



# Negative self-rated health in older people associated with socioeconomic conditions and health: a population survey in Rio Branco, Acre

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## Abstract

**Objective:** To estimate the prevalence of negative self-rated health and its association with socioeconomic conditions, depressive symptoms, self-reported functionality, and morbidities in older people in Rio Branco, Acre. **Method:** This is a survey carried out with data from Estudo das Doenças Crônicas em Idosos (EDOC-I - Study of Chronic Diseases in Older People), a household survey carried out with people aged 60 and over living in Rio Branco, Acre, Brazil, in 2014 (n=1,016). Negative self-rated health was defined by the “bad” and “very bad” strata. The scales of geriatric depression and activities of daily living and instrumental activities of daily living were applied. As a measure of association between negative self-rated health and variables of interest, the multiple logistic regression technique was used. **Results:** The prevalence of negative self-rated health was 15.4%, with a statistically significant association with females (OR: 1.72; 95%CI:1.17-2.51), low education (OR:2.33; 95%CI:1.37-3.97), sedentary lifestyle (OR:1.84; 95%CI:1.08-3.14), and medication use (OR:3.01; 95%CI:1.52-5.95). An association was also detected with depressive symptoms (OR:2.55; 95%CI:1.74-3.73), presence of multimorbidities (OR:1.73; 95%CI:1.15-2.61), and total dependence on instrumental activities of daily living (OR:2.42; 95%CI:1.40-4.17). The morbidities associated with the negative perception of health were asthma/bronchitis (OR:2.74; 95%CI:1.61-4.67), insomnia (OR:1.80; 95%CI:1.25-2.58),

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and heart problems (OR:1.77; 95%CI:1.18-2.68). *Conclusion:* Therefore, the negative self-rated health of older people is influenced by socioeconomic and health conditions, being a useful indicator for the design of health strategies to favor aging with independence and physical and emotional well-being.

## INTRODUCTION

Population aging is also a reality in Brazil resulting in changes in the pattern of morbidity and mortality. Aging is inevitable and progressive, as well as the phenomena that come with it, like organic wear, changes in cultural, social, and emotional aspects. Said changes influence the self-rated health since the idea of aging, health, and disease permeates and suffers the action from the socio-historical moment built by a variety of physical, cultural, and affective components, allowing the confusion of clinical and non-clinical conditions<sup>1</sup>.

The factors considered in the individual when assessing their health status are not yet fully defined but include different aspects such as sociodemographic indicators, health conditions, and decreased functionality among the older people<sup>2</sup>. It should be mentioned that the correlation between objective and subjective health tends to decrease with aging. However, given the conditions of disability, presence of morbidities, and depression, there is an increase in the prevalence of negative self-rated health<sup>3</sup>.

In a systematic review with studies from 1999 to 2011, the prevalence of negative self-rated health among older people ranged from 12.6 to 51.9%. In the presence of diseases, an association was observed with the use of medications, family income, hospitalizations, medical appointments, dependence on activities of daily living, symptoms of depression and anxiety, and insomnia<sup>4</sup>.

Understanding the factors associated with negative self-rated health in older people makes it possible to identify and monitor the general health conditions of this population. It also allows comparing its results with those of other regions of the country, since studies on this topic in the Amazon are scarce. Therefore, the objective of the present study was to estimate the prevalence of negative self-rated health and its association with socioeconomic conditions, depressive symptoms,

self-reported functionality, and morbidities in older people in Rio Branco, Acre, Brazil.

## METHOD

This is a survey carried out with data from Estudo das Doenças Crônicas em Idosos (EDOC-I - Study of Chronic Diseases in Older People)<sup>5</sup>, a household survey carried out with older people (aged 60 and over) living in Rio Branco, Acre state, Brazil, in 2014. With a sampling plan by clusters in two stages, census enumeration area (CEA) and household, all older people residing in the selected households of each of the 40 surveyed CEAs were included. Individuals with compromises that hindered communication or the understanding of the questions were excluded.

