Saúde e Pesquisa
DOI: 10.17765/2176-9206.2021v14Supl.1.e9298
e-ISSN: 2176-9206

Factors associated with eating behavior of young-old and oldest-old people from Southern Brazil

Fatores associados ao comportamento alimentar de idosos jovens e longevos do Sul do Brasil

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ABSTRACT
The objective of this cross-sectional study with 6974 old people was to characterize the eating behavior of the young-old and oldest-old determined by the functional difficulty of eating by oneself, self-perception of appetite and number of daily meals, analyzed by the Poisson regression model. Young-old people feed more easily by themselves and had better self-perception of appetite; the oldest-old ones had more daily meals. In the adjusted analysis, poor self-perception of appetite was related with poor self-perception of general health among younger elderly, and being a woman among the oldest-old ones. Younger elderly presented, as a positive predictive factor the number of meals, leaving home and having adequate weight and no chronic disease. Among the oldest-old ones, leaving home was a negative predictor of the number of meals. Thus, the determining factors for worse eating behavior were being oldest-old, living without a partner, poor self-rated health and oral health.

Keywords: Aging. Aged, 80 and over. Appetite. Eating Behavior. Frail Elderly.

RESUMO
O objetivo deste estudo transversal com 6.974 idosos foi caracterizar o comportamento alimentar de idosos jovens e longevos determinado pela dificuldade funcional de se alimentar sozinho, autopercepção do apetite e número de refeições diárias, analisados pelo modelo de regressão de Poisson. Os idosos jovens alimentavam-se com mais facilidade e apresentavam melhor autopercepção do apetite enquanto os longevos realizavam maior número de refeições diárias. Na análise ajustada, a pior autopercepção do apetite foi relacionada com pior autopercepção de saúde geral entre os idosos jovens, e sexo feminino entre os longevos. Idosos jovens apresentaram como fator preditivo positivo do número de refeições o fato de saírem de casa e apresentarem peso adequado e nenhuma doença crônica. Entre os longevos sair de casa foi um preditor negativo do número de refeições. Assim, os fatores determinantes de pior comportamento alimentar foram ser longevo, viver sem companheiro, pior autopercepção de saúde e de saúde oral.

Palavras-chave: Apetite. Comportamento Alimentar. Envelhecimento. Idoso de 80 Anos ou mais. Idoso fragilizado.

Received in September 09, 2020
Accepted on January 01, 2021

INTRODUCTION

The growth of the elderly population in Brazil has been highlighted by the latest information from the National Household Sample Survey (PNAD), and Rio Grande do Sul is among the Brazilian states with the highest proportions of this population[1]. The reduction in mortality and fertility in the significant change in the prevalence of deaths, from infectious diseases and chronic non-communicable diseases, caused a reduction in deaths among the elderly, resulting in living more years[2,3].

This effect, therefore, has led to an increase in the proportion of elderly people over 80 years old, called oldest-old[4], which implies a heterogeneity in the group of the elderly population[5], since they have different characteristics from the young-old people[6].

As the years go by, individuals, both young-old (under 80 years old) and oldest-old, undergo physiological and behavioral changes that can be positive or negative and observed in the individual's biological, psychological and social spheres[7]. Changes in cell metabolism and in the functioning of the main physiological systems can have consequences under the health conditions of the elderly[8], such as, for example, loss of appetite, decreased taste and olfactory ability and swallowing disorders, influencing eating behavior and food intake[9]. In addition to biological factors, changes in eating behavior can also come from sociocultural and psychological aspects[10] and can be aggravated in oldest-old people.

Eating behavior is a sum of cognitions and affections that drive eating attitudes[11] that involve "how", "with whom", "where", "when" and "why" we eat, reflecting interactions between the physiological, psychological state and external environment[12]. Recognizing what influences eating behavior is important so that we can carry out interventions appropriate to the reasons why the elderly eat what they eat, which may be related to the perception of hunger and appetite, how they eat, that is, if they are autonomous and maintain their functional capacity to eat properly and how often they do so.

In this sense, this study aims to characterize the eating behavior of young and oldest-old people, regarding the functional capacity to eat alone, the self-perception of appetite and the number of daily meals, answering the questions of "how", "why" and "when" they eat; and to verify the association with sociodemographic characteristics and health indicators of elderly people in Rio Grande do Sul, Brazil.

