


Paid Work and Physical Activity Preserve Functional Capacity in Elderly People: EpiFloripa Study

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Abstract

Objective: To investigate the prevalence and association between functional disability and health conditions in elderly people. **Method:** A cross-sectional, population-based study with 1,705 elderly residents in urban region of Florianópolis, Brazil, from September 2009 to July 2010. The functional disability was classified according to the difficulty in accomplishing six basic activities of daily living. The crude and adjusted multinomial logistic regression was used to identify the associated factors. **Results:** The prevalence of mild functional disability was 38.9%, and it was positively associated with being female, older age, reporting four or more chronic diseases, overweight, and negative self-perception of health. High education and income, having paid work, and being physically active in leisure activities reduced the chance of presenting it. The prevalence of moderate/severe disability was 11.7% and positively associated with older age, presence of depressive symptoms, four or more chronic diseases, and negative self-perception of health. High education, paid work, and being physically active in leisure activities also reduced the chance of presenting moderate/severe disability. **Conclusion:** Being gainfully employed, having a high level of education, and being physically active in their leisure time reduced the chance of presenting disability. The negative self-perception of health was the factor that most increased the chance of presenting functional disability.

Keywords

activities of daily living, aged, aging, health

Introduction

Functional disability, one of the main indicators of health in older adults, is associated with the degree of independence and autonomy one presents while accomplishing activities of daily living (d'Orsi, Xavier, & Ramos, 2011) that can be divided into basic activities of daily living and instrumental activities of daily living (Millán-Calenti et al., 2010). The basic activities of daily living are activities related to self-care such as bathing and eating, whereas instrumental activities are related to activities of social life.

The difficulty or inability to perform these activities is understood as functional decline (Giacomin, Peixoto, Uchoa, & Lima-Costa, 2008), and it is considered an important predictor of mortality in this population (d'Orsi et al., 2011; Millán-Calenti et al., 2010). In addition, the presence of functional impairment in accomplishing basic activities of daily living leads to the individuals needing special attention and care, because it results in greater disability among the elderly population (Lebrão & Laurenti, 2005).

In Brazil, studies with older adults in different regions of the country have found that the prevalence of functional disability for basic activities of daily living varies from 16.0% to 26.8 % (Del Duca, Silva, & Hallal, 2009; Giacomin et al., 2008; Lebrão & Laurenti, 2005), whereas international studies present prevalence rates ranging from 8.0% to 34.7% (Lima-Costa, De Oliveira, Macinko, & Marmot, 2012; Millán-Calenti et al., 2010; Reyes-Ortiz, Ostir, Pelaez, & Ottenbacher, 2006). Some authors suggest that such differences between populations are the result of individual characteristics, social and cultural differences, that interfere with the assessment of functional status (Giacomin et al., 2008; Nascimento et al., 2012).

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The main risk factors for functional disability such as age, cognitive impairment, and socioeconomic characteristics are described in the literature (Chen, Chang, & Lan, 2015; Ramos, 2007; Stuck et al., 1999). However, the relationship between modifiable risk factors (e.g., lifestyle and some health conditions) and functional capacity is still not well defined in the Brazilian population.

Thus, the aim of this study is to investigate the prevalence of functional disability and its association with socioeconomic, demographic, and lifestyle characteristics, and health conditions in older adults resident in Florianópolis, Brazil.

Method

This study is part of a comprehensive investigation named EpiFloripa Idoso (<http://www.epifloripa.ufsc.br/>) (d'Orsi, 2009), whose objective was to investigate the health status of older adults living in the city of Florianópolis, Santa Catarina, Brazil. It was a population-based cross-sectional study, conducted in the urban area of the city from September 2009 to June 2010. The sample was composed of older adults aged 60 or more, and institutionalized individuals (residents in rest clinics and shelters) were excluded.