The sample size of the EDOC-I was determined assuming a prevalence of 40.0% of changes in renal function, with a confidence level of 95.0% and an absolute error of 3.0%. The final sample included 1,016 older people, which based on the calibrated weights of the observations allowed inferential estimates for the population of 23,416 older people living in Rio Branco on July 1st, 2014. More information on the sampling plan, instruments, and protocols for data collection can be found in the methodological article previously published by Amaral et al.<sup>5</sup>

Data were collected from March to September 2014. Home interviews were carried out to investigate the socio-economic, demographic, and health conditions, as well as the participants' lifestyle habits. The physical condition was also assessed with anthropometric, heart rate, and blood pressure measurements, in addition to collecting blood and urine samples for clinical analysis.

The body mass index (BMI) was assessed according to the specific cutoff points for the older population: low weight (BMI <22kg/m<sup>2</sup>), eutrophic (BMI between 22kg/m<sup>2</sup> and 27kg/m<sup>2</sup>), and overweight (BMI >27kg/m<sup>2</sup>).

The presence of arterial hypertension was defined as diastolic blood pressure (DBP)  $\geq 90$  mmHg and/or systolic blood pressure (SBP)  $\geq 140$  mmHg and/or current use of antihypertensive medication. For diabetes mellitus, the criteria of the American Diabetes Association (ADA) were used: fasting plasma glucose  $\geq 126$  mg/dl, as well as the use of oral hypoglycemic medication or insulin<sup>6</sup>.

Dyslipidemia was defined by the presence of abnormal levels of one or more of the following blood lipid components: total cholesterol  $\geq 200$  mg/dl; LDL-C  $\geq 60$  mg/dl; triglycerides  $\geq 50$  mg/dl; and HDL-C in men  $< 40$  mg/dl and women  $< 50$  mg/dl, in addition to reports of medication used to reduce these values<sup>7</sup>.

Multimorbidity was considered from two cutoff points, one considering the presence of 2 or more chronic diseases and the other 3 or more.

The Geriatric Depression Scale (GDS-15) was used for the presence of symptoms of depression. The scale was adapted and validated for the Brazilian population by Almeida and Almeida<sup>8</sup>. This scale's score ranges from 0 to 15, with 6 points being considered as a suggestive case of the disease.

The Katz Index for Activities of Daily Living (ADL) and the Lawton and Brody scale for Instrumental Activities of Daily Living (IADL) were used to assess the functional capacity. The Katz scale has already been validated for Brazil<sup>9</sup>, and assesses the level of autonomy of older people to perform six daily activities: dressing; bathing; going to the bathroom; sitting, lying down, and getting up from the bed or a chair; continence; and feeding. The score varies between 0 and 6 points, with 1 point attributed to each answer *Yes*. Based on the Katz scale, older people were classified as independent (6 to 5 points), partially dependent (4 to 3 points), or totally dependent (less than 3 points).

The scale of Instrumental Activities of Daily Living (IADL) adapted to Brazilian Portuguese<sup>10</sup> consists of eight activities: taking care of the house, doing laundry, cooking, shopping, using the telephone, taking transportation, managing money, and managing medication. For this scale, those older people who reached 27 points were classified

as independent, between 26-18 points as partially dependent, and less than 18 points as dependent.

The dependent variable of the present survey was obtained from the answers to the question, *in general, would you say that your health is very good, good, regular, bad, or very bad?* Those that indicated the strata *bad* and *very bad* were defined as having negative self-rated health.

Thirty (30) older people were interviewed and physically evaluated in the pilot study for information quality control<sup>5</sup>.

The data were analyzed in a descriptive and exploratory way to assess the distribution and characterize the studied population. The variables were described by absolute frequencies and ratios, with the differences between ratios estimated by the Pearson's chi-square test.

The bivariate analysis was performed to explore the association between different variables and the object of study. The logistic regression models estimated the association magnitude in odds ratio (OR) between the dependent variable 'negative self-rated health' and the independent variables.

