DOI: https://doi.org/10.36489/saudecoletiva.2021v11i63p5336-5349

Relation between the perception of dietary importance with socioeconomic, anthropometric and arterial hypertension variables in elderly women with metabolic syndrome

Relación entre la percepción de importancia dietética con variables socioeconómicas, antropométricas e hipertensión arterial en mujeres mayores con síndrome metabólico

Relação entre a percepção das importâncias alimentares com variáveis socioeconômicas, antropométricas e hipertensão arterial em idosas com síndrome metabólica

ABSTRACT
Objective: To evaluate the association between the perception of the importance of food groups and socioeconomic, anthropometric and hypertension variables in elderly women with metabolic syndrome. Methods: Analytical cross-sectional study with 84 elderly women with metabolic syndrome. Socioeconomic variables (marital status, education level, monthly income and family composition), anthropometric variables (weight, height and waist circumference) and blood pressure were collected, along with a scale of importance of food groups. Statistical analyses were performed with a 5% significance level. Results: No associations were found with socioeconomic variables, but there was a positive association between milk and blood pressure; and negative among beans with age and diastolic blood pressure, also among oilseeds with body mass index and waist circumference. Conclusion: The perception of importance attributed to food groups is consistent with healthy eating, but more apprehensive for the metabolic syndrome aspects than for the socioeconomic ones.
DESCRIPTORS: Feeding Behavior; Elderly Nutrition; Healthy Aging; Health of the Elderly.

RESUMEN
Objetivo: Evaluar la asociación entre la percepción de importancia de los grupos alimentares con variables socioeconómicas, antropométricas y hipertensión arterial en mujeres mayores con síndrome metabólico. Métodos: Estudio analítico transversal con 84 mujeres con síndrome metabólico. Se recogieron variables socioeconómicas (estado civil, nivel educativo, ingresos mensuales y composición familiar), antropométricas (peso, talla y circunferencia de cintura) y presión arterial, además una aplicación de una escala de importancia de grupos alimentares. Los análisis estadísticos se realizaron con un nivel de significancia de 5%. Resultados: Sin asociaciones con variables socioeconómicas, todavía una asociación positiva entre leche y presión arterial; y negativas entre frijoles con edad y presión arterial diastólica, también entre semillas oleaginosas con índice de masa corporal y circunferencia de la cintura. Conclusión: La percepción de importancia de los grupos alimentares es consistente con una alimentación saludable, pero más aprensivo por los aspectos del síndrome metabólico que por los socioeconómicos.
DESCRIPTORES: Conducta Alimentaria; Nutrición del ancianos. Envejecimiento Saludable. Salud del Anciano.

RESUMO
Objetivo: Avaliar a associação da percepção das importâncias de grupos alimentares com variáveis socioeconômicas, antropométricas e hipertensão arterial em idosas com síndrome metabólica. Métodos: Estudo transversal analítico com 84 idosas com síndrome metabólica. Foram coletadas variáveis socioeconômicas (estado civil, grau de instrução, renda mensal e composição familiar), variáveis antropométricas (peso, altura e circunferência da cintura) e pressão arterial, além da aplicação de uma escala de importância de grupos alimentares. Análises estatísticas foram realizados com nível de significância de 5%. Resultados: Não foram encontradas associações com variáveis socioeconômicas, porém verificou-se associação positiva entre leite e pressão arterial; e negativas entre feijão com idade e pressão arterial diastólica, também entre oleaginosas com índice de massa corporal e circunferência da cintura. Conclusão: A percepção de importâncias atribuídas aos grupos alimentares é condizente com alimentação saudável, porém mais apreensivo para os aspectos da síndrome metabólica do que para os socioeconômicos.
DESCRITORES: Comportamento Alimentar; Nutrição do Idoso; Envelhecimento Saudável; Saúde do Idoso.

