently, an ease in acquiring the risk for frailty (Andrade *et. al*, 2018). Evidences emphasize that frailty is a condition that can be improved, therefore, it is configured as a dynamic and reversible state that,

associated with an adequate physical exercise program, brings great benefits to the health of the elderly (Ye *et. al*, 2020).

At the Brazilian level, the Ministry of Health, based on data from the survey on Non communicable Diseases and Disorders-2018 (DANT), points out the percentage of deaths from NCDs was 54.7%, and from NCDs, 11.5% (Brazil, 2018). It is necessary to warn worldwide about the estimates of deaths by regions, confirming that such data are valid for all existing social classes, since there is a prevalence of economically disadvantaged classes (Brazil, 2018).

The Continuous National Household Sample Survey estimates that the number of elderly people exceeds about 30 million between 2012 and 2017, the increase was observed in all federation units, especially in Rio de Janeiro and Rio Grande do Sul, both with 18.6% in the group of people aged 60 years (IBGE, 2018).

As the aging population accelerates, it is clear to observe the precariousness of health policies, and the difficulties in making viable strategies for healthy aging (Nie *et. al*, 2021). Regarding the provision of health services, there is a need to prioritize care for the elderly, since Brazil has limited resources for investments aimed at this small portion of the population (Bovolenta & Felicio, 2017).

In physiological terms, aging is a phenomenon that is defined by the wear and tear of phenotypes in the body, which has repercussions on changes in body composition, energy demand, neurodegeneration and neuroplasticity (Rodrigues *et. al*, 2018). Thus, it is relevant to mention that such changes negatively affect the progress of cognitive and physical functions, exposing them to the cascade effect, not to mention the accumulation of chronic diseases, and a greater association with levels of frailty (Rogrigues *et. al*, 2018). Worryingly, the high risk of mortality is linked to aging, multimorbidities, and frailty (Mazya, Garvin & Ekdahl, 2019).

In the context of improving health through physical activity, evidence indicates that excessive body fat contributes to the development of frailty and reduces the ability to perform simplified and even more vigorous activities (Melo Filho *et. al*, 2020). Factors such as unstable mental health, loneliness, insomnia, are positive for frailty and act as modifiers of health status (Pengpid & Peltzer, 2020). It is worth mentioning that Brazilian studies carried out with elderly people aged ≥ 50 years associated the prevalence of frailty with low education and, mainly, with inadequate health conditions (Giacomin *et. al*, 2018).

From this scenario, it is clear that advanced age, presence of NCDs, dependence, socioeconomic level and unfavorable health conditions are additional risk factors regarding the development of frailty (Melo Filho *et. al*, 2020).

Studies indicate that it is likely that a decrease in the prevalence of frailty may be possible if there is an increase in the educational level (Ye *et. al*, 2020). It is noticed that the advancement of CNCDs, and concomitantly, the development of comorbidities, frailty and decline in functional capacity, can be seen as one of the health-related consequences that lie behind inequalities in the lower strata of society (Dugravot *et. al*, 2020).

The study points out findings from the scientific literature on the subject of the association of sociodemographic factors with frailty and chronic diseases in aged populations, making it a relevant topic to be investigated.

This study aims to analyze sociodemographic factors related to sex, age, educational level, marital status, race, income, frailty and NCDs. Since these factors contribute to the worsening of the health conditions of the elderly, especially the population with NCDs and levels of frailty. And in this way, identify and point out the most prevalent variables in the populations already investigated in previous studies.

It intends to contribute to fostering adjustments in health policies, assistance and intervention with a focus on care management (Giacomin *et. al*, 2018). Provide support for strategies for the promotion, prevention, control and early detection of frailty in the elderly with CNCD, or even in people with the absence of the disease (Araújo Júnior *et. al*, 2019). In this way, reaching the other aspects not mentioned here, but which are priorities for healthy aging.

MATERIAL AND METHODS

Type of Study

A qualitative narrative and critical review was carried out, with the intention of surveying scientific productions (Marconi & Lakatos, 2017), written and published nationally and internationally in the last five years (between 2017 and 2021), and subsequently to this, to make a descriptive analysis of the recurrent phenomena in the literature based on the approached theme.

Data collect

For data collection, articles in the literature were surveyed, using the PubMed database (www.ncbi.nlm.nih.gov/pubmed). The following descriptors in English were used: "Chronic diseases", "Multimorbidity", "Aging", "Elderly", "Frailty", "Sociodemographic", combined as follows: ("chronic diseases or multimorbidity") and (aging or elderly) and (frailty) and (sociodemographic). The filters applied in the research were: Abstract, Free full text, Full text, in the last 5 years.