In the multiple analysis, variables that had  $p < 0.20$  were included in the raw analysis, and the magnitude of association of the variables adjusted by the other significant variables was estimated. The hierarchical model was used. In it, the demographic and socioeconomic variables are in the first level, life habits and health conditions in the second one, and morbidities and factors related to diseases in the third one. The significant variables in one step remained in the model in the following steps. Additionally, the multiple regression analysis was performed for the presence of multimorbidity, depressive symptoms, and functional capacity. The significance level adopted was  $\alpha = 0.05$ .

All analyzes took into account the effect of the sample design and the calibrated weights of the observations from which the ratios were defined. The frequencies of observation in the sample were expressed by 'n', and the population inferences by 'N'.

The EDOC complied with the provisions of Resolution of National Health Council (CNS)

466/2012 which deals with ethics in research involving human beings, and was approved by the Research Ethics Committee (CEP) of the Federal University of Acre, under opinion No. 1.610.359.

## RESULTS

The prevalence of negative self-rating among older people in Rio Branco in 2014 was 15.4%. The prevalence in the regular stratum was 47.9%, and the positive self-rating was 36.7%. In the analysis of negative self-rating, higher prevalences were observed in females, education up to elementary school, and a sedentary profile ( $p < 0.05$ ) (Table 1).

Higher prevalences of negative health perception were also observed among older people who use medication, with a history of hospitalization in the 12 months before the interview, and among those who reported suffering from asthma/bronchitis, insomnia, poor blood circulation, heart problems, and osteoporosis (all with  $p < 0.05$ ) (Table 2).

In the presence of depressive symptoms and dependence on IADLs, the prevalence of negative self-rated health was greater than 25.0%. The negative self-rating also had a higher prevalence among older people with multimorbidity assessed for two or more chronic morbidities and three or more ( $p < 0.05$ ) (Table 2).

The multivariate analysis adjusted by the hierarchical level at the distal level revealed statistically significant associations between negative self-rated health and sex and education. At the intermediate level, an association with sedentary lifestyle was detected, and at the proximal level with the use of medication, presence of asthma/bronchitis, insomnia, and heart problems (CHF, arrhythmias, acute myocardial infarction) (Table 3).

The presence of depressive symptoms, multimorbidities, and functional dependence increased an individual's chance of negatively self-rating health after adjustment by potentially confounding variables (Table 4).

**Table 1.** Prevalence of negative self-rated health according to sociodemographic characteristics and lifestyle in older people. Rio Branco, Acre, Brazil, 2014.

Variables	Total	Negative Self-rated Health		<i>p-value</i> <sup>a</sup>
	N	n	N (%)	
Total	23,416	1,016	3,610 (15.4)	
Age (years)				0.081
60-79	20,081	842	2,905 (14.5)	
80 and over	3,335	174	705 (21.2)	
Gender				0.009
Male	10,896	418	1,283 (11.8)	
Female	12,520	598	2,327 (18.6)	
Marital status*				0.453
Common-law marriage	9,086	376	1,271 (14.0)	
No common-law marriage	14,172	633	2,277 (16.1)	
Skin color				0.591
White	5,614	250	931 (16.6)	
Not white	17,802	766	2,679 (15.0)	
Education*				0.001
High school and higher education	3,789	156	299 (7.9)	
Up to elementary school	19,434	852	3,287 (16.9)	

to be continued

Continuation of Table 1

Variables	Total	Negative Self-rated Health		<i>p-value</i> <sup>a</sup>
	N	n	N (%)	
Physical activity*				0.003
Yes	3,577	151	293 (8.2)	
No	19,839	865	3,317 (16.7)	
Smoking*				0.882
Non-smoking	6,763	294	1,020 (15.1)	
Smoker / ex-smoker	16,653	722	2,590 (15.6)	

\*The differences regarding the total are due to the lack of information in the variable; <sup>a</sup>Pearson's chi-square; N = population inference based on the sample design.