RECEIVED ON: 17/12/2020 **APPROVED ON:** 11/01/2021

Andreia Matos da Silva
Master in Gerontology, Nutritionist. PhD student in Gerontology. Catholic university of Brasilia
ORCID: 0000-0003-3273-3391

Fabiani Rodrigues Lage Beal
PhD in Health Sciences, Nutritionist. Postgraduate Professor Stricto Sensu in Gerontology. Catholic University of Brasilia
ORCID: 0000-0002-5812-0369

Gislane Ferreira de Melo
PhD in Physical Education, Physical Educator. Postgraduate Professor Stricto Sensu in Gerontology. Catholic university of Brasilia.
ORCID: 0000-0003-3551-5963

Ariene Silva do Carmo
Master in Health and Nursing, Nutritionist. Doctoral student in Child and Adolescent Health Science. Federal University of Minas Gerais.
ORCID: 0000-0002-5812-0369

Vicente Paulo Alves
Postgraduate Professor Stricto Sensu in Gerontology. Catholic university of Brasilia. PhD in Sciences of Religion, Philosopher.
ORCID: 0000-0002-1412-830X

Carmen Jansen de Cárdenas
Postgraduate Professor Stricto Sensu in Gerontology. Catholic university of Brasilia. PhD in Psychology, Pedagogue.
ORCID: 0000-0001-5247-5604

INTRODUCTION

Aging is a complex, dynamic and multifaceted development. As the last stage of the life cycle, it refers to life-long experiences, which vary depending on social class, gender, culture, ethnicity and other socioeconomic conditions. Population aging is notorious and has been gradually increasing in different parts of the world and not differently in Brazil. This fact is justified not only by the decrease in fertility rates, infant mortality and elderly mortality, but also to the increase in social and economic conditions that take part within this context. [1-3]

In 2010, the population over 80 years old was constituted by 2,9 million people and projections indicate that in 2050 it will be formed around 13 million inhabitants, representing 6,5% of the total population and 19,6% of individuals elderly in Brazil. Women, in particular, currently represent the majority of the elderly in the country, have almost a decade of longevity compared to men and with life expectancy between 60 and 80 years, therefore, they follow this growth trend for the next decades. [1-4]

Health in old age depends on people's circumstances and actions throughout their lives. Some of these modifiable factors - such as smoking, alcohol abuse, physical inactivity and low physical activity, low consumption of fruits and vegetables, weight control and obesity - when they are absent for much of life, or reversed in old age, can contribute for healthy aging. [5] However, the state of health is aggravated by social inequalities such as worse indicators of income and education, and social indicators such as gender, age group and skin color categories. [6]

It is understood that the application of a medicine aimed at improving the quality of life, preventing chronic non-communicable diseases (NCDs) and controlling a healthy life involves health care and education programs, adequate and healthy nutrition, sanitation basic, investments in biomedical technologies and also in public health policies, which show positive factors and contribute to the increase in life expectancy. [1, 2]

Nutrition is an important aspect in the context of physiological modulation related to age and the development of NCDs, as if poorly cared for throughout life culminates mainly in the incidence of metabolic syndrome (MS). MS corresponds to the presence of at least three altered metabolic risk factors, including high levels of abdominal obesity, fasting glucose, blood pressure and triglycerides, or low HDL cholesterol. Arterial hypertension is the component of the syndrome most prevalent among the elderly, especially among women. [7, 8] A usual diet rich in protective factors, such as high consumption of fiber and omega-3 fatty acids, combined with a reduction in dietary risk factors, such as a low variety and quality diet and high in saturated fats, can be fundamental in promoting health and prevention of chronic diseases in female aging. [9-11]

Even so, throughout life, one can acquire food preferences that, regardless of their connection with health, are shaped by social, economic and environmental traditions, taking into account, among several other aspects,

religious/regional influences and their eating habits' historical. In the elderly, natural physiological or pathological sensory changes can compromise qualitative and quantitative nutrition. In addition, social aspects such as loneliness, lack of commensality and insufficient social integration can negatively affect eating habits. [12, 13]

In this sense, the present article aimed to evaluate the association of the perception of the importance of food groups with socioeconomic, anthropometric and arterial hypertension variables in elderly women with a previous diagnosis of metabolic syndrome.