Thus, 107 results were obtained on the subject, of which 12 articles were selected for analysis published in different countries of the world, in which most of them revealed that fragility is treated under different aspects, and not meeting what he wanted to address in this study, later 6 were definitively selected, thus meeting the selection criteria proposed by the study.

Data analysis

The studies were treated through the data analysis proposed by Bardin (2016), which aims to obtain, through content description, the inference of knowledge produced in a systematic and objective way. The technique of analysis by categories was used, starting with a pre-analysis of the data already collected, starting with a floating reading. Then, the articles were selected individually, demarcating them by their homogeneity and, later, the data was explored in order to code and categorize them from the extraction of the results found.

Eligibility Criteria

Eligibility criteria were defined based on the selection of articles in English, Portuguese and Spanish; articles involving humans; articles that fully describe the proposed theme – frailty and chronic diseases and sociodemographic factors; articles published and indexed in that database in the last five years (between 2017 and 2021), excluding articles that performed experiments with animals; articles that did not involve the elderly population under 50 years of age.

RESULTS

From the selected articles (Figure 1), experimental studies with individuals aged ≥ 50 years of both sexes were analyzed, thus establishing the association of sociodemographic factors sex, age, education, marital status, level socioeconomics and race, frailty and chronic diseases.

In the analysis of the studies (Figure 2), there was a greater association of frailty and chronic diseases in the variables age and education, present in 5 of the studies; the variable – sex was evidenced in 4 studies, mostly composed of female elderly women; the variable – marital status, was evident in 3 studies, the results showed the following status: widowed, living with a partner, single, separated and divorced; the variable – race and income, a study was obtained with results associated with frailty.
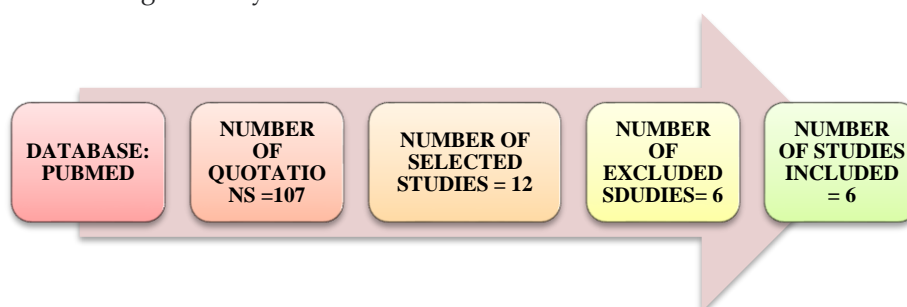

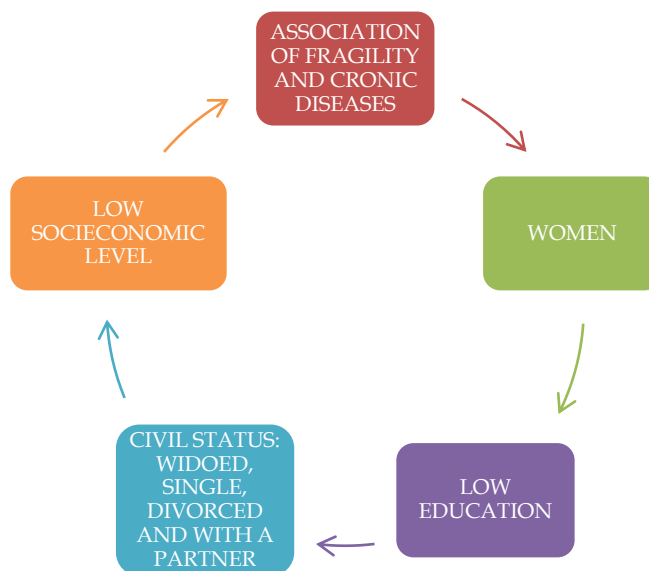**Figure 1**. Results and Selection of Studies

Figure 2. Prevalence of sociodemographic factors

DISCUSSION

The findings involving the association of frailty with age are in line with other studies that reinforce that the progression of the condition occurs with advancing age, affecting more often the elderly (Carneiro *et. al*, 2017, Vaingankar *et. al*, 2017, Farías Antúnez & Fassa, 2019). With the possibility of reaching low and middle income countries, which configures the need for preventive education for this population (Biritwum *et. al*, 2016). It should be noted that the incidence of frailty was strongly associated with a low level of education, which presupposes that health education/education is an important social aspect, which can be an ally in terms of protecting the symptoms of frailty

(Hoogendijk *et. al*, 2018, Wu *et. al*, 2018, Xu, Li & Wu, 2019).