**Table 2.** Prevalence of negative self-rated health according to health conditions, presence of morbidities, multimorbidity, depressive symptoms, and functionality in older people. Rio Branco, Acre, Brazil, 2014.

Variables	Total	Negative Self-rated Health		<i>p-value</i> <sup>a</sup>
	N	n	N (%)	
Use of medication				<0.001
No	5,871	237	332 (5.7)	
Yes	17,545	779	3,278 (18.7)	
BMI (kg/m <sup>2</sup> )*				0.100
<22	2,789	128	583 (20.9)	
22 to 27	10,042	432	1,292 (12.9)	
>27	9,204	397	1,568 (17.0)	
Central obesity (CC)*				0.410
CC≤102M or ≤88F	14,381	610	2,120 (14.7)	
CC> 102M or> 88F	7,871	357	1,364 (17.3)	
Hospitalization in the last 12 months*				0.003
No	18,868	818	2,614 (13.9)	
Yes	3,746	162	823 (22.0)	
Arterial hypertension*				0.251
No	5,458	235	1,002 (18.4)	
Yes	17,385	759	2,584 (14.9)	
Diabetes*				0.226
No	18,843	820	2,740 (14.5)	
Yes	3,834	166	705 (18.4)	
Dyslipidemia*				0.930
No	4,585	198	696 (15.2)	
Yes	18,031	785	2,782 (15.4)	
Self-reported morbidities				
Asthma/bronchitis				<0.001
No	21,067	913	2,853 (13.5)	
Yes	2,275	100	725 (31.9)	

to be continued

Continuation of Table 2

Variables	Total	Negative Self-rated Health		<i>p</i> -value <sup>a</sup>
	N	n	N (%)	
Insomnia*				0.001
No	15,333	658	1,904 (12.4)	
Yes	8,039	356	1,706 (21.2)	
Poor circulation				0.047
No	2,018	632	2,018 (13.6)	
Yes	8,437	379	1,518 (18.0)	
Heart problems*				<0.001
No	19,843	858	2,547 (12.8)	
Yes	3,245	144	880 (27.1)	
Encephalic Vascular Accident*				0.513
No	22,313	967	3,480 (15.6)	
Yes	1,026	46	130 (12.7)	
Osteoporosis*				0.007
No	19,473	829	2,703 (13.9)	
Yes	3,453	164	775 (22.4)	
Depression (GDS)*				<0.001
No	15,666	671	1,658 (10.6)	
Yes	7,558	337	1,908 (25.2)	
Multimorbidity*				
No	10,019	419	1,112 (11.1)	0.002
Yes (≥2)	13,398	597	2,498 (18.6)	
No	14,786	627	1,708 (11.6)	<0.001
Yes (≥3)	8,630	389	1,902 (22.0)	
ADL*				0.898
Independent	17,539	760	2,684 (15.3)	
Partial dependence	4,000	176	584 (14.6)	
Total dependence	1,771	75	299 (16.9)	
IADL				< 0.001
Independent	11,908	490	1,309 (11.0)	
Partial dependence	9,079	412	1,657 (18.3)	

\*The differences regarding the total are due to the lack of information in the variable; <sup>a</sup>Pearson's chi-square; N=population inference based on the sample design; BMI=Body Mass Index; GDS=geriatric depression scale; IADL=instrumental activities of daily living; ADL=activities of daily living.

**Table 3.** Hierarchical model of negative self-rated health according to independent variables in older people. Rio Branco, Acre, Brazil, 2014.