METHODS

Cross-sectional analytical study, of a descriptive nature through a quantitative approach. The study site for data collection was carried out at the Catholic University of Brasilia (UCB) - Campus I (Taguatinga Unit), from Monday to Friday, from 8:00 am to 6:00 pm, in April 2012, during the participation in a multidisciplinary program of health courses.

This research was approved by the Research Ethics Committee of Universidade Católica de Brasília and is registered under nº. CEP 50/2010. With regard to ethical aspects of research, it is emphasized that all recommendations for research involving human beings of Resolution 466/12 of the National Health Council were met, such as voluntary participation by signing the free and informed consent term, in addition to the confidentiality regarding the identification of the participants.

Structured interviews were conducted with the participants. Non-institutionalized elderly women from the city of Taguatinga, DF, took part in the study. In the inclusion criteria, elderly women over 60 years of age and who were classified as having metabolic syndrome were selected for the study according to the criteria described below. Those who did not have the ability to understand or correctly answer the interview and food surveys were excluded.

For MS, they should have the combination of at least three components of the syndrome under the criteria of the NCEP-ATP III (National Cholesterol Education Program Adult Treatment Panel III): Abdominal obesity for women> 88cm, Triglycerides> 150mg/dl, HDL - cholesterol for women <50 mg/dl, blood pressure>130 mmHg or>85 mmHg and fasting glucose> 110 mg/dl. All of these criteria have been tabulated in previous studies. [14]

For data collection, students of the Physical Education course at UCB were properly trained to collect the variables: marital status, education level, monthly income, family composition. In addition, anthropometric measurements (height and waist circumference) and weight were performed, according to standard anthropometric procedures. [15] Briefly, it was recommended for the interviewees to be wearing light clothes, barefoot, with empty pockets and without accessories. For height, the participants positioned themselves barefoot on the Frankfurt plane, placing at least three points (heels, buttocks and scapulae) and, when possible, the five points (calves and posterior occipital part), and the measurement was performed with a stable stadiometer at the middle point of the head. For weight, they were positioned on the platform with the weight distributed on both feet and looking at the horizon line. The body mass index (BMI) was calculated by dividing weight (in kg) by the square of height (in m) and classified as BMI <22 kg/m2 for low weight, between 22 and 26.99 kg/m2 as appropriate, between 27 and 31.99 kg/m2 as overweight and > 32 kg/m2 as obesity, according to Winter et al. [16]. Waist circumference was measured with an inextensible measuring tape, at the midpoint between the upper anterior iliac crest and the last rib.

Blood pressure was measured by the nursing team according to a standardized protocol, with an individual sitting in a relaxed manner and with their legs uncrossed, using a cuff on the left arm and at chest height, with two measurements taken and taking the last one as valid. [15]

To assess food preference, a scale of food importance was applied, dividing food according to its nutritional characteristics into nine groups contemplated in this study, namely: Cereals, Vegetables, Fruits, Milk, Meat, Beans, Oils, Sugars and Oilseeds. For each of these groups, the most common foods were listed, including the item "others", so that the interviewee had the option of listing other foods usually consumed that were not present on the scale. For each food, the degree of importance was assessed using a Likert-type scale of 04 points, with 1 = not at all important, 02 = not very important, 03 = important and 04 = very important. The values for the foods contained in the group were tabulated and the food group received the individual average score. This scale aims to assess the degree of importance that the elderly attribute to foods in their current diet and not the pre-established concept of healthy eating, recommended by health professionals, such as doctors and nutritionists.

The descriptive analysis included the calculation of frequencies, averages, standard deviations, 95% confidence intervals, minimum and maximum values. The data distribution was checked for normality using the Kolmogorov-Smirnov test. For categorical variables, analysis of variance (ANOVA) was used to assess the difference in means between non-dependent categories. Then, among continuous variables, simple linear regression was used to estimate the degree of association of preferences with the other clinical variables. The level of significance was adopted as 5%. The analysis was performed using the SPSS Software (Statistical Package of the Social Sciences, SPSS Inc, Chicago, USA) for Windows version 17.0.

