



Knowledge on nutritional recommendations by other professionals of the Family Health Strategy

Conhecimento de recomendações nutricionais por outros profissionais da Estratégia Saúde da Família

Conocimiento de recomendaciones nutricionales de otros profesionales de la Estrategia Salud de la Familia

Getúlio Vasconcelos Fiuza 

University of Fortaleza (*Universidade de Fortaleza*) - Fortaleza (CE) - Brazil

Adriano Pereira Alencar 

University of Fortaleza (*Universidade de Fortaleza*) - Fortaleza (CE) - Brazil

Brena Barreto Barbosa 

Ceara State University (*Universidade Estadual do Ceará*) - Fortaleza (CE) - Brazil

Antônio Augusto Ferreira Carioca 

University of Fortaleza (*Universidade de Fortaleza*) - Fortaleza (CE) - Brazil

ABSTRACT

Objective: To analyze the knowledge of doctors and nurses from the Family Health Strategy on nutritional guidelines for type 2 diabetes mellitus (DM2) and systemic arterial hypertension (SAH). **Methods:** Cross-sectional and descriptive study was carried out with 67 physicians and nurses from 11 Primary Health Care Units in Regional II in the city of Fortaleza, Ceará, between December 2019 and January 2020. service, applying a closed Likert-type questionnaire, prepared by the researchers, containing 29 questions related to the nutritional recommendations of reference societies in DM2 and SAH, and the Food Guide for the Brazilian Population. Data analysis was descriptive, using absolute and relative frequencies and the chi-square test. **Results:** The agreement of the nutritional guidelines of the reference societies of DM2 and SAH by the professionals was 17.9% (n=12) for the proportion of carbohydrates in the diabetic patient's diet; 22.4% (n=15) for coffee consumption and blood pressure control; 34.3% (n=23) for the consumption of sugar by the diabetic and 37.3% (n=25) for the consumption of milk and blood pressure control. Regarding the guidelines of the Food Guide, all (n=67) of the interviewees agreed that ultra-processed foods should be avoided and that there should be regularity and attention in the consumption of meals. **Conclusion:** The professionals showed a lack of knowledge about the nutritional recommendations established by the main national and international societies of DM2 and SAH.

Descriptors: Family Health Strategy; Nutritional Recommendations; Diabetes Mellitus; Hypertension.

RESUMO

Objetivo: Analisar o conhecimento de médicos e enfermeiros da Estratégia Saúde da Família sobre as orientações nutricionais para diabetes mellitus tipo 2 (DM2) e hipertensão arterial sistêmica (HAS). **Métodos:** Estudo transversal e descritivo realizado com 67 médicos e enfermeiros de 11 Unidades de Atenção Primária à Saúde da Regional II do município de Fortaleza, Ceará, entre dezembro de 2019 e janeiro de 2020. Foram incluídos profissionais contratados, concursados ou participantes de programas de educação em serviço, aplicando-se um questionário fechado do tipo Likert, elaborado pelos pesquisadores, contendo 29 questões relacionadas às recomendações nutricionais das sociedades de referência em DM2 e HAS, e do Guia Alimentar para a População Brasileira. A análise dos dados ocorreu de forma descritiva, utilizando frequências absolutas e relativas e teste qui-quadrado. **Resultados:** A concordância com as diretrizes nutricionais das sociedades de referência de DM2 e HAS pelos profissionais foi de 17,9% (n=12) para a proporção de carboidratos na dieta do paciente diabético; 22,4% (n=15) para o consumo de café e controle da pressão arterial; 34,3% (n=23) para o consumo de açúcar pelo diabético e 37,3% (n=25) para o consumo de leite e controle da pressão arterial. Em relação às orientações do guia alimentar, a totalidade (n=67) dos entrevistados concordou



This Open Access article is published under the a Creative Commons license which permits use, distribution and reproduction in any medium without restrictions, provided the work is correctly cited

Received on: 06/25/2020

Accepted on: 03/02/2021

que os alimentos ultraprocessados devem ser evitados, e que deve haver regularidade e atenção no consumo das refeições. **Conclusão:** Os profissionais apresentaram conhecimento insuficiente a respeito das recomendações nutricionais estabelecidas pelas principais sociedades nacionais e internacionais de DM2 e HAS.

Descritores: Estratégia Saúde da Família; Recomendações Nutricionais; Diabetes Mellitus; Hipertensão.