Variables	OR <sub>Crude</sub> (95%CI)	OR <sub>Adjust</sub> (95%CI)
Distal level		
Age (≥80 vs. 60-79)	1.59 (0.94 - 2.68)	1.47 (0.86 - 2.51)
Gender (female vs. male)	1.71 (1.15 - 2.55)	1.72 (1.17 - 2.51)
Education (up to element. vs. ≥ high school)	2.37 (1.40 - 4.01)	2.33 (1.37 - 3.97)
Intermediate level		
Physical activity (sedentary vs. active)	2.25 (1.33 - 3.78)	1.84 (1.08 - 3.14)
BMI (kg/m <sup>2</sup> )*		
< 22 vs. 22 - 27	1.79 (1.15 - 2.79)	1.58 (0.99 - 2.52)
> 27 vs. 22 - 27	1.39 (0.87 - 2.22)	1.31 (0.82 - 2.10)
Proximal Level		
Use of medication (yes vs. no)	3.84 (2.11 - 6.98)	3.01 (1.52 - 5.95)
Hospitalization (yes vs. no)	1.75 (1.22 - 2.51)	1.31 (0.83 - 2.09)
Asthma/Bronchitis (yes vs. no)	2.98 (1.82 - 4.89)	2.74 (1.61 - 4.67)
Insomnia (yes vs. no)	1.90 (1.30 - 2.78)	1.80 (1.25 - 2.58)
Poor circulation (yes vs. no)	1.39 (1.00 - 1.94)	1.05 (0.76 - 1.45)
Heart problems (yes vs. no)	2.53 (1.73 - 3.70)	1.77 (1.18 - 2.68)
Osteoporosis (yes vs. no)	1.79 (1.18 - 2.74)	1.19 (0.73 - 1.96)

OR=*Odds Ratio*; CI=confidence interval; OR<sub>adjust</sub>=adjusted *Odds Ratio*. Distal level adjusted by the distal variables between them; Intermediate level adjusted by the intermediate variables between them and by the significant variables of the distal level; Proximal level adjusted by the proximal variables and significant variables of the distal and intermediate levels. Up to element. = education up to elementary school; ≥ high school = greater than or equal to high school; BMI = Body Mass Index.

**Table 4.** Logistic regression analysis of the presence of multimorbidity, depressive symptoms, and functionality with negative self-rated health in older people. Rio Branco, Acre, Brazil, 2014.

Variables	OR <sub>Crude</sub> (95%CI) (model 1)*	OR <sub>Adjust</sub> (95%CI) (model 2)**	OR <sub>Adjust</sub> (95%CI) (model 3)***
Depression (GDS)			
Yes vs. No	2.85 (1.91 - 4.26)	2.69 (1.85 - 3.93)	2.55 (1.74 - 3.73)
Instrumental activities of daily living			
Partially dependent vs. Independent	1.81 (1.23 - 2.65)	1.71 (1.12 - 2.60)	1.63 (1.06 - 2.51)
Totally dependent vs. Independent	2.82 (1.71 - 4.65)	2.64 (1.51 - 4.62)	2.42 (1.40 - 4.17)
Multimorbidity (≥2)			
Yes vs. No	1.84 (1.26 - 2.68)	1.69 (1.14 - 2.51)	1.73 (1.15 - 2.61)
Multimorbidity (≥3)			
Yes vs. No	2.16 (1.63 - 2.87)	1.97 (1.44 - 2.72)	1.93 (1.37 - 2.72)

\*model 1: crude; \*\*model 2: adjusted by gender and age; \*\*\*model 3: adjusted by gender, age, education, and physical activity. GDS = geriatric depression scale.

## DISCUSSION

A moderate prevalence of negative self-rated health (15.4%) was identified among older people who considered their health bad or very bad in Rio Branco, Acre, in 2014. The negative perception of their health was associated with depressive symptoms and dependence on instrumental activities of daily living. Associations with the female gender, low education, sedentary lifestyle, and use of medications were also observed in addition to the association with self-reported asthma/bronchitis, insomnia, heart problems, and multimorbidities.

In comparison with the results of some international studies<sup>11,12</sup>, the prevalence of negative self-rated health in older people in Rio Branco is much higher than that observed in Argentina and lower than that presented in Mexico. A study with 436 older people carried out in Córdoba, Argentina in 2011 revealed a prevalence of 8.3%<sup>11</sup>. However, a study with 8,874 older people aged 60 and over carried out in Mexico in 2012 detected a prevalence of 18.1%<sup>12</sup>.