The sample size was calculated to estimate prevalence from a simple random sample multiplied by two and increases of 20% to account for anticipated losses, and 15% for studies of associations. That was accomplished using the software Epi-Info Version 6.04. More details on the site, study population, and sampling were published elsewhere (Giehl, Schneider, Corseuil, Benedetti, & d'Orsi, 2012).

The data collection was carried out by trained interviewers through face-to-face interviews, with a standardized and previously tested questionnaire and the aid of personal digital assistants. We considered losses the households that were visited 4 times, including a visit in the evening and another at the weekend, and refusals the individuals who did not agree to participate in the study.

The dependent variable of this study was functional disability, which was inquired using the Brazilian Multidimensional Functional Assessment Questionnaire adapted from the Old Americans Resources and Services, validated in Brazil (Blay, Ramos, & Mari, 1988). The questions asked about the difficulty in accomplishing six basic activities of daily living—lie down/get out of bed, eat, walk on flat surface, take a shower, dress, and go to the bathroom when you feel the need and in time—divided into four categories of possible answers: no difficulty, little difficulty, a lot of difficulty, and does not perform.

For analysis, we split functional disability into three categories: free of disability (no difficulty performing any activity), mild disability (difficulty/inability to perform one to three activities), and moderate/severe disability (difficulty/inability to perform more than three activities) (Rosa, Benício, Latorre, & Ramos, 2003).

The independent variables were divided into socioeconomic and demographic, lifestyle and health conditions. Among the socioeconomic and demographic variables, there were gender (female/male), age group (60-69 years, 70-79 years, 80 years or more), self-reported skin color (White, Brown, or Black, we excluded from analysis yellow [$n = 12$] and indigenous [$n = 17$]), education (no formal education, 1 to 4 years, 5 to 8 years, 9 to 11 years, and 12 years or more), marital status (with companion, without companion), per capita family income stratified into quartiles (first quartile: \leq US\$578.82; second quartile: US\$578.82 to US\$1,237.18; third quartile: US\$1,237.18 to US\$2,651.11; and fourth quartile: $>$ US\$2,651.11), and paid work (yes/no).

The lifestyle variables were nutritional status (low weight, ideal weight, overweight) and leisure physical activity (physically active, insufficiently active). The health conditions we analyzed were cognitive impairment (absence of cognitive impairment, probable cognitive impairment), presence of depressive symptoms (yes, no), existence of morbidities (none, one to three, four or more), and self-perception of health (very good/good, fair, poor/very poor).

The nutritional status was obtained by calculating the Body Mass Index and classified according to the Standard Technique of Nutritional Surveillance—SISVAN (≤ 22 : underweight; >22 and <27 : eutrophic or appropriate; ≥ 27 : overweight) (American Academy of Family Physicians, & American Dietetic Association, 2002). The level of leisure-time physical activity was measured using the long version of the International Physical Activity Questionnaire, adapted and validated for the older adults in Brazil (Benedetti, Mazo, & Barros, 2004), and categorized into physically active (≥ 150 min/week) and insufficiently active (<150 min/week). The participants' cognitive status was assessed by the Mini Mental State Examination (Folstein, Folstein, & McHugh, 1975) and categorized in absence of cognitive impairment and probable impairment, considering the level of education of individuals, according to Almeida (1998) <19 for illiterate, <24 for those with some level of education). The presence of depressive symptoms was investigated by application of the Geriatric Depression Scale and categorized according to Almeida and Almeida (1999) (≥ 6 : yes; <6 : no).

Statistical Analysis

The statistical analysis included descriptive, bivariate, crude, and adjusted multinomial logistic regression. First step, we carried out descriptive analysis of both independent and dependent variables. That step was followed by bivariate analysis, when the characteristics of the participants with mild or moderate/severe disability were compared with those who did not have any difficulty in performing the activities (reference category). The bivariate data analysis was based on the p value of chi-square test for linear trend.