RESUMEN

Objetivo: Analizar el conocimiento de médicos y enfermeros de la Estrategia Salud de la Familia sobre las orientaciones nutricionales de la Diabetes Mellitus del tipo 2 (DM2) y la Hipertensión Arterial Sistémica (HAS). **Métodos:** Estudio transversal y descriptivo realizado con 67 médicos y enfermeros de 11 Unidades de Atención Primaria de Salud de la Regional II del municipio de Fortaleza, Ceará, Brasil, entre diciembre de 2019 y enero de 2020. Se ha incluido los profesionales contratados, los concursantes o los participantes de programas de educación en servicio aplicándose un cuestionario cerrado del tipo Likert elaborado por los investigadores con 29 preguntas relacionadas con las recomendaciones nutricionales de las sociedades de referencia en DM2 y HAS, y del Guía Alimentario para la Población Brasileña. El análisis de los datos se dio de modo descriptivo utilizándose las frecuencias absolutas y relativas y la prueba de chi-cuadrado. **Resultados:** La concordancia con las directrices nutricionales de las sociedades de referencia de DM2 y HAS por los profesionales ha sido del 17,9% (n=12) para la proporción de carbohidratos de la dieta del paciente diabético; el 22,4% (n=15) para el consumo de café y el control de la presión arterial; el 34,3% (n=23) para el consumo de azúcar por el diabético y el 37,3% (n=25) para el consumo de la leche y el control de la presión arterial. Respecto las orientaciones de la guía alimentaria, la totalidad (n=67) de los entrevistados estuvo de acuerdo de que se debe evitar a los alimentos ultra procesados y tener regularidad y atención con el consumo de las comidas. **Conclusión:** Los profesionales presentaron conocimiento insuficiente respecto las recomendaciones nutricionales establecidas por las principales sociedades nacionales e internacionales de DM2 y HAS.

Descriptores: Estrategia de Salud Familiar; Ingesta Diaria Recomendada; Diabetes Mellitus; Hipertensión.

INTRODUCTION

In Brazil, from the 80s in the last century, there was a transition in magnitude from parasitic and infectious causes to causes related to chronic non-communicable diseases^(1,2). Type 2 diabetes mellitus (DM2) and systemic arterial hypertension (SAH) stand out as relevant chronic diseases whose consequences are unfavorable outcomes for the cardiocirculatory system, contributing to cardiovascular diseases appear as one of the most important causes of morbidity and mortality in the country^(3,4). To reduce the impact of these issues and prevent their expansion, it is essential to invest in control measures by the health system, in addition to the continuing education of professionals who work directly in this line of care⁽⁵⁾.

Periodically, scientific societies all over the world publish guidelines regarding the prevention, diagnosis, and treatment of diseases so the most up-to-date scientific information, obtained from various studies, can be used by the medical community and other health professions⁽⁶⁾. The national and international guidelines that lead the SAH and DM2 management focus on two central aspects of their conduct: drug and non-drug treatment^(7,8). The latter, related to lifestyle changes, such as nutritional guidelines for dietary changes, daily physical activity, and encouragement to quit smoking⁽⁹⁾.

The knowledge of these guidelines by professionals who work with the public that has DM2 and SAH is relevant, as they can provide more up-to-date and scientifically-based conduct⁽¹⁰⁾. Recommendations for modifying lifestyle habits, including eating habits, should be part of the consultation of these individuals in a systematic way so that treatment can be effective⁽¹⁾.

Primary Health Care professionals occupy a relevant position in the management of these cases, as they act at the gateway of these users to the health system, in which most of them remain in routine follow-up. Therefore, they must be prepared to identify inappropriate eating behaviors and to carry out guidelines relevant to nutrition that contribute to adequate metabolic control and prevent the evolution of morbidities and their complications⁽¹¹⁾.

The nutritionist occupies a prominent position in the management of these cases, as he is the only professional who, in his academic training, acquires the specific knowledge that allows him to propose nutritional guidelines that are adequate to the reality of each family⁽¹²⁾. The insertion of this professional in Primary Health Care, which was consolidated through the creation of the Family Health Support Center (NASF) in 2008⁽¹³⁾, currently the Extended Family Health and Primary Care Center (NASF-AB)⁽¹⁴⁾, provided an expansion of food and nutrition actions to promote quality of life and disease prevention, in addition to an increase in the number of nutritionists working in

Primary Health Care, even though the presence of this category is insufficient in view of the existing high demand in different regions of Brazil⁽¹⁵⁾.