RESULTS

The study included 84 elderly women, with a mean age of 68,78 ± 5,67 years. Regarding socioeconomic variables, it was found that most women had completed elementary school, were widows, had an income below one minimum wage and lived alone (Table 01).

Table 01. Description of the information by the absolute and relative frequencies of the socioeconomic characteristics of the sample with data collected in 2012, Taguatinga, DF, Brazil.

DEGREE OF EDUCATION	N	%
Illiterate or incomplete elementary	12	14,3%
Complete elementary school	49	58,3%
Complete High School	21	25,0%
Complete Higher Education	2	2,4%
Marital Status	**n**	**%**
Single	11	13,1%
Married	26	31,0%
Divorced	15	17,9%
Widow	30	35,7%
ND	2	2,4%
Income	**n**	**%**
Less than a minimum wage	46	54,8%
1 to 3 Wages	8	9,5%
4 to 6 Wages	11	13,1%
7 or more Wages	16	19,0%
ND	3	3,6%
Family Composition	**n**	**%**
Lives alone	36	42,9%
With one more person	19	22,6%
With two more person	11	13,1%
With three or more people	9	10,7%
ND	9	10,7%
Grand total	**84**	**100%**

ND = Non-available data

Anthropometric and clinical characteristics are shown in Table 2. The variables with the greatest dispersion were weight (and consequently BMI) and systolic and diastolic blood pressure values. Only two volunteers had waist circumference below cardiovascular risk (with values of 73,5 and 75,5 cm). With regard to BMI, 21,43% were classified as adequate (25,65 ± 1,15 kg/m²), 46,43% as overweight (29,45 ± 1,55 kg/m²) and 32,14% as High-risk obesity (34,96 ± 2,19 kg/m²). In the classification of systemic arterial hypertension, 33,33% were classified as hypertensive (Systolic = 153,89 ± 13,63 mmHg; Diastolic = 82,39 ± 9,39 mmHg) and 66,67% as non-hypertensive (Systolic = 124,73 ± 9,25 mmHg; Diastolic = 74,29 ± 7,53 mmHg).

Table 2. Anthropometric and clinical information on the sample of elderly women participating in the study with data collected in 2012, Taguatinga, DF, Brazil.

VARIABLE	M±DP	IC95%	CV%
Body mass (kg)	72,09 ± 10,14	[69,86 - 74,15]	13,9%
Stature (m)	1,54 ± 0,06	[1,53 - 1,55]	3,5%
Body Mass Index (kg/m²)	30,43 ± 3,86	[29,58 - 31,23]	12,7%
Weight Circumference (cm)	97,13 ± 7,79	[94,82 - 98,44]	8,8%
Systolic Blood Pressure (mmHg)	135,09 ± 17,83	[130,70 - 138,21]	13,1%
Diastolic Blood Pressure (mmHg)	76,22 ± 11,47	[75,06 - 78,91]	11,7%

Data presented as Mean ± Standard Deviation (m ± sd); 95% CI 95% confidence interval [lower - upper]; CV% = Coefficient of variation.

The scale of perception of importance and applied food preference was used to associate the degree of value that the participants consider to food and their groups in their food choices, influenced by numerous factors, reflecting subjectively the food pattern.

Among the food classes, most classes had a variation coefficient of approximately 20%, with oils, oilseeds and sugars being the ones that most varied. It is important to note that the highest degrees of importance were given to Vegetables and Fruits, which are indicators of healthy eating. (Table 03).

Social and demographic characteristics showed no association with the importance of food groups in the analysis of variance, that is, all differences in means between food groups and categories of socioeconomic variables were not significant ($p > 0,05$). Only a borderline statistical value was observed between Sugars and the Educational Instruction ($p = 0,05$), but the Tukey test identified that the means between the categories are not significantly different.