After that, we performed crude and adjusted multinomial logistic regression to investigate the association between functional disability and the independent variables estimating odds ratio (OR) with the respective 95% confidence intervals (CI). The variables were entered into the adjusted model in three blocks: first the socioeconomic and demographic, followed by lifestyle, and finally the health conditions, according the theoretical model proposed by Verbrugge and Jette (1994). For adjusted analysis, we entered all variables from the respective blocks, regardless of p value in the crude analysis. In the first block, the variables that were associated with the dependent variable with p value $< .05$ adjusted the second block. The third block was adjusted by significant variables from the first block and those with p value $< .05$ from the second block. Significance level was $p < .05$.

Data analysis used Stata SE 12.0 (Stata Corp., College Station, USA). All the analyses considered the cluster sample design effect, incorporating sample weights with the `svy` command.

The project was submitted to the Committee on Ethics in Research With Human Beings at the Federal University of Santa Catarina; it was approved on December 23, 2008, under Number 352/2008. After a general explanation of the objectives of the research and the procedures to be carried out, the interviewees were asked to sign the Free and Informed Consent form.

Results

From the total of 1,911 eligible older adults found for the study, 1,705 were interviewed resulting in a response rate of 89.0%. The prevalence of older adults without disability was 49.2%, while 38.9% presented mild disability, and 11.7% moderate/severe disability.

Table 1 describes the general characteristics of the sample, as well as the prevalence of disability in basic activities of daily living according to the categories of the sociodemographic, economic, lifestyle, and health conditions variables.

The study was mostly composed of females (63.9%), with mean age of 69 years (minimum of 60 and maximum of 104 years), White (87.0%), with 1 to 4 years of schooling (34.5%), who had companion (58.2%), and who were not in paid work (86.5%). In relation to lifestyle and health conditions, 52.5% were overweight, 29.0% were physically active in their leisure time, 73.7% had no cognitive impairment, 86.2% did not have depressive symptoms, 59.5% had 1 to 3 chronic diseases, and 51.2% reported self-perception of health as very good or good.

Table 2 describes the analysis of the degree of functional disability in basic activities of daily living. In the crude analysis, they had a greater chance of presenting mild and moderate/severe disability, being female, aged 70 to 79 and 80 years or more, not having companion,

being overweight, probable cognitive impairment, presence of depressive symptoms, reporting chronic diseases, and self-perception of health as regular or bad/very bad. Schooling for more than 5 years of study, having a high income (third and fourth quartiles), working, and being physically active in their leisure time reduced the chance of presenting both levels of disability.

The results of the association in the adjusted model between the independent variables and mild functional disability are shown in Table 2. Females had twice as much chance of presenting mild functional disability, while those aged 70 to 79 years and 80 years or older had approximately 2 and 4 times greater chance of mild disability, respectively, when compared with their peers. Being overweight, having four or more chronic diseases, and reporting self-perception of health as regular and bad/very bad also increased the chance of mild disability.

Individuals who were on the third income quartile, worked at the time of the interview, and were physically active had 34.0%, 36.0%, and 39.0% less chance of mild disability, respectively.

The adjusted analysis showed that those aged 80 years or above, the presence of depressive symptoms, having 4 or more chronic diseases, and reporting self-perception of health as regular and bad/very bad presented an increased chance of moderate/severe disability.

Higher schooling also reduced the chance of presenting moderate/severe disability by 61.0% in groups 5 to 8 years, 70.0% for 9 to 11 years, and 72.0% in the group with 12 or more years of study. The chance of moderate/severe disability was 70.0% lower among those who performed paid work and was 54.0% lower in those physically active in their leisure time.

We tested the interactions between perception of health and work, as well as between leisure-time physical activity and depression. Neither was significant.

Discussion

The prevalence of mild disability in older adults living in Florianópolis was 38.9% and of moderate/severe disability was 11.7%. Differences from other studies may be due to methodological differences between them, such as the use of different scales for functional assessment (Paixão & Reichenheim, 2005; Yang, Ding, & Dong, 2014), non-standardization of cutoff points for the classification of disability, and no separation of activities of daily living in basic and instrumental, which makes it difficult to compare data (Del Duca et al., 2009). In addition, socioeconomic and cultural characteristics can also interfere with the older adults' self-assessment of functional capacity (Millán-Calenti et al., 2010).