Non-nutritionist professionals, notably doctors and nurses inserted in the Family Health Strategy (FHS), may not be sure of the nutritional guidelines provided during the consultations, as they consider their training deficient in aspects related to food and nutrition, and when there is no nutritionist at the health unit, these are the professionals who carry out the dietary guidelines⁽¹²⁾. Interest in the research arose from the observation that many patients, especially those with glycemic, metabolic, and/or blood pressure levels uncontrolled, have little knowledge about other relevant elements of therapy, especially food^(16,17).

Knowledge on the content of nutritional guidelines provided by professionals who are not nutritionists to patients with DM2 and SAH during routine consultations will make it possible to propose improvements in the continuing education of these professionals so that there is always the dissemination of the latest scientific evidence concerning food and nutrition education, with a decisive contribution to improving metabolic control and the quality of life of patients assisted. Thus, this study aimed to analyze the knowledge of doctors and nurses from the Family Health Strategy on nutritional guidelines for DM2 and SAH.

METHODS

It is a cross-sectional descriptive study carried out from December 2019 to January 2020 in the Primary Health Care Units (UAPS) in Regional II in Fortaleza. It is the capital of the state of Ceará, and it has approximately 2.6 million inhabitants and, during the research, it was divided into seven administrative regions, managed by the Regional Executive Secretariats (SER), consisting of neighborhoods with geographic proximity and socioeconomic characteristics in common. The regional setting of this study had a population of 363,406 inhabitants, distributed in 21 districts, comprising 11 UAPS, formed by the minimum team proposed by the Ministry of Health for the composition of the FHS⁽¹⁸⁾. It is noteworthy that none of the units in this region had the support of a professional nutritionist.

The sample consisted of 29 doctors and 38 nurses who work in the care of health users diagnosed with SAH and DM2 in the UAPS mentioned above. Professionals who were hired, tenured job, or participated in in-service education programs (residences and specializations) were included. Employment relationship (public tender or temporary contract), length of service, or training time were not taken into account.

The information was obtained through the application of a structured questionnaire by trained researchers (academics of nutrition), in a private place, containing questions related to the content of the nutritional guidelines provided during the consultations. The researchers elaborated a closed questionnaire containing 29 questions and evaluated on a Likert-type scale, with five response options: "totally agree", "partially agree", "do not agree or disagree", "partially disagree" and "disagree". The same instrument addressed issues related to nutritional recommendations for DM2 and SAH of national^(7,8,19) and international^(20,21) guidelines (Charts I and II).

For analysis purposes, the question was considered correct when the professionals reported "totally agree" or "partially agree" with the statements of the recommendations. Data analysis was performed descriptively, using absolute and relative frequencies. Association analysis (chi-square test) was performed using the Statistical Package for the Social Sciences (SPSS) program, version 20.0.

This work was submitted and approved by the Research Ethics Committees of the University of Fortaleza (Unifor) and the Municipality of Fortaleza (Opinion No. 3.645.100). Doctors and nurses participating in the research signed the Informed Consent Form.

Chart I - Current nutritional recommendations from scientific societies for diabetes and hypertension (To be continued)

There is no evidence to establish a specific proportion of carbohydrates for individuals with diabetes. The recommendations for this macronutrient are similar to those defined for the general population.

Monitoring the amount of carbohydrates in meals is a useful strategy to improve postprandial glycemic levels.

Sucrose and sucrose-containing foods are not prohibited for individuals with diabetes, as they do not increase blood glucose more than other carbohydrates when eaten in equivalent amounts. In this way, sucrose can be placed in the context of healthy eating.

The recommendations point to an increase in fiber consumption by the population with DM2 (about 30 to 50g per day) compared to the general population.

Chart I - Current nutritional recommendations from scientific societies for diabetes and hypertension (Conclusion)