The older people of Rio Branco have a higher prevalence of negative perception of health compared with the results of national studies<sup>13-15</sup>. Data from 1,344 people aged 60 or over in the city of São Paulo in 2010 showed that the prevalence of negative self-rated health was 7.8%<sup>13</sup>. In the city of Campinas, São Paulo, the prevalence among individuals of the same age group between 2008 and 2009 was 10.9%<sup>14</sup>. In Minas Gerais, the prevalence with 686 older people was 13.5%<sup>15</sup>.

Studies on self-rated health should be carefully compared since many studies include the regular category as a negative assessment, thus overestimating the prevalence values and consequently compromising the association estimates. It is recommended to use only the categories bad and very bad to define the negative health perception<sup>4</sup>.

Among the conditions associated with negative self-rated health, older women had a worse assessment of their health. They appear as the majority, a feminization phenomenon of aging resulting from a life expectancy higher than that of men, and they also represent the highest frequency of negative self-rated health compared to men<sup>16</sup>.

In a study carried out in São Paulo<sup>13</sup>, the chance of negative self-rated health was almost twice as high in females as in males, thus corroborating the findings of the present study. It implies a paradox to be faced by women as they live longer, although in worse health conditions, which can be partly explained by the lower levels of education and time for leisure activities, besides the biological reasons like the reproductive function - women experience a delicate postmenopausal period, although with a low risk of death<sup>17</sup>.

Inequalities are not restricted to the gender variable. Data from Pesquisa de Orçamentos Familiares (Family Budget Survey - POF 2008 - 2009) reveal that access to basic services is worse among those with low income and less education<sup>18</sup>, with an association between lower education and negative self-rated health being observed among older women in the present study. At the global level, social inequalities in health are problems affecting everyone since regardless of the country in which they live, individuals who live in worse socioeconomic conditions are the most susceptible to several health problems, and therefore with worse health assessment<sup>19</sup>.

A national study<sup>20</sup> analyzing data from 1998 to 2013 pointed to a 7 to 9 times greater chance of negative self-rated health in Brazilians with a low education level when compared to those with a higher education level. It is worth noting that despite the progress in education levels during this period, there was no reduction in the prevalence of negative perceptions of one's health, pointing out the need to improve people's chronic conditions and mental health to bring a positive impact on the Brazilian's self-perception of health.

Regarding the association observed between the use of medication and negative perception of health, two perspectives must be considered: the first is that the use of medication indicates the presence of morbidities, which explains the worse self-rated health; another important consideration is that the adverse effects resulting from medication may have a worse effect on health perception<sup>21</sup>.

A study with 1,705 older people carried out in Florianópolis in 2009 revealed a prevalence of polypharmacy of 32.0%, with the most used groups



of medications being those prescribed for the cardiovascular system, alimentary tract, metabolism, and nervous system<sup>22</sup>. It is noteworthy the need for greater care on the use of medication for older people to ensure adherence and avoid complications.

The prevalence of cardiovascular diseases (CVD) has increased in the older population partly due to the increased life expectancy and increased exposure to risk factors<sup>23</sup>. In the United States, about 82.0% of all deaths in older people ( $\geq 65$  years) are attributed to CVD, and these diseases are important in the occurrence of disabilities, functional decline, health costs, and declining health perception, thus confirming the findings of the present survey, which imposes the need to ensure expectancy of an active life and not only the survival expectancy of older people<sup>24</sup>. In Brazil, CVD is the leading cause of death. However, it has shown a downward trend, mainly in the age group from 50 to 69 years<sup>25</sup>.

In the present study, asthma/bronchitis was associated with negative self-rated health, as observed in a study conducted in Montes Claros, Minas Gerais, in which the self-report of asthma was three times higher in individuals with negative self-rated health<sup>15</sup>.