METHODOLOGY

DESIGN, SAMPLE AND CONTEXT OF THE STUDY

This is a cross-sectional study, using secondary data analysis from the Rio Grande do Sul Elderly Profile Survey (PIRS)[13,14], conducted by the Institute of Geriatrics and Gerontology of the Pontifical Catholic University of Rio Grande do Sul (IGG -PUCRS) in partnership with the School of Public Health of the State of Rio Grande do Sul (ESP-RS), in Rio Grande do Sul (RS), Brazil in 2010, and methods adopted by Morsch et al.[14]. The municipalities of the State were first divided by research regions, later they were grouped according to the population range and the main economic activity, to then determine the dimension.

Considering that this type of research involves qualitative and quantitative variables, the former requiring greater demands, especially in relation to size, it was decided to establish the sample history according to a qualitative variable. Based on the aforementioned requirement, the absolute percent variance was fixed at the maximum value 0.25, resulting from p (1-p) to p=0.50, confidence level 95.44% (z=2) and an approximate error of inference of the proportion, in the sample of each research region, not exceeding 3.37%. According to the above assumptions, the size of each of the regional samples, for estimating the population proportion, was dimensioned in 880 elderly people. Such dimensioning generated a state sample of 7,920 elderly people with an inference error not exceeding 1.3%.

For the present study, the sample consisted of 6,974 elderly people aged 60 or over, of both sexes, residents of municipalities in RS, who were at home, as the questionnaires answered by the elderly's companions were not included in the survey. Data were collected by a third-party company using a structured questionnaire with 72 simple and multiple-choice questions resulting in a large database.

VARIABLES

As a dependent variable, the eating behavior represented by the data related to the functionality to eat alone, self-perceived appetite and number of meals per day was determined. For the analysis of the data, the answers of the interviews were grouped, allowing a smaller number of categories, namely: in the variable functional difficulty to eat alone, they were considered “easily” and “with difficulty”; in the variable self-perception of appetite, it was considered “good” or “bad”; and regarding the number of daily meals, it was considered “less than three” or “three or more” meals per day.

Sociodemographic data and health status were considered as independent variables. The sociodemographic variables analyzed were: age, sex, marital status,

education and income range, which were also used to characterize the sample. For analysis purposes, the sample was classified among young-old (60 to 79 years old) and oldest-old (80 years old or more)[4]. For the marital status, it was considered living with a partner or not. Education was assessed according to the following categories: illiterate, incomplete primary school, incomplete and complete high school until post-graduation.

The income range was considered according to the last total monthly income, considering that the minimum wage (MW) at the time corresponded to R$510.00. For better analysis, MW data were categorized as being less than two MW (<2 MW) and greater than or equal to two MW (≥ 2 MW)[15].

To assess health status, variables were analyzed: frequency of leaving home (< once a week and ≥ once a week), self-perceived health (good, regular or bad); self-perception of oral health (good, regular or bad)[14]; Body Mass Index - BMI (low weight, adequate weight, pre-obesity and obesity)[16] and diagnosis of chronic diseases (yes and no). Weight and height were self-reported by participants and BMI was calculated by dividing weight by height in meters squared and the result expressed in kg/m².

DATA ANALYSIS

The data were analyzed using the statistical software Statistical Package for the Social Sciences (SPSS) version 21.0. The normality of data distribution was verified using the Kolmogorov-Smirnov test. In the descriptive phase, quantitative variables with symmetric distribution were presented as means and standard deviations and those with asymmetric distribution by median and interquartile range. In the analytical phase, Student's t-test and Mann-Whitney test were used for continuous variables, and Pearson's Chi-squared and Fischer's Exact tests for categorical variables. Values were considered statistically significant when $p < 0.05$. For the adjusted analysis, the Poisson regression model was used, in order to observe the prevalence ratio of the dependent variables in relation to the independent ones.

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ETHICAL ASPECTS

The “Profile of the Elderly of Rio Grande do Sul” project was approved by the Ethics Committee in Health Research of the School of Public Health of the State of Rio Grande do Sul, protocol number 481/09 and by the Research Ethics Committee of the Pontifical University Catholic of Rio Grande do Sul, registration number 09/04931. All participants agreed and signed the Informed Consent Form.