<p>The dietary fiber consumed acts in different ways in controlling diabetes. Soluble ones have beneficial effects on blood glucose and lipid metabolism, while insoluble ones act contributing to satiety and weight control. Furthermore, both work to preserve intestinal health.</p>
<p>The amount of saturated fatty acid, with the goal of lowering LDL-C in individuals at high cardiovascular risk, should be <6% of total calories. Saturated fatty acid restriction can also reduce high-density lipoprotein cholesterol (HDL-C) concentrations, but because of its effectiveness in reducing LDL-C concentrations, this recommendation is followed.</p>
<p>For individuals with diabetes, the recommendation is <300 mg dietary cholesterol/day, avoiding the consumption of trans fat as much as possible.</p>
<p>A diet rich in monounsaturated fatty acid promotes glycemic control and reduces cardiovascular risk markers.</p>
<p>There is no evidence that the usual protein intake for most individuals (1 to 1.5 g per kg of body weight/day), representing 15 to 20% of total energy intake, needs to be modified for those with diabetes and kidney function preserved.</p>
<p>Individuals with diabetes must have a varied eating plan, with a minimum consumption of two to four servings of fruit, with at least one serving rich in vitamin C (citrus fruits).</p>
<p>Moderate weight reduction, defined as a sustained 5% reduction in initial body weight, improves glycemic control and alleviates the need for medications that lower glucose.</p>
<p>There is a consensus on the importance of encouraging the consumption of carbohydrates from vegetables, fruits, whole grains, vegetables and dairy products.</p>
<p>For individuals with diabetes, sodium intake should be limited to <2,300 mg/day, although additional restriction may be indicated for those with high blood pressure and diabetes.</p>
<p>The same precautions aimed at the general population regarding alcohol consumption apply to individuals with diabetes. Alcohol affects diet and blood glucose, impairing DM2 control. For adults with diabetes, daily alcohol intake should be limited to one serving or less for women and two drinks or less for men. A dose of 150mL of wine (a glass), 360mL of beer (a small can) or 45mL of spirits (a standard dispenser dose) is understood to be equivalent to 15g, on average, of ethanol.</p>
<p>Weight gain is directly related to increased blood pressure.</p>
<p>The DASH (Dietary Approaches to Stop Hypertension) diet emphasizes the consumption of low-fat fruits, vegetables and dairy products; includes intake of whole grains, chicken, fish and oilseed fruits; advocates reducing the intake of red meat, sweets and sugary drinks. It is rich in potassium, calcium, magnesium and fiber, and contains low amounts of cholesterol, total and saturated fat. Adopting this dietary pattern reduces blood pressure.</p>
<p>The daily sodium intake limit of 2.0g is associated with a decrease in blood pressure.</p>
<p>Omega-3 fatty acids from fish oils (eicosapentaenoic – EPA and docosahexaenoic – DHA) are associated with a modest reduction in blood pressure.</p>
<p>Fiber intake promotes a slight decrease in blood pressure, especially beta glucan from oats and barley.</p>
<p>There is evidence that ingesting dairy products, especially low-fat ones, lowers blood pressure. Milk contains several components, such as calcium, potassium and bioactive peptides, which can lower blood pressure.</p>
<p>Coffee, despite being rich in caffeine, a substance with an acute pressor effect, has polyphenols that can help reduce blood pressure. Recent studies suggest that the consumption of coffee in regular doses is not associated with a higher incidence of arterial hypertension or with an increase in blood pressure. It is recommended that consumption does not exceed low to moderate amounts.</p>
<p>The habitual consumption of alcohol increases blood pressure linearly and excessive consumption is associated with an increase in the incidence of arterial hypertension.</p>

Source: Guidelines of the Brazilian Society of Diabetes (2019)(7); 7th Brazilian Guidelines on Arterial Hypertension (2016)(8); American Diabetes Association (2020)(20); American Heart Association (2019)(21)

Chart II - Ten steps for an adequate and healthy diet proposed by the new Food Guide for the Brazilian Population.

Make fresh or minimally processed foods the basis of food.
Use oils, fats, salt and sugars in small amounts when seasoning and cooking food and culinary preparations.
Limit your consumption of processed foods.
Avoid consuming ultra-processed foods.
Eat regularly and carefully, in appropriate environments, and whenever possible with company.
Shop in places that offer fresh or minimally processed food varieties.
Develop, exercise and share cooking skills.
Plan the use of time to give food the space it deserves.
Give preference, when away from home, to places that serve freshly made meals.
Be critical of information, guidance, and messages about food in commercial advertisements.

Source: Food Guide for the Brazilian Population (2014)⁽¹⁹⁾

RESULTS

Of the total number of respondents (n=67), females predominated (82.1%; n=55), aged over 35 years (58.2%; n=39) and those who had nursing as a profession (56.7%; n=38). Most participants had more than 15 years of graduation (52.2%; n=35), graduated at a public university (55.2%; n=37), had less than 10 years in the service (50.5 %; n=34), and worked under the statutory regime (50.7%; n=34). Most of the professional work units had more than five teams from the Family Health Strategy (52.2%; n=35) (Table I).