If the presence of a single morbidity may result in a change in the perception of one's own health, multimorbidity is even more impactful since the greater number of diseases generates physical, social, and mental complications in older people resulting in worse self-rated health<sup>26</sup>. Data from a review study identified that the prevalence of multimorbidity in older people in Brazil ranges from 30.7% to 57.0%, being associated with the socioeconomic and demographic conditions, lifestyle, and family structure<sup>27</sup>. In another study with older people in the municipalities to the north of Rio Grande do Sul, the presence of multimorbidities increased the negative self-rated health by 29.0%<sup>28</sup>.

The association between depression symptoms and negative self-rated health identified among healthy people in the present study was also observed in another study<sup>14</sup>. Besides physical health conditions, psychic conditions also have an important effect on health perception. Data from the World Health Organization reveal that the older population will reach 22.0% of the world population in 2050, and mental

health and well-being are important at this point in life since 15.0% of older people ( $\geq 60$  years) suffer from some mental disorder, 7.0% and of these are due to depression<sup>29</sup>. Depression is a common disorder in older people affecting their functional capacity and being associated with somatic diseases leading to social isolation and worsening the quality of life.

In Montes Claros, Minas Gerais, the presence of depression was associated with a two-fold increase in negative self-rated health<sup>30</sup>. Data from the EpiFloripa Idoso survey with 1,656 older people associated bad self-rated health with symptoms of depression (PR=2.64; 95%CI 1.82-3.83), and functional dependence (PR=1.83; 95%CI 1.43-2.33)<sup>31</sup>. As the population ages, the prevalence of chronic and disabling diseases increases leading to changes in the person's abilities which can cause considerable changes in the performance of daily activities<sup>32</sup>.

Aging can result in loss of independence due to mobility restrictions, frailty, and decreased functional fitness and cognitive abilities, with specific programs and policies being important to keep older people healthy and independent throughout life<sup>33</sup>. According to Campos et al.<sup>34</sup>, the prevalence of functional disability in Brazil ranges from 13.2% to 85.0%.

Amid the demographic transition, researchers and health professionals should focus on the interactions among functional capacity, aging, morbidity, and their relevance to patient-centered goals. It is worth mentioning that the processes contributing to the susceptibility to the disease and the decline in functional status are inherent to age. Among the most important systemic and cellular components for functional capacity are mitochondrial dysfunction, oxidative stress, abnormal calcium management, chronic inflammation, cellular senescence, extracellular matrix production, loss of telomere structures, and little DNA repair capacity<sup>35</sup>.

It is worth considering that the present study presents specific limitations and also strengths that should be considered. The first limitation is the survival bias inherent to cross-sectional studies with older people. However, the exploratory nature of the analyses presented here and the non-intention of making causative inferences are emphasized. On the other hand, the probabilistic sampling whose

estimates are inferential for the older population of the municipality of Rio Branco is shown as a strong point of the study. Also, the exclusion of individuals with impaired cognitive capacity could lead to errors in the estimates of functionality since they are more likely to be functionally dependent.

Another point to be acknowledged as limiting of the findings is the use of self-reported measures for some health conditions that may underestimate or overestimate the prevalence. Moreover, some morbidities were defined by clinical and laboratory criteria. Therefore, it is a study with objective and subjective data of health conditions to assess negative self-rated health, depression, and functional disability in older people. This dangerous triad has repercussions on the quality of life and well-being of this group.

## CONCLUSION

The older population of Rio Branco has a moderate prevalence of negative self-rated health,

and this self-rating is associated with depression and dependence on instrumental activities of daily living, as well as self-report of asthma/bronchitis, insomnia, heart problems, and multimorbidities. An association was also observed with females of low education, sedentary lifestyle, and in use of medication.

Actions to monitor physical and psychological conditions should be a constant in the health care of older people, and the functional capacity, symptoms of depression, and self-rated health need to be assessed and used to guide preventive actions. Self-rated health is an important indicator of physical and mental health status and can be used in studies and the follow-up of the health of the older population.

The use of the present finding may be useful to design health strategies favoring aging with independence and physical and emotional well-being. Further research should be carried out with methods to allow verify causality.

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