RESULTS

A total of 6,974 elderly people were evaluated, 87.6% of whom were young-old, mostly female (51.7%), with a partner (50.7%), with an income below two minimum wages (69.1%) and with incomplete high school (39.8%). Most did not leave home weekly (78.4%), perceived themselves to be in good health (70.9%), in good oral health (69.7%), adequate weight (53.9%) and had a diagnosis of chronic disease (66.9%) (Table 1).

Table 1 also shows the statistically significant differences in the comparison between young-old and oldest-old people. The highest frequency for young-old people was found in relation to schooling until incomplete high school (p <0.001), not leaving home (p <0.001), good self-perception of health (p <0.001) and good self-perception of oral health (p <0.001). The highest frequency observed in the oldest-old ones was living without a partner (p <0.001), diagnosis of chronic disease (p <0.001) and number of morbidities (p <0.001).

Table 1. Sample description, sociodemographic and health aspects of the elderly in Rio Grande do Sul, Brazil, 2010 (N=6974)

Variables	Total N=6974 N (%)	Young-old n=6112 n (%)	Oldest-old n=862 n (%)	*p**
Sociodemographic data				
Sex				
Men	3367 (48.3)	2970 (48.6)	397 (46.1)	0.163
Women	3607 (51.7)	3142 (51.4)	465 (53.9)	
Marital status				
With a partner	3404 (50.7)	3116 (53.0)	288 (34.5)	<0.001*
Without a partner	3309 (49.3)	2762 (47.0)	547 (65.5)	
Income				
< 2 minimum wages	4315 (69.1)	3769 (69.0)	546 (69.2)	0.928
≥ 2 minimum wages	1933 (30.9)	1690 (31.0)	243 (30.8)	
Education				
Illiterate	624 (9.3)	479 (8.1)	145 (17.3)	<0.001*
Incomplete primary school	1614 (23.9)	1352 (22.9)	262 (31.3)	
Incomplete high school	2685 (39.8)	2384 (40.4)	301 (36.0)	
Complete high school or more	1822 (27.0)	1693 (28.7)	129 (15.4)	
How often leaves home				
Do not leave weekly	1312 (21.6)	1069 (19.9)	243 (34.8)	<0.001*
< once a week	4754 (78.4)	4299 (80.1)	455 (65.2)	
Health data				
Self-perceived health				
Good	4901 (70.9)	4395 (72.5)	506 (59.7)	<0.001*
Regular	1685 (24.4)	1391 (22.9)	294 (34.7)	
Bad	326 (4.7)	279 (4.6)	47 (5.5)	
Self-perceived oral health				
Good	4779 (69.7)	4242 (70.6)	537 (63.6)	

Regular	1914 (27.9)	1632 (27.2)	282 (33.4)	<0.001*
Bad	163 (2.4)	137 (2.3)	26 (3.1)	
Body mass index kg/m^2	26.33±4.05	26.33±4.03	26.281±4.24	0.735
Low weight	1192 (17.8)	1009 (17.1)	183 (22.2)	
Adequate weight	3617 (53.9)	3219 (54.7)	398 (48.4)	<0.001*
Pre-obesity	906 (13.5)	813 (13.8)	93 (11.3)	
Obesity	992 (14.8)	843 (14.3)	149 (18.1)	
Diagnosis of chronic diseases				
Yes	4669 (66.9)	4016 (65.7)	653 (75.8)	<0.001*
No	2305 (33.1)	2096 (34.3)	209 (24.2)	
Nº of morbidities [median (II)]	1 (0-2)	1 (0-2)	2 (1-3)	<0.001*

*Pearson's Chi-square test. Values of p <0.05 = statistically significant II: interquartile range
Note: Data not answered by the participants for not knowing how to answer (NSR) or for not applying (NSA) were excluded from the analyzes.

Young-old people ate more easily (p<0.001) and had a better self-perceived appetite (p=0.019), while oldest-old people ate more meals per day (p=0.022) (Table 2).