Table I - Description of the sample of health professionals in primary care in Primary Health Care Units (UAPS) of Regional II in the city of Fortaleza, Ceará, 2020.

Variables	n	%
Gender		
Male	12	17.9
Female	55	82.1
Profession		
Doctor	29	43.3
Nurse	38	56.7
Age		
< 35 years	28	41.8
≥ 35 years	39	58.2
Graduate years		
< 15 years	32	47.8
≥ 15 years	35	52.2
Graduate place		
Public university	37	55.2
Private university	30	44.8
Basic Health Unit Time		
< 10 years	34	50.7
≥ 10 years	33	49.3
Employment Relationship		
Statutory	34	50.7
Hired	23	34.3
Resident	10	14.9
Number of teams		
< 5	35	52.2
≥ 5	32	47.8

Regarding the content of the guidelines provided, of the total number of respondents, 98.5% (n=66) have already addressed weight reduction as a controlling factor for hypertension and diabetes, 85.1% (n=57) encouraged the consumption of fruits and vegetables as 74.6% (n=50) provided guidelines regarding the consumption of fats by the population served. The consumption of salt and sugar was mentioned as part of the guidelines by 77.6% (n=52) of the professionals (Table II).

Table II - Content of the guidelines provided during consultations for diabetics and hypertensive patients in Primary Health Care Units (UAPS) of Regional II of the city of Fortaleza, Ceará, 2020.

Content of guidelines	n	%
Weight reduction	66	98.5
Fruit consumption	57	85.1
Fat consumption	50	74.6
Carbohydrate consumption	49	73.1
Water intake	46	68.7
Simple sugar consumption	52	77.6
Consumption of vegetables	57	85.1
Alcohol consumption	35	52.2
Salt consumption	52	77.6
Fish consumption	32	47.8

As for the participants' responses to the questions applied, the low percentage of correct answers regarding the proportion of carbohydrates in the diet of the diabetic patient stands out (17.9%; n=12). Still regarding this macronutrient, the majority (97.0%; n=65) agreed that the restriction of the amount per meal favors the control of plasma glucose levels in diabetic patients. A smaller part (34.3%; n=23) acknowledged that sucrose and foods containing it are not prohibited for these patients.

Regarding the consumption of fats by individuals with DM2, 43.3% (n=29) of the interviewees confirmed that the consumption of saturated fats should be restricted to less than 6% of the total daily calories to reduce LDL cholesterol in situations of high cardiovascular risk. As for cholesterol intake, 41.8% (n=28) agreed that consumption should be limited to less than 300 mg/day.

Concerning food consumption and blood pressure control, just over a third of professionals (37.3%; n=35) recognized that milk contains components that can reduce blood pressure, and an even smaller percentage (22.4%; n=15) confirmed that coffee intake could favor the reduction of blood pressure levels.

The highest percentages of correct answers were identified for the recognition of the recommendations of the new Food Guide for the Brazilian Population. All respondents considered that ultra-processed foods should be avoided and that meals eaten at similar times every day and consumed carefully favor the digestion of food, avoiding the exaggerated consumption of calories. Almost the entire sample (95.5%; n=64) recognized that the golden rule of the new guide is the recommendation to always prefer fresh or minimally processed foods and culinary preparations to ultra-processed foods (Table III). There was no association between sociodemographic and professional characteristics with knowledge about nutritional recommendations ($p>0,05$).

Table III - Percentage of correct answers by health professionals from Primary Health Care Units (UAPS) of Regional II in the municipality of Fortaleza regarding nutritional recommendations present in national and international documents. Fortaleza, Ceará, 2020.