There was a strong prevalence of the variable sex associated with frailty, which is in agreement with other studies that show that in women the prevalence has been accentuated compared to men (Corbi *et. al*, 2019, He *et. al*, 2019, Blanco-Reina *et. al*, 2021). In addition, an observational study carried out with 1,609 urban elderly people points out that woman who have poor socioeconomic conditions are at greater risk of developing frailty (Tavares *et. al*, 2017). The associations of frailty with low socioeconomic status were not frequent, being present in one study, confronting positive findings regarding the relationship between socioeconomic status and frailty (Cruz *et. al*, 2017, Rodriguez *et. al*, 2018, Yu *et. al*, 2018, Duarte *et. al*, 2018).

With regard to marital status, 3 studies were obtained with positive results in relation to frailty, with one study prevailing – widowed, one study – widowed, single; separate; divorced, and a study – having a partner. Such data corroborate findings found in other studies that relate - not having a partner has a significant relationship with frailty (Carneiro *et. al*, 2017; Fhon *et. al*, 2018), in confrontation with another study, which shows marital status being a significant influencer, but with differences between sex, having the status – single male at higher risk; and women with status – widow, are at lower risk compared to married women (Trevisan *et. al*, 2016). Thus, a study was found that related frailty with race, which may be related to results found in a systematic review carried out in eight databases (Feng *et. al*, 2017), which included studies with longitudinal designs to identify sociodemographic protective factors, indicating the association of frailty with ethnicity.

The association between frailty and CNCDs was found in all studies, in line with the study carried out in five European countries, which evaluated the three domains of frailty, noting that the presence of multimorbidity increases frailty rates (Ye *et. al*, 2020). This infers that frailty, when detected at the beginning of the chronic condition, is interpreted as a subclinical manifestation, even occurring in its absence (Lourenço *et. al*, 2019, Duarte *et. al*, 2018).

Added to this, and external to the objective of the study, other factors of higher prevalence associated with frailty were observed, namely, social isolation and depression (Gale; Westbury & Cooper, 2018; Mata *et. al*, 2021). Then, and with high prevalence, cognitive decline and impairment of functional capacity (Kallenberg *et. al*, 2016, Murukesu *et. al*, 2019, Rivan *et. al*, 2019). Allied to this, a sedentary lifestyle or physical inactivity corroborates studies that predict that physical inactivity is a negative factor and a contributor to frailty (Rivan *et. al*, 2019), making it important to emphasize that evidence recommends the proper practice of physical activity. Exercises

programmed to combat and reverse frailty levels (Tarazona-Santabalbina *et. al*, 2016, Angulo *et. al*, 2020, Jang *et. al*, 2021), mainly due to the COVID-19 pandemic (Yamada *et. al*, 2021, Murukesu *et. al*, 2021).

It is worth noting that this study lacks a greater number of investigations in the area of social vulnerability, as it is possible that there are limitations in terms of lifestyle influences among the countries surveyed. Therefore, sociodemographic indicators other than those mentioned in this study were not included. From the outset, the favorable and unfavorable conditions of access to basic health services in general may have interfered with the results.

CONCLUSION

The life expectancy of the world population has increased in recent years due to the drop in mortality, technological advances and improvements in the population's quality of life. Managing longevity has been a major challenge for the social and health sectors, while aging is a phenomenon that requires different strategies to promote general well-being. For this, we bet on the creation of health actions in favor of society's rights to enjoy a healthy and safe old age.

Aging is a condition that affects different aspects of an individual's life, which in turn, associated with adverse health conditions, cause the decline of physiological, psychological and social functions. As discussed in this study, the objective was to investigate the association of frailty and chronic diseases with sociodemographic factors and to detect the prevalence of such factors in order to contribute to improvements in the quality of life of elderly people with chronic, fragile and prone conditions the fragility. The study identified that age; women; low level of education and marital status were variables that stood out with regard to the association with frailty and chronic diseases in the elderly.

It was evident that new paths need to be raised for greater specificity in relation to the elderly population associated with the fragilities imposed over time.

DECLARATION OF COMPETING INTEREST

None declared.

FUNDING

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