Table 04 contains data referring to the measure of difference between the categorized clinical and anthropometric variables, according to the food groups.

Table 03. Importance attributed to food groups on a 4-point scale by the elderly participants in the study with data collected in 2012, Taguatinga, DF, Brazil

FOOD GROUP	M±DP	IC 95%	CV%
Vegetables	2,91 ± 0,48	[2,80 - 3,01]	17%
Fruits	2,59 ± 0,49	[2,49 - 2,70]	19%
Milk	2,24 ± 0,46	[2,14 - 2,34]	20%
Cereals	2,18 ± 0,41	[2,09 - 2,26]	19%
Oilseeds	2,15 ± 0,77	[1,98 - 2,31]	36%
Meat	2,04 ± 0,40	[1,95 - 2,12]	20%
Beans	1,96 ± 0,51	[1,85 - 2,07]	26%
Oils	1,88 ± 0,79	[1,71 - 2,04]	42%
Sugar	1,83 ± 0,54	[1,71 - 1,94]	30%

Data presented as Mean ± Standard Deviation (m ± sd); 95% CI 95% confidence interval [lower - upper]; CV% = Coefficient of variation.

A difference of greater importance in milk consumption was identified between elderly women with and without arterial hypertension. When these variables were analyzed in a qualitative way, that is, without categories, it was verified between Milks and Systolic BP, corroborating the association previously described. A negative correlation was also identified between Beans with Age and Diastolic BP, in addition to a correlation between Oilseeds with BMI and waist circumference (Table 05). No correlation was identified between the food groups for weight and height analyzed in isolation.

Table 04. Analysis of variance between the degree of importance and the clinical characteristics (SAH = Systemic arterial hypertension; NH = Non-hypertensive) and the Body Mass Index of the study participants with data collected in 2012, Taguatinga, DF, Brazil.

FOOD GROUP	BLOOD PRESSURE CLASSIFICATION			BODY MASS INDEX CLASSIFICATION			
	SAH	NH	SIG.	ADEQUATE	OVERWEIGHT	OBESITY	SIG.
Vegetables	2,95 ± 0,43	2,89 ± 0,51	0,59	2,83 ± 0,55	2,94 ± 0,49	2,90 ± 0,44	0,74
Fruits	2,60 ± 0,47	2,59 ± 0,50	0,96	2,49 ± 0,55	2,59 ± 0,46	2,67 ± 0,50	0,49
Milk	2,40 ± 0,43	2,16 ± 0,46	0,02	2,20 ± 0,48	2,26 ± 0,47	2,23 ± 0,45	0,90
Cereals	2,26 ± 0,41	2,13 ± 0,41	0,19	2,12 ± 0,37	2,19 ± 0,49	2,18 ± 0,32	0,81
Oilseeds	2,30 ± 0,78	2,07 ± 0,76	0,21	2,19 ± 0,98	2,18 ± 0,70	2,07 ± 0,74	0,80
Meat	2,07 ± 0,47	2,02 ± 0,37	0,60	1,93 ± 0,38	2,08 ± 0,46	2,04 ± 0,33	0,44
Beans	1,93 ± 0,40	1,98 ± 0,56	0,69	2,09 ± 0,70	1,94 ± 0,44	1,90 ± 0,45	0,46
Oils	2,00 ± 0,78	1,81 ± 0,79	0,30	1,81 ± 0,75	1,88 ± 0,78	1,91 ± 0,84	0,91
Sugar	1,88 ± 0,48	1,80 ± 0,57	0,51	1,70 ± 0,48	1,86 ± 0,58	1,86 ± 0,54	0,55

Data presented as mean ± standard deviation; Sig. = Significance level, adopted as significant for <0,05 in italics.

Table 5. Analysis of linear regression between the degree of importance and the clinical and anthropometric characteristics of the elderly participants in the study with data collected in 2012, Taguatinga, DF, Brazil.