Questões sobre recomendações nutricionais	n	%
Question 1. Ratio of carbohydrates	12	17.9
Question 2. Carbohydrate quantity and glycemic control	65	97.0
Question 3. Sugar consumption by the diabetic	23	34.3
Question 4. Fiber consumption by the diabetic	52	77.6
Question 5. Consumption of soluble fiber by the diabetic	58	86.6
Question 6. Insoluble fiber consumption by the diabetic	58	86.6
Question 7. Diabetic consumption of saturated fat	29	43.3
Question 8. Cholesterol consumption by diabetics	28	41.8
Question 9. Consumption of monounsaturated fat by the diabetic	53	79.1
Question 10. Protein consumption by the diabetic	36	53.7
Question 11. Weight reduction and glycemic control	58	86.6
Question 12. Carbohydrate Quality	59	88.1
Question 13. Fruit consumption by diabetics	60	89.6
Question 14. Sodium consumption for diabetics	45	67.2
Question 15. Alcohol consumption and glycemic control	34	50.7
Question 16. Ratio of weight gain/blood pressure increase	51	76.1
Question 17. Adoption of the DASH* diet	58	86.6
Question 18. Sodium consumption and blood pressure relationship	55	82.1
Question 19. Milk consumption and blood pressure	25	37.3
Question 20. Coffee consumption and blood pressure	15	22.4
Question 21. Alcohol consumption and blood pressure	55	82.1
Question 22. Omega 3 consumption and blood pressure	55	82.1
Question 23. Fiber consumption and blood pressure	48	71.6
Question 24. Consumption of processed foods	63	94.0
Question 25. Consumption of ultra-processed foods	67	100.0
Question 26. Consumption of fresh food	64	95.5
Question 27. Regularity and attention to meal consumption	67	100.0
Question 28. Meals together	62	92.5
Question 29. Definition of minimally processed foods	55	82.1

*: Dieta DASH: *Dietary Approaches to Stop Hypertension*

DISCUSSION

This study aimed to analyze the knowledge of professionals from the Family Health Strategy about nutritional guidelines for DM2 and SAH. It was observed that the principal contents covered were weight loss and consumption of fruits and vegetables. In general, professionals did not recognize some of the nutritional guidelines related to the consumption of carbohydrates, sucrose, fat, milk, and coffee. However, they presented high percentages of correct answers regarding the recommendations of the new Food Guide for the Brazilian Population⁽¹⁹⁾.

The insufficiency of knowledge on the food and nutrition guidelines information by health professionals observed in this study has repercussions not only on the management of non-communicable chronic diseases in question but also on their incidence because it is in primary care that the practice of activities of health promotion can have a greater effect on the early identification and consequent prevention of these diseases^(22,23).

Although nutritional recommendations are part of the treatment process for various health conditions, the public does not always have access to this information regularly and adequately. Studies that investigated the guidelines for healthy eating given to users of Primary Health Care in Brazil showed a prevalence of only 20 to 42% of people who received some nutritional advice in this environment^(24,25). Beyond the scope, it is necessary to evaluate the content of this information provided since, in most cases, it is provided by doctors or nurses, professionals who traditionally have their curricular training still little focused on the food and nutritional aspects of the healthcare process disease^(26,27).

In a study carried out with nurses from the Family Health Strategy, 75.2% of the participants claimed to have low knowledge about food and nutrition, and 90% reported having used non-scientific sources as references to search for nutritional information⁽²⁶⁾. It is undeniable that improvement and continuing education are fundamental elements for professionals who work at different levels of health care. However, in the quest to expand and update knowledge, it is essential to use official sources produced by reference societies and based on scientific evidence⁽²³⁾.

Most professionals interviewed in the current study considered that the proportion of carbohydrates within the total caloric intake of the diabetic patient differs from the recommendations for the general population, and the amount of this macronutrient per meal should be restricted. A relevant issue regarding the prescription of a strict restrictions on the carbohydrates amount diet is the difficulty of long-term follow-up by some individuals⁽²⁸⁾. Less drastic changes in diet and lifestyle are recommended by current Brazilian guidelines and are easier to follow for a long period⁽⁷⁾.

The consumption of sucrose was considered prohibited for diabetics by most respondents. The World Health Organization and the Brazilian Diabetes Society do not prohibit the consumption of sucrose; however, they recommend that its maximum intake be 5% of the total caloric value of the diet^(7,29). In addition, there is no evidence that this class of carbohydrate increases blood glucose more than the other types when ingested in equivalent amounts and the context of healthy eating⁽⁷⁾.

Much of the nutritional recommendations aimed at DM2 people involve reducing the number of carbohydrates, however; they must be carried out according to the need and specificity of each individual⁽³⁰⁾ otherwise, they can have adverse effects, one of which is low adherence to nutritional therapy, as well as compensation for excessive consumption of fat sources, especially the saturated one, with a negative impact on the already deficient response to insulin. Thus, a well-conducted nutritional education at the time of care is essential for recognizing the importance of a diversified and balanced diet as part of the treatment for the patient^(31,32).

Most respondents disagreed with the restriction of saturated fat consumption by diabetics, as well as the control of dietary cholesterol. Fat intake should also be included in nutritional guidelines during the care for patients with DM2. Current recommendations indicate that both fats quantity and quality should be considered since the excess of saturated fat in the diet is associated with worse cardiovascular outcomes, and a greater reason for consuming unsaturated fats is recommended as primary prevention and secondary of cardiovascular disease^(20,33).