The high prevalence of moderate/severe disability found, when compared with other national studies, may

Table 1. Descriptive and Bivariate Analysis of Functional Disability on Basic Activities of Daily Living, Florianópolis, EpiFloripa Idoso, 2009-2010.

Variables	n (%)	Functional disability on basic activities of daily living			p value ^a
		None	Mild	Moderate/severe	
		n (%)	n (%)	n (%)	
Socioeconomic and demographic					
Gender (n = 1,705)					<.001
Female	1,089 (63.9)	475 (43.6)	475 (43.6)	139 (12.8)	
Male	616 (36.1)	365 (59.3)	189 (30.7)	62 (10.1)	
Age group (years; n = 1,705)					<.001
60-69	854 (50.1)	518 (60.7)	280 (32.8)	56 (6.6)	
70-79	612 (35.9)	271 (44.3)	270 (44.1)	71 (11.6)	
80 years or more	239 (14.0)	51 (21.3)	114 (47.7)	74 (31.0)	
Self-reported skin color (n = 1,659)					.23
White	1,444 (87.0)	730 (50.6)	558 (38.6)	156 (10.8)	
Brown	131 (7.9)	54 (41.2)	58 (44.3)	19 (14.5)	
Black	84 (5.1)	41 (48.8)	34 (40.5)	9 (10.7)	
Education (years; n = 1,694)					<.001
No formal education	161 (9.5)	50 (31.0)	66 (41.0)	45 (28.0)	
1-4	584 (34.5)	239 (40.9)	259 (44.3)	86 (14.7)	
5-8	321 (18.9)	157 (48.9)	136 (42.4)	28 (8.7)	
9-11	234 (13.8)	127 (54.3)	91 (38.9)	16 (6.8)	
12 years or more	394 (23.3)	265 (67.3)	107 (27.2)	22 (5.6)	
Marital status (n = 1,705)					<.001
With companion	993 (58.2)	524 (52.8)	371 (37.4)	98 (9.9)	
Without companion	712 (41.8)	316 (44.4)	293 (41.2)	103 (14.5)	
Family income (quartiles; n = 1,705)					<.001
First quartile	427 (25.0)	178 (41.7)	190 (44.5)	59 (13.8)	
Second quartile	435 (25.6)	171 (39.3)	186 (42.8)	78 (17.9)	
Third quartile	425 (24.9)	237 (55.8)	148 (34.8)	40 (9.4)	
Fourth quartile	418 (24.5)	254 (60.8)	140 (33.5)	24 (5.7)	
Paid work (n = 1,705)					<.001
No	1,476 (86.5)	680 (46.1)	604 (40.9)	192 (13.0)	
Yes	229 (13.4)	160 (69.9)	60 (26.2)	9 (3.9)	
Lifestyle					
Nutritional status (n = 1,646)					<.001
Ideal weight	640 (38.9)	375 (58.6)	211 (33.0)	54 (8.4)	
Low weight	141 (8.6)	67 (47.5)	57 (40.4)	17 (12.1)	
Overweight	865 (52.5)	395 (45.6)	385 (44.5)	85 (9.8)	
Leisure physical activity (n = 1,705)					<.001
Insufficiently active	1,211 (71.0)	524 (43.3)	508 (41.9)	179 (14.8)	
Physically active	494 (29.0)	316 (64.0)	156 (31.6)	22 (4.4)	
Health conditions					
Cognitive impairment (n = 1,689)					<.001
Absence of cognitive impairment	1,246 (73.7)	693 (55.7)	467 (37.5)	84 (6.7)	
Probable cognitive impairment	443 (26.2)	144 (32.5)	191 (43.1)	108 (24.4)	
Depressive symptoms (n = 1,635)					<.001
No	1,410 (86.2)	775 (55.0)	539 (38.2)	96 (6.8)	
Yes	225 (13.8)	45 (20.0)	102 (45.3)	78 (34.7)	
Chronic diseases (n = 1,685)					<.001
None	155 (9.2)	122 (78.7)	27 (17.4)	6 (3.9)	
1-3 diseases	1,002 (59.5)	571 (57.0)	358 (35.7)	73 (7.3)	
4 or more diseases	528 (31.3)	139 (26.3)	270 (51.1)	119 (22.6)	
Self-perception of health (n = 1,681)					<.001
Very good/good	860 (51.2)	601 (69.9)	226 (26.3)	33 (3.8)	
Fair	646 (38.4)	217 (33.6)	350 (54.2)	79 (12.2)	
Poor/very poor	175 (10.4)	21 (12.0)	84 (48.0)	70 (40.0)	