FOOD GROUP	AGE		BMI		WEIGHT		SYSTOLIC BP		DIASTOLIC BP	
	BETA	SIG.	BETA	SIG.	BETA	SIG.	BETA	SIG.	BETA	SIG.
Cereal	0,22	0,21	0,05	0,77	0,13	0,45	0,18	0,28	0,01	0,98
Vegetables	-0,02	0,89	-0,03	0,84	-0,07	0,61	-0,07	0,62	0,13	0,40
Fruits	0,09	0,58	0,29	0,09	0,12	0,47	-0,07	0,68	-0,14	0,42
Milk	-0,21	0,12	0,03	0,84	0,05	0,72	0,27	0,046	0,08	0,53
Meat	0,03	0,82	0,02	0,89	-0,15	0,28	0,09	0,53	-0,07	0,60
Beans	-0,25	0,04	-0,17	0,18	0,01	0,98	-0,15	0,22	-0,31	0,02
Oil	-0,06	0,63	-0,13	0,29	0,11	0,34	-0,03	0,79	0,04	0,71
Sugar	0,07	0,64	0,06	0,72	0,20	0,23	-0,09	0,57	0,07	0,66
Oilseeds	0,08	0,57	-0,31	0,04	-0,32	0,03	0,12	0,44	0,12	0,42

BMI = Body Mass Index; BP = Blood Pressure; Beta = regression coefficient. Sig. = Significance level, adopted as significant for <0,05 in italics.

DISCUSSION

Nutrition for the elderly is a subject of wide discussion in science. Many studies focus on dietary composition to understand physiological changes and their risks due to age. [9-11] However, nutrition in its broad sense also brings together food habits and preferences, since old age also generates changes in people's behavior. In this sense, the present study investigated how food preferences are related to socioeconomic, anthropometric and hypertensive conditions in elderly women with metabolic syndrome. It is worth mentioning that in this work, preferences are not necessarily linked to consumption, but reflect the affectivity and the degree of importance given to food.

Socio-economic-demographic conditions are generally associated with the dietary profile in the elderly, that is, the better the social condition, the healthier is the diet, and, on the contrary, less favored conditions cause worse dietary quality.[8] The state of loneliness often observed in old age has an impact on the choice and eating habits. Whitelock and Ensaff reported that these factors are related to the decrease in variety, quantity and affective relationship with food. [17] Similarly, in a study conducted in southern Brazil, it was identified that married individuals were more likely to have a healthier diet. [12] The analysis of the socioeconomic variables of the elderly women studied allowed us to verify that, based on the reflection of the causal socioeconomic factors such as low income and education, widowhood and the fact of living alone, they did not interfere in food preferences, as observed in other studies. [8, 12, 17, 18]

The group studied in the present study, however, consisted of elderly women who participated in a multi- and interdisciplinary social university project. This may have reflected in the results in several aspects, for example, being active and participating in a project of changes for the benefit of health. According to Almeida and active elderly collaborators, whose socioeconomic profile is similar to that of the present study, they refer to prioritizing health-oriented food with consumption importance related to nutritional quality. Other aspects were also highlighted as influencing habits, such as pleasure, taste and price. In the same sense, healthy eating patterns in the elderly were associated with other healthy lifestyle habits, such as not smoking and practicing physical activity. [18]

The fact that Fruits and Vegetables were classified as the most important groups and oils and sugars as the least in the results found, highlights that the population studied is aware of the importance of healthy eating indicators. As noted earlier, preferences and amounts do not necessarily reflect the habitual and energy consumption of the population studied. Carvalho et al. [19] observed that there is an insufficient intake of fruits and vegetables and a mistaken perception of this consumption in adults, but the elderly mistakenly believe that their intake is inadequate, that is, they have good consumption but describe the opposite. In addition, as it consists of women only, the studied population follows the trend observed in a large national study, in which it was identified that elderly women have a higher healthy eating pattern compared to men. [8]

Among the characteristics for metabolic syndrome, arterial hypertension is the most prevalent among all. However, because the syndrome has multiple characteristics, it is interesting to investigate the differences between hypertensive and non-hypertensive patients, and also to the other anthropometric indicators. The association between the consumption of milk and dairy products was positively associated with blood pressure. This association may not indicate a cause-effect, as dairy products such as milk and plain yogurt are considered protective foods in many cases. [8] However, other foods in the same class are rich in sodium, such as cheese and curd, which may have been the association factor in the present study.