The majority of respondents in the current survey disagree that milk and its derivatives have a positive influence on the SAH control. Studies have converged towards the recommendation that these foods be included in the eating habits of hypertensive individuals, as the presence of calcium, magnesium, and bioactive peptides in dairy products favor the maintenance of adequate blood pressure levels^(34,35). Respondents also disagree that coffee intake can bring benefits to blood pressure control. Regular coffee consumption, in low and medium amounts (two to three cups a day), is not associated with the incidence of hypertension or with high blood pressure^(8,36). The consumption of coffee and milk and dairy products is still part of the eating habits of most Brazilians⁽³⁷⁾. The presence of these foods in a food plan for SAH and DM2 patients is compatible with a balanced diet, bringing benefits when consumed properly^(34,35,36); therefore, it can be part of the nutritional guidelines for this group. It is noteworthy that dairy products with low-fat content should be prioritized, as well as beverages ingestion with added sugars should be avoided^(7,8).

The low knowledge of clinical guidelines for chronic diseases by health professionals identified in the current study is also identified in the literature^(38,39). However, it is important to emphasize the significant recognition of the interviewed professionals regarding the guidelines proposed by the current Food Guide for the Brazilian Population⁽¹⁹⁾. Dietary guides are reliable sources of healthy eating guidelines, using language that is accessible and easy to understand for health professionals and the general population⁽⁴⁰⁾. The current food guide innovates by proposing the classification of foods by groups according to the degree of processing. They are: fresh and minimally processed foods, processed foods, and ultra-processed foods, whose consumption should be prioritized, limited, and avoided, respectively⁽¹⁹⁾.

All of the interviewees in this research confirmed that there must be control over the consumption of ultra-processed foods in the patients' diet and that meals eaten at similar times every day and consumed with attention favor food

digestion. The recommendation of preference for fresh or minimally processed foods was recognized by 95.5% of the participants. The knowledge and use of the current guide by health professionals can facilitate dietary guidelines and also provide subsidies for the assisted population to feel responsible for their health since its content has the function of strengthening citizenship through food choices appropriate, valuing local production and the culture of the people as relevant factors in food choices⁽¹⁹⁾.

The use of the Food Guide for the Brazilian Population recommendations as a form of routine nutritional guidance in clinical practice for DM2 and SAH patients is positive and enables health promotion, as they are aimed at the Brazilian population in general⁽¹⁹⁾. However, it does not minimize the effects that the low knowledge of specific nutritional recommendations by professionals who work in the therapeutic management of these diseases can exert on the continuity of care, including an indication of inadequate dietary restrictions and treatment abandonment, thus requiring the constant updating of knowledge⁽³²⁾.

Guidelines for the care of people with chronic diseases in health care networks and priority lines of care^(1,41) highlight the need for continuing education by health professionals through processes aimed at their work reality. Changing eating habits is part of the treatment of chronic non-communicable diseases in the context of primary health care. The expansion of the nutritionist participation through the NASF-AB is of essential importance, given that health promotion, disease prevention, and matrix support actions can be enhanced with the presence of this professional, in addition to ensuring comprehensive care through the interdisciplinary approach⁽⁴²⁾.

This study is limited by the non-inclusion of all doctors and nurses working in the UAPS of the seven regional offices of the city. Therefore, the generalization of findings to the entire population of primary care doctors and nurses is not allowed. The development of new studies similar to this one would enable a better understanding of the knowledge about nutritional recommendations by these professionals.

CONCLUSION

The professionals investigated showed insufficient knowledge about the nutritional recommendations established by the main national and international societies of DM2 and SAH. The highest percentages of correct answers identified for the guidelines of the Food Guide for the Brazilian Population suggest effectiveness in the accessibility of the guide's content and feasibility of using its recommendations in clinical practice.

CONFLICTS OF INTEREST

Authors have no conflicts to declare.

CONTRIBUTIONS

Getúlio Vasconcelos Fiúza and **Adriano Pereira Alencar** contributed to the elaboration and design of the study; the acquisition, analysis and interpretation of data; and writing and/or reviewing the manuscript. **Brena Barreto Barbosa** and **Antônio Augusto Ferreira Carioca** contributed to the writing and/or revision of the manuscript.