Table 2. Eating behavior of young and oldest-old people in Rio Grande do Sul, Brazil, 2010 (N=6974)

Variables	**Young-old (n=6112) n (%)**	**Oldest-old (n=862) n (%)**	***p****
Functional capacity to eat by oneself			
Easily	5888 (97.8)	796 (93.9)	<0.001*
With difficulty	131 (2.2)	52 (6.1)	
Self-perception of appetite			
Great/good/regular	5971 (99.3)	835 (98.5)	0.019*
Bad/Terrible	45 (0.7)	13 (1.5)	
Number of daily meals			
≥3 meals/day	5541 (90.7)	802 (93.0)	0.022*
<3 meals/day	571 (9.3)	60 (7.0)	

* Pearson's Chi-squared test. Values of p <0.05 = statistically significant

Note: Data not answered by the participants for not knowing how to answer (NSR) or for not applying (NSA) were excluded from the analyzes.

In Table 3, variables with p <0.2 were included in the regression model and after adjusted analysis between the functional difficulty to eat alone and sociodemographic and health variables. There was a statistically significant association, only among young-old people, of functional difficulty to eat alone with living without a partner (PR=1.706, p=0.048), poor self-perception of health (PR=5.265, p<0.001) and regular (PR=3.720, p<0.001); and, poor self-perceived oral health (PR=3.488, p=0.0022).

Table 3. Adjusted analysis between the **functional difficulty to eat alone** and sociodemographic and health variables in young and oldest-old people in Rio Grande do Sul, Brazil, 2010

Variables	Young-old (n=2850)				Oldest-old (n=434)			
	PR	CI 95%		*p**	PR	CI 95%		*p**
		Inferior	Superior			Inferior	Superior	
Sex								
Woman	1.682	0.946	2.989	0.077	0.646	0.292	1.430	0.281
Man	1	.	.	.	1	.	.	.
Marital status								
Without a partner	1.706	1.004	2.901	0.048	2.185	0.839	5.694	0.110
With a partner	1	.	.	.	1	.	.	.
Education								
Complete high school or more	1.216	0.452	3.276	0.699	2.569	0.951	6.939	0.063
Incomplete high school	1.198	0.497	2.887	0.687	0.746	0.165	3.375	0.704
Incomplete primary school	1.850	0.967	3.539	0.063	0.907	0.350	2.351	0.841
Illiterate	1	.	.	.	1	.	.	.
Income								
≥ 2 minimum wages	1.062	0.595	1.897	0.838	1.115	0.467	2.658	0.807
< 2 minimum wages	1	.	.	.	1	.	.	.
How often leaves home								
Do not leave weekly	0.816	0.441	1.509	0.517	1.030	0.478	2.221	0.939
≥ once a week	1	.	.	.	1	.	.	.
Self-perceived health								
Bad	5.265	2.187	12.675	0.000	2.050	0.640	6.570	0.227
Regular	3.720	1.930	7.168	0.000	1.674	0.687	4.076	0.257
Good	1	.	.	.	1	.	.	.
Self-perceived oral health								
Bad	3.488	1.199	10.147	0.022	2.472	0.543	11.247	0.242
Regular	1.658	0.976	2.817	0.061	1.803	0.794	4.097	0.159
Good	1	.	.	.	1	.	.	.
Nutritional status								
Obesity	1.327	0.691	2.549	0.396	1.424	0.602	3.369	0.422
Pre-obesity	1.018	0.460	2.254	0.964	0.404	0.054	3.047	0.379
Adequate weight	1.017	0.514	2.014	0.961	0.681	0.244	1.901	0.463
Low weight	1	.	.	.	1	.	.	.
Chronic diseases								
No	1.090	0.964	1.233	0.169	0.929	0.674	1.282	0.655
Yes	1	.	.	.	1	.	.	.

*PR = Prevalence Ratio; CI = Confidence Interval. * Poisson regression model.

In Table 4, after adjusted analysis between the worst self-perception of appetite and sociodemographic and health variables, it was observed that, among young-old people, there was an association with poor self-perception of health (PR=38.17, p<0.001) and regular (PR=12.454, p=0.001). Among the oldest-old ones, it was observed that being a woman (95% CI, p=0.007) worsened the self-perception of appetite (PR=8.049, p=0.007), however, having regular self-

perception of health was protective for self-perception of appetite (PR=0.256, p=0.035).