The consumption of oilseeds in general shows evidence of, in the long run, being associated with less weight gain and reduced risk of overweight and obesity, that is, corroborating the negative correlation found with BMI and waist circumference. Despite being a high energy density food, they contain a variety of nutrients and bioactive compounds beneficial for metabolic health. [20] Still, regarding the consumption of beans, it is usually highlighted as an important food group well consumed by the elderly [8], but it is also reported as a minor in socially and physically frail elderly groups 21 and the difference in consumption considered significant with age. [18]

The degree of importance given to the food groups, although each food has been duly scored and has a normal distribution, may have shown weaknesses in the scale due to subjectivity and the variety of foods. Among the disadvantages of retrospective food surveys, according to Fisberg, Marchioni and Colucci [22], the interviewee's memory, cognitive status and time of application, allied to the difficulties in applying them according to the number and complexity of the list of foods, constitute factors that may underestimate or overestimate the information on food consumption, which it can also reflect in the evaluation of the preferences and importance of these food groups. Likewise, a Likert-type scale with large quantities of items and few points can impair in some way its variability and reliability of responses. [23] In this sense, the number of items and the total points awarded may have been factors that may have generated bias for the type of population studied.

The dichotomy between knowing and doing, in view of the results of this research, allows us to reflect on the relationship of health significan-

ce for the elderly population. For this, further studies that relate not only the importance, but also the food preferences with the qualitative and quantitative consumption profile and the food security of the elderly, especially women, are necessary to establish a better understanding of the subject.

CONCLUSION

It is understood in this sample of elderly women that the perception of importance attributed to food groups is consistent with healthy eating habits, but it is more expressive and worrisome for the physiological aspects related to the metabolic syndrome than for the socioeconomic ones. The aspects related to the metabolic syndrome and its risks are considered to be the most relevant. However, it is necessary to look together at the nutritional education included in primary care related to the elderly, in addition to their health status, the right to healthy eating in the social and economic context in which they are inserted. ■

REFERENCES

1. Travassos GF, Coelho AB, Arends-Kuenning MP. The elderly in Brazil: demographic transition, profile, and socioeconomic condition. Revista Brasileira de Estudos de População. 2020;37.

2. Neumann LT, Albert SM. Aging in Brazil. The Gerontologist. 2018 Jul 13;58(4):611-7.

3. Nóbrega OT, Faleiros VP, Telles JL. Gerontology in the developing Brazil: achievements and challenges in public policies. Geriatrics & gerontology international. 2009 Jun;9(2):135-9.

4. Brasil. Ministério da Saúde. Vigitel: vigilância de violências e acidentes, Sistema de Monitoramento de Fatores de Risco e Proteção para Doenças Crônicas Não Transmissíveis por meio de Inquérito Telefônico. Brasília: Ministério da Saúde; 2011.

5. John U, Hanke M, Freyer-Adam J. Health risk behavior patterns in a national adult population survey. International Journal of Environmental Research and Public Health. 2018 May;15(5):873.

6. Antunes JL, Chiavegatto Filho AD, Duarte YA, Lebrão ML. Social inequalities in the self-rated health of the elderly people in the city of São Paulo, Brazil. Revista Brasileira de Epidemiologia. 2019 Feb 4;21:e180010.

7. Vieira EC, Peixoto MD, Silveira EA. Prevalência e fatores associados à Síndrome Metabólica em idosos usuários do Sistema Único de Saúde. Revista Brasileira de Epidemiologia. 2014;17:805-17.