^aLinear trend chi-square test.

Table 2. Crude and Adjusted Analysis of Functional Disability on Basic Activities of Daily Living, Florianópolis, EpiFloripa Idoso, 2009-2010.

Variables	Functional disability on basic activities of daily living			
	Mild		Moderate/severe	
	OR (95% CI) crude	OR (95% CI) adjusted	OR (95% CI) crude	OR (95% CI) adjusted
Block 1—Socioeconomics and demographics				
Gender				
Male	1	1	1	1
Female	2.14 [1.70, 2.68]	1.99 [1.53, 2.58]	1.53 [1.09, 2.14]	1.13 [0.75, 1.69]
Age group (years)				
60-69	1	1	1	1
70-79	2.16 [1.63, 2.87]	1.90 [1.41, 2.56]	2.11 [1.15, 3.84]	1.49 [0.85, 2.65]
80 years or more	4.51 [3.12, 6.52]	4.12 [2.70, 6.27]	11.79 [6.46, 21.52]	7.67 [4.08, 14.42]
Self-reported skin color				
White	1	1	1	1
Brown	1.19 [0.79, 1.78]	1.12 [0.75, 1.69]	1.68 [0.80, 3.56]	1.16 [0.58, 2.32]
Black	1.29 [0.76, 2.17]	1.16 [0.69, 1.95]	1.27 [0.54, 3.02]	0.90 [0.35, 2.29]
Education (years)				
No formal education	1	1	1	1
1-4	0.81 [0.49, 1.32]	1.08 [0.64, 1.80]	0.44 [0.25, 0.74]	0.78 [0.43, 1.42]
5-8	0.59 [0.37, 0.92]	0.84 [0.53, 1.33]	0.18 [0.09, 0.34]	0.39 [0.21, 0.75]
9-11	0.60 [0.31, 1.12]	0.86 [0.47, 1.59]	0.15 [0.05, 0.37]	0.30 [0.12, 0.76]
12 years or more	0.30 [0.17, 0.51]	0.57 [0.32, 1.01]	0.09 [0.04, 0.17]	0.28 [0.13, 0.64]
Marital status				
With companion	1	1	1	1
Without companion	1.36 [1.08, 1.71]	0.87 [0.65, 1.18]	1.93 [1.37, 2.72]	1.30 [0.79, 2.11]
Family income (quartiles)				
First quartile	1	1	1	1
Second quartile	0.11 [0.78, 1.44]	1.20 [0.87, 1.65]	0.14 [0.88, 2.35]	1.66 [0.89, 3.11]
Third quartile	0.57 [0.41, 0.77]	0.66 [0.48, 0.91]	0.53 [0.32, 0.84]	0.64 [0.39, 1.06]
Fourth quartile	0.56 [0.39, 0.78]	0.84 [0.55, 1.30]	0.29 [0.14, 0.58]	0.56 [0.26, 1.20]
Paid work				
No	1	1	1	1
Yes	0.39 [0.27, 0.57]	0.64 [0.42, 0.96]	0.15 [0.63, 0.37]	0.30 [0.11, 0.77]
Block 2—Lifestyle				
Nutritional status				
Ideal weight	1	1	1	1
Low weight	1.69 [1.01, 2.81]	1.35 [0.82, 2.22]	2.08 [1.24, 3.48]	1.17 [0.63, 2.17]
Overweight	1.79 [1.40, 2.29]	1.86 [1.44, 2.41]	1.34 [0.85, 2.10]	1.51 [0.93, 2.43]
Leisure physical activity				
Insufficiently active	1	1	1	1
Physically active	0.47 [0.35, 0.64]	0.61 [0.43, 0.85]	0.26 [0.15, 0.46]	0.46 [0.25, 0.83]
Block 3—Health conditions				
Cognitive impairment				
No	1	1	1	1
Yes	1.91 [1.38, 2.66]	1.15 [0.79, 1.67]	5.67 [3.72, 8.62]	1.50 [0.87, 2.60]
Depressive symptoms				
No	1	1	1	1
Yes	3.20 [1.93, 5.27]	1.29 [0.80, 2.09]	16.01 [9.91, 25.83]	2.99 [1.54, 5.79]
Chronic diseases				
None	1	1	1	1
1-3 diseases	2.81 [1.55, 5.07]	2.21 [0.97, 5.04]	2.99 [1.09, 8.13]	1.29 [0.36, 4.62]
4 or more diseases	9.48 [5.61, 15.99]	4.17 [1.87, 9.29]	20.49 [7.54, 55.66]	4.84 [1.36, 17.24]
Self-perception of health				
Very good/good	1	1	1	1
Fair	4.38 [3.44, 5.57]	3.49 [2.62, 4.63]	6.88 [4.22, 11.21]	5.09 [2.73, 9.50]
Poor/very poor	13.21 [7.00, 24.92]	8.12 [3.87, 17.03]	73.29 [34.09, 157.58]	21.44 [7.16, 64.18]