Table 4. Adjusted analysis between **the worst self-perception of appetite** and sociodemographic and health variables in young and oldest-old people in Rio Grande do Sul

Variables	Young-old (n=2849)				Oldest-old (n=436)			
	PR	CI 95%		p*	PR	CI 95%		p*
		Inferior	Superior			Inferior	Superior	
Sex								
Woman	1.615	0.691	3.777	0.268	8.049	1.759	36.835	0.007*
Man	1	.	.	.	1	.	.	.
Marital status								
Without a partner	1.346	0.626	2.896	0.446	**	**	**	**
With a partner	1	.	.	.	1	.	.	.
Education								
Complete high school or more	0.961	0.249	3.710	0.954	0.895	0.354	2.265	0.815
Incomplete high school	0.927	0.254	3.381	0.909	**	**	**	**
Incomplete primary school	0.834	0.318	2.184	0.712	0.364	0.027	4.890	0.446
Illiterate	1	.	.	.	1	.	.	.
Income								
≥ 2 minimum wages	7.422	0.963	57.186	0.054	1.773	0.717	4.388	0.215
< 2 minimum wages	1	.	.	.	1	.	.	.
How often leaves home								
Do not leave weekly	1.125	0.466	2.713	0.794	0.639	0.144	2.837	0.556
≥ once a week	1	.	.	.	1	.	.	.
Self-perceived health								
Bad	38.172	7.202	202.311	0.000	0.186	0.012	2.804	0.224
Regular	12.454	2.664	58.212	0.001	0.256	0.072	0.909	0.035*
Good	1	.	.	.	1	.	.	.
Self-perceived oral health								
Bad	1.385	0.463	4.143	0.560	**	**	**	**
Regular	1.292	0.543	3.074	0.563	**	**	**	**
Good	1	.	.	.	1	.	.	.
Nutritional status								
Obesity	1.367	0.372	5.018	0.638	0.394	0.128	1.207	0.103
Pre-obesity	2.399	0.800	7.194	0.118	**	**	**	**
Adequate weight	2.266	0.891	5.760	0.086	0.840	0.287	2.460	0.750
Low weight	1	.	.	.	1	.	.	.
Chronic diseases								
No	0.867	0.525	1.433	0.579	1.179	0.816	1.704	0.380
Yes	1	.	.	.	1	.	.	.

PR = Prevalence Ratio; CI = Confidence Interval. * Poisson regression model. Values of p <0.05=statistically significant ** Values inconsistent by the number of factors and the "n" of the sample.

Table 5 shows the association between the lowest number of daily meals and the sociodemographic and health variables. This association was observed

only among young-old people, who do not frequently leave the house weekly (PR=1.465, p=0.041), have adequate weight (PR=1.552, p=0.029) and have no diagnosis of chronic diseases (PR=1.093, p=0.037).

Table 5. Association between **the lowest number of daily meals** and sociodemographic and health variables in young and oldest-old people in Rio Grande do Sul

Variables	Young-old (n=2873)				Oldest-old (n=437)			
	PR	CI 95%		p*	PR	CI 95%		p*
		Inferior	Superior			Inferior	Superior	
Sex								
Woman	0.887	0.634	1.242	0.486	1.545	0.591	4.042	0.375
Man	1	.	.	.	1	.	.	.
Marital Status								
Without a partner	1.371	0.982	1.915	0.064	0.986	0.413	2.353	0.974
With a partner	1	.	.	.	1	.	.	.
Education								
Complete high school or more	1.227	0.717	2.276	0.406	0.699	0.121	4.047	0.689
Incomplete high school	1.002	0.622	1.614	0.993	0.354	0.044	2.884	0.332
Incomplete primary school	1.015	0.678	1.520	0.942	1.046	0.387	2.823	0.930
Illiterate	1	.	.	.	1	.	.	.
Income								
≥ 2 minimum wages	1.234	0.844	1.804	0.278	0.382	0.138	1.059	0.064
< 2 minimum wages	1	.	.	.	1	.	.	.
How often leaves home								
Do not leave weekle	1.465	1.016	2.112	0.041	1.193	0.468	3.045	0.711
≥ once a week	1	.	.	.	1	.	.	.
Self-perceived health								
Bad	0.882	0.404	1.927	0.754	1.218	0.125	11.834	0.865
Regular	1.210	0.843	1.737	0.300	1.174	0.470	2.932	0.731
Good	1	.	.	.	1	.	.	.
Self-perceived oral health								
Bad	0.949	0.314	2.869	0.926	1.358	0.102	18.049	0.817
Regular	0.916	0.632	1.327	0.641	0.441	0.162	1.203	0.110
Good	1	.	.	.	1	.	.	.
Nutritional status								
Obesity	0.749	0.438	1.281	0.291	0.742	0.174	3.154	0.686
Pre-obesity	1.097	0.670	1.796	0.714	0.677	0.086	5.318	0.710
Adequate weight	1.552	1.046	2.303	0.029	1.353	0.457	4.009	0.585
Low weight	1	.	.	.	1	.	.	.
Chronic diseases								
No	1.093	1.005	1.188	0.037	0.964	0.768	1.209	0.748
Yes	1	.	.	.	1	.	.	.