8. Pereira IF, Vale D, Bezerra MS, Lima KC, Roncalli AG, Lyra CD. Padrões alimentares de idosos no Brasil: Pesquisa Nacional de Saúde, 2013. Ciência & Saúde Coletiva. 2020 Mar 6;25:1091-102.

9. Millen BE, Pencina MJ, Kimokoti RW, Zhu L, Meigs JB, Ordovas JM, D'Agostino RB. Nutritional risk and the metabolic syndrome in women: opportunities for preventive intervention from the Framingham Nutrition Study–. The American journal of clinical nutrition. 2006 Aug 1;84(2):434-41.

10. Nóbrega OT, Paula RS, Silveira SR, Pires AS, Toledo JO, Moraes CF, Córdova C. Usual dietary intake and cardiovascular risk factors in older Brazilian women. Aging Clinical and Experimental Research. 2012 Dec 1;24(6):669-74.

11. Tardivo AP, Nahas-Neto J, Nahas EA, Maesta N, Rodrigues MA, Orsatti FL. Associations between healthy eating patterns and indicators of metabolic risk in postmenopausal women. Nutrition journal. 2010 Dec 1;9(1):64.

12. Louzada ML, Durgante PC, De Marchi RJ, Hugo FN, Hilgert JB, Padilha DP, Antunes MT. Healthy eating index in southern Brazilian older adults and its association with socioeconomic, behavioral and health characteristics. The journal of nutrition, health & aging. 2012 Jan 1;16(1):3-7.

13. Ceolin J, Pinheiro TD. Gustative sensitivity in elderly: a narrative review. PAJAR-Pan American Journal of Aging Research. 2017;5(2):78-84.

14. Lorenzo C, Williams K, Hunt KJ, Haffner SM. The National Cholesterol Education Program–Adult Treatment Panel III, International Diabetes Federation, and World Health Organization definitions of the metabolic syndrome as predictors of incident cardiovascular disease and diabetes. Diabetes care. 2007 Jan 1;30(1):8-13.

15. Brasil. Ministério do Planejamento, Orçamento e Gestão - Instituto Brasileiro de Geografia e Estatística – IBGE. Pesquisa Nacional de Saúde 2013 - Manual de Antropometria. Rio de Janeiro: IBGE; 2013.

16. Winter, J. E., MacInnis, R. J., Wattanapenpaiboon, N., & Nowson, C. A. BMI and all-cause mortality in older adults: a meta-analysis. The American journal of clinical nutrition. 2014;99(4), 875-890.

17. Whitelock E, Ensaff H. On your own: older adults' food choice and dietary habits. Nutrients. 2018;10(4):413.

18. Almeida IC, Guimarães GF, de Rezende DC. Hábitos alimentares da população idosa: padrões de compra e consumo. Agroalimentaria. 2011;17(33):95-110.

19. Carvalho MC, Menezes MC, Lopes AC. Perception versus intake of fruit and vegetables. Revista de Nutrição. 2018;31(2):221-33.

20. Eslami O, Shidfar F, Dehnad A. Inverse association of long-term nut consumption with weight gain and risk of overweight/obesity: a systematic review. Nutrition Research. 2019;68:1-8.

21. Mello AD, Carvalho MS, Alves LC, Gomes VP, Engstrom EM. Consumo alimentar e antropometria relacionados à síndrome de fragilidade em idosos residentes em comunidade de baixa renda de um grande centro urbano. Cadernos de Saúde Pública. 2017;33:e00188815.

22. Fisberg RM, Marchioni DM, Colucci AC. Avaliação do consumo alimentar e da ingestão de nutrientes na prática clínica. Arquivos Brasileiros de Endocrinologia & Metabologia. 2009;53(5):617-24.

23. Dalmoro M, Vieira KM. Dilemas na construção de escalas Tipo Likert: o número de itens e a disposição influenciam nos resultados? Revista Gestão Organizacional. 2013;6(3):161-74.