Note. Block 2—adjusted by gender, age group, education, family income, and paid work. Block 3—adjusted by gender, age group, education, family income, and paid work, and all variables from Block 2. OR = odds ratio; CI = confidence interval.

be related to the high life expectancy of the population of Florianópolis and its Human Development Index (HDI) (Brazilian Institute of Geography and Statistics [IBGE], 2011), which is the largest among the Brazilian capitals, and thus increases the survival rate of the older adults, which means they have more time to be exposed to risk factors for functional disability.

International studies conducted in Spain and Latin America (Millán-Calenti et al., 2010; Reyes-Ortiz et al., 2006) have found higher levels of disability similar to ours. These results may be used for comparison, assessment, and care of the functional disability of older people in countries and cities with similar characteristics.

In the present study, we observed that women showed a greater chance of presenting mild disability, which confirms results of previous studies (Millán-Calenti et al., 2010; Reyes-Ortiz et al., 2006; Rosa et al., 2003). Age also was positively correlated with the development of functional disability (Giacomin et al., 2008; Millán-Calenti et al., 2010; Reyes-Ortiz et al., 2006; Rosa et al., 2003). However, the higher levels of education (Alves, Leite, & Machado, 2010; Lima-Costa et al., 2012) and high income (Alves et al., 2010; Lima-Costa, Barreto, Firmo, & Uchoa, 2003) reduced the chance of presenting mild and moderate/severe disability.

Being gainfully employed reduced the chance of presenting both levels of disability, especially the moderate/severe. Other studies conducted with older adults (d'Orsi et al., 2011; Glass, de Leon, Marottoli, & Berkman, 1999) support this finding and suggest that performing paid work, in addition to having financial support, preserves autonomy, stimulates independence and socialization, and positively influences psychosocial aspects, which are able to promote healthy aging and make them less likely to develop a functional impairment (Cosco, Prina, Perales, Stephan, & Brayne, 2013).

Being overweight increased the chance of presenting some degree of functional disability. This effect, consolidated in the literature (Jensen, 2005; Jensen & Hsiao, 2010; Vásquez, Batsis, Germain, & Shaw, 2014), reflects the impact of overweight on reduction of strength, reduction of physical mobility, and performance of activities of daily living, in addition to being an important risk factor for cardiovascular diseases and other chronic diseases and mortality in older adults (Vásquez et al., 2014).

With regard to physical activity, it can be observed that the older adults who are sufficiently active have lower chances of suffering functional disability. It is known that the physical activity contributes to the increase of muscle mass and strength (Raji et al., 2005), which are indispensable for the maintenance and/or improvement of functional capacity, independence, and autonomy. In addition, it reduces the development of diseases, provides more social activity, helps in the maintenance of physical and mental health (WHO, 2005), and improves the quality of life of older adults.

The prevalence of depression and its impact on the health of the elderly population are being studied (Heikkinen & Kauppinen, 2004; Millán-Calenti et al., 2011; Wada et al., 2005) and corroborate the findings of this study, in which the presence of depressive symptoms increased the chance of presenting functional disability. Depressive symptoms such as fatigue, sleepiness, and lack of initiative may worsen the health status and quality of life of the older adults (Heikkinen & Kauppinen, 2004; Penninx et al., 1998). In addition, the depressive mood may discourage the search for and adherence to treatments and healthy lifestyle habits, such as physical activity and healthy eating (Penninx et al., 1998), leading to functional impairment.

Studies have shown that older adults with chronic diseases show greater chance of presenting functional disability (Chen et al., 2015; Ralph, Mielenz, Parton, Flatley, & Thorpe, 2009). Santos, Lebrão, Duarte, and Lima (2008) observed that elderly individuals with three or more chronic diseases perform worse in daily activities. In addition, the presence of chronic diseases worsens the quality of life (Huntley, Johnson, Purdy, Valderas, & Salisbury, 2012; Santos et al., 2008) and health conditions in the elderly (Huntley et al., 2012) contributing to functional decline.

In the present study, the self-perception of health as negative had a positive association with both levels of functional disability, with an emphasis on the category bad/very bad, which increased in 22.4 times the chance of presenting moderate/severe disability. Despite being an indirect measure, the self-reported health works as an important predictor of functional disability, morbidity, and mortality (Chen et al., 2015; Giacomin et al., 2008), and an indicator of health (Moraes & Souza, 2005).

The development of functional decline is multifactorial and is associated with several variables that, modifiable or not, serve as a parameter for the assessment, prevention, and treatment of this condition. The maintenance of independence in activities of daily living is a factor for the promotion of healthy aging (Moraes & Souza, 2005) and must be the focus of preventive actions and interventions.

Different areas are required in carrying out the activities of daily living (basic and instrumental). The process of decline occurs at different stages, and the type of demand for services arising from functional impairment also differs between the groups (Del Duca et al., 2009). Because they are considered activities of lower complexity and related to self-care, the commitment to carrying out the basic activities of daily living is usually preceded by the difficulty in carrying out the instrumental activities of daily living, which makes it important to assess these independently.

Cross-sectional studies such as this may present limitations in relation to the determination of temporal precedence and causality between the variables related to lifestyle and health conditions and the outcome variable, in this case, the functional disability. The use of self-reported

measures is also a limitation of the present study. However, the statistical analysis we used allowed us to estimate associations between exposures and outcomes, and the sampling procedures ensure the representativeness of the sample studied. The use of validated scales reduces possible biases in data collection, gives reliability to information, and allows comparability of data.

Conclusion

The prevalence of functional disability in Florianópolis was 38.9% for mild disability and 11.7% for moderate/severe disability. Being gainfully employed, having a high level of education, and being physically active in their leisure time reduced the chance of presenting mild and moderate/severe disability. The self-perception of health as negative was the factor that most increased the chance of presenting functional disability, showing itself as an important indicator of the health status of older adults. The evaluation and classification of performance in basic activities of daily living allow us to identify older people at risk of presenting functional deficit and may appoint preventive actions and interventions.

Declaration of Conflicting Interests

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