REFERENCES

1. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Diretrizes para o cuidado das pessoas com doenças crônicas nas redes de atenção à saúde e nas linhas de cuidado prioritárias. Brasília: Ministério da Saúde; 2013.
2. Lobo LAC, Canuto R, Dias-da-Costa JS, Pattussi MP. Tendência temporal da prevalência de hipertensão arterial sistêmica no Brasil. *Cad Saúde Pública*. 2017;33(6):1-13.
3. Pinho NAD, Oliveira RDCBD, Pierin AMG. Hipertensos com e sem doença renal: avaliação de fatores de risco. *Rev Esc Enferm USP*. 2015;49(spe):101-8.
4. Schuster J, Oliveira AD, Bosco SMD. O papel da nutrição na prevenção e no tratamento de doenças cardiovasculares e metabólicas. *Rev Soc Cardiol Estado Rio Grande do Sul*. 2015;1(28):1-6.
5. Silocchi C, Junges JR. Equipes de atenção primária: dificuldades no cuidado de pessoas com doenças crônicas não transmissíveis. *Trab Educ Saúde*. 2017;15(2):599-615.

6. Lima LA, Nedel FB, Olinto MTA, Baldisserotto J. Hábitos alimentares de hipertensos e diabéticos atendidos em um serviço de Atenção Primária à Saúde do Sul do Brasil. *Rev Nutr.* 2015;28(2):197-206.
7. Oliveira JEP, Montenegro RM, Vencio S. Diretrizes da Sociedade Brasileira de Diabetes 2019-2020. São Paulo: Clannad, 2019.
8. Malachias MVB, Plavnik FL, Machado CA, Malta D, Scala LCN, Fuchs S. Diretriz Brasileira de Hipertensão Arterial. *Arq Bras Cardiol.* 2016;107(3):1-6.
9. Jesus NSD, Nogueira ADR, Pachu CO, Luiz RR, Oliveira GMMD. Adesão ao tratamento e Controle da Pressão Arterial após participação no ReHOT. *Arq Bras Cardiol.* 2016;107(5):437-45.
10. Brandão AA, Alessi A, Feitosa AM, Machado CA, Figueiredo CEP, Amodeo C, et al. 6ª Diretrizes de Monitorização Ambulatorial da Pressão Arterial e 4ª Diretrizes de Monitorização Residencial da Pressão Arterial. *Arq Bras Cardiol.* 2018;110(5):1-29.
11. Rosa R, Nita ME, Rached R, Donato B, Rahal E. Estimated hospitalizations attributable to Diabetes Mellitus within the public healthcare system in Brazil from 2008 to 2010: study DIAPS 79. *Rev Assoc Med Bras.* 2014;60(3):222-30.
12. Mattos PF, Neves, AS. A importância da atuação do nutricionista na Atenção Básica à Saúde. *Rev Práxis.* 2009;1(2):11-5.
13. Ministério da Saúde (BR). Portaria nº 154, de 24 de janeiro de 2008. Cria os Núcleos de Apoio ao Saúde da Família. Brasília: Ministério da Saúde; 2008.
14. Ministério da Saúde (BR). Portaria nº 2.436, de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão das diretrizes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde (SUS). Brasília: Ministério da Saúde; 2017.
15. Vasconcelos IAL, Sousa MFD, Santos, LMP. Evolução do quantitativo de nutricionistas na Atenção Básica do Brasil: a contribuição dos Núcleos de Apoio à Saúde da Família e da Estratégia Saúde da Família de 2007 a 2013. *Rev Nutrição.* 2015;28(4):431-50.
16. Barbosa LB. Nível de conhecimento nutricional versus hábitos alimentares e estado nutricional de hipertensos e diabéticos usuários de uma unidade básica de saúde de Maceió, Alagoas [dissertação]. Maceió: Universidade Federal de Alagoas; 2014.
17. Teixeira JDF, Goulart MR, Busnello FM, Pellanda LC. Conhecimento e atitudes sobre alimentos ricos em sódio por pacientes hipertensos. *Arq Bras Cardiol.* 2016;106(5):404-10.
18. Prefeitura Municipal de Fortaleza. Plano municipal de saúde de Fortaleza 2018-2021 [Internet]. Fortaleza: PMF; 2017 [accessed on 2020 Maio 20]. Available from: https://saude.fortaleza.ce.gov.br/images/planodesaude/20182021/_Plano-Municipal-de-Saude-de-Fortaleza-2018-2021_.pdf
19. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Guia alimentar para a população brasileira. 2ª ed. Brasília: Ministério da Saúde; 2014.