PR = Prevalence Ratio; CI = Confidence Interval. * Poisson regression model. ** Inconsistent values due to the number of factors and the "n" of the sample.

DISCUSSION

As far as it is known, this is the first study that analyzes sociodemographic data and health indicators in relation to the eating behavior of young and oldest-old people in Brazil. Compared to young-old people, the oldest-old ones had greater functional difficulty to eat alone and worse self-perceived appetite, however they ate more meals per day. The elderly suffer a decline in functionality over the years[9,18] and it may be an explanation for the oldest-old ones in this study to have worse functionality for eating. Regarding the worst self-perception of appetite, Arganini and Sinesio[19] claim that the aging process can cause taste and olfactory disorders, however they found that this is not the cause of changes in appetite, and point out that non-physiological factors, such as loneliness, food restriction and affected health status, common in old age, are also related to the decline in appetite. Assumpção et al.[20] assessed the quality of the diet of 1,519 elderly residents of Campinas in São Paulo, Brazil, and associated chronic diseases, at advanced ages, with greater health care, considering the reason for the oldest-old people of the present study to have a greater number of daily meals compared to the young-old.

After adjusted analysis, the results showed that living without a partner and having worse self-perception of health and oral health increased the functional difficulty to eat alone among young-old people. Research on the ethnography of elderly people who live alone[21] indicates that they were seen as fragile and unable to continue their lives, stating that currently elderly people no longer carry this profile in society, as they face problems that many young people are unable to cope. Nevertheless, it is possible to affirm that even with the overcomes shown by the elderly in the mentioned study, the fact that they are inserted in the risk group cannot be disregarded, that is, they are more susceptible to the development of diseases that can affect the elderly person, involuntarily causing a dependency not foreseen by them and consequent fragility. What is more, living without a partner can lead to isolation and less health care, without monitoring of chronic diseases and greater risk for the development of functional disability.

Vulnerability increases at older ages, and the main declines in functional abilities are present in activities of daily living such as doing your own shopping, cooking and eating alone. Campos et al.[23] believe that the husband/wife relationship can be a positive factor for healthy aging among elderly people aged 85 and over, but that this relationship may cause functional dependence between spouses, so the authors suggest that couples be monitored by healthcare professionals as a means of preventing functional dependence. Thus, the results of the present study showing that being oldest-old and living without a partner are

contributing factors to the worst functionality when eating alone are justified.

Compromised oral health is a condition that interferes with the quality of life of the elderly. Oral health is considered part of the general health status and well-being, as stated in a study carried out in southern Brazil[24] that aimed to assess the association between quality of life and oral health in elderly women participating in a socialization group. The main results indicate that low schooling, changes in taste and malnutrition were associated with poorer quality of life related to oral health. Changes in taste have an influence in the domain of functional limitation and physical disability, being an obstacle to general health and oral health, that is, the greater the individual's functional dependence, the worse their oral health. Thus, it is possible to observe a possible reverse causality in the results of the present study. It is believed that functional difficulty is an obstacle to health care and oral health, which may have led to a worse self-perception of both.

Some studies show that there is a relationship between oral health and food consumption; however, no studies were found to associate it with the number of daily meals. The study by Shigli and Hebbal[25], which assesses nutritional changes in 35 elderly Indian people who are newly adept at dental prostheses, indicates an improvement in dietary pattern, with a significant increase in the consumption of fruits, vegetables and dairy products. Torres et al.[26] evaluated whether oral health was associated with low weight and excess weight, regardless of physical activity, in 875 elderly Brazilians in a cross-sectional study as part of the larger project The Frailty in Brazilian Elderly Study, carried out in Campinas, São Paulo, Brazil from 2008 to 2009. The results showed that total edentulism without the use of dental prosthesis was associated with both low weight and excess weight, due to the consumption of low nutritional value foods. In this sense, it is believed that the poorer self-perception of oral health may also be associated with lower food consumption, reflecting the smaller number of meals per day.

In the present study, it was found that among the young-old people, the worse self-perceived health, the worse the self-perceived appetite. Among the oldest-old ones, it was found that being a woman and having a regular self-perception of health are associated with a worse self-perception of appetite. Arganini and Sinesio[19], in a study that evaluated the impact of olfactory and gustatory changes in the decrease in appetite in 239 independent Italian elderly, found that the impaired health status was related to the decline in appetite in the elderly, similar to that found in the present study.

Among young-old people, not leaving home weekly, having adequate weight and not being diagnosed with chronic diseases were associated with a lower number of meals per day. According to Assumpção et al.[20], the presence of

chronic diseases, especially in the elderly, maximizes the search for health care and the quality of diet as part of the treatment, in which food is an essential factor. The authors also claim that receiving more guidance on disease control improves awareness of healthy eating, as the diagnosis and recognition of disease challenges individuals to change to a healthier lifestyle. In this sense, it is assumed that elderly people with chronic diseases access healthcare services more frequently and are more aware that the consumption of less than three meals a day is not adequate for their health.

Morsch et al.[14], analyzing the data of 5,898 elderly people, evaluated the social and health factors that were decisive for the elderly to leave home, and found that oldest-old people presented more obstacles to leaving home because they were more dependent and had more chronic diseases compared to younger ones. According to a study by Oliveira et al.[27], aging increases the risk of falls in the elderly, which can limit their leaving home, highlighting that the prevalence of falls in oldest-old people with multimorbidity, users of five or more medications a day and, fear of fall, was 26.83%, 28.79% and 27.27%, respectively.

The present study has a cross-sectional research design as a limitation, and it is not possible to relate causality between variables. The higher proportion of young-old people was also determined by the sampling that sought to be representative of the population of Rio Grande do Sul. In the year of the survey, the oldest-old people represented 14% of the elderly population, a proportion similar to the 12.4% of oldest-old ones in the sample. The representativeness of the sample to the elderly population of Rio Grande do Sul and the originality of the relationships evaluated should be considered as the strength of this study . As a weak point we can mention the fact that the research data were collected ten years ago, but in contrast the research has a high number of participants that make up the representativeness of the entire State of Rio Grande do Sul. In the ten-year period, the Brazilian demographic scenario experienced the "demographic bonus" phenomenon characterized by a progressive increase in the elderly population. The elderly population was around 14 million Brazilians in 2000, that is, ten years before the present study. In the year of the survey, in 2010, this number rose to almost 20 million, and the projection presented for 2020 would be 29 million elderly, representing an increase of 1.8% from 2000 to 2010, and of 3.78% from 2010 to 2020[28]. Still, between 2010 and 2050, the forecast is that the population group of 60 years and older will triple in absolute terms, going from 19.6 million to 66.5 million.

In this sense, it is believed that the research, carried out ten years ago, can still guide public policies, as Brazil is structuring itself slowly, not keeping up with the population advance, which implies the need for studies related, mainly

to health, social security, urban and home infrastructure.

CONCLUSION

The eating behavior of young-old and oldest-old people was characterized, finding greater functional difficulty to eat alone and worse self-perception of appetite among the oldest-old, however they ate more meals per day than the young-old.

Functional difficulty in feeding alone was associated with young-old people compared to the oldest-old ones with living without a partner, worse self-perception of general health and oral health.

The worst self-perception of appetite among young-old people was associated with the worst self-perception of health. Among the oldest-old people, the association was verified with the fact of being a woman and regular self-perception of health.

It is suggested to carry out a complementary qualitative analysis of the determinants of eating behavior in the elderly to better clarify their association with subjective variables such as those of self-perception, which need to be further investigated, as to their characteristics and determinants.

Furthermore, as epidemiological applications of the research, based on the results found, healthcare professionals and services are recommended to pay attention to the eating behavior of the elderly, considering cognitive and affective aspects of eating attitudes. This care implies the prevention of nutritional risks that can aggravate or trigger geriatric syndromes.

ACKNOWLEDGMENT

This work was carried out with the support of the Coordination for the Improvement of Higher Education Personnel - Brazil (CAPES) - Funding Code 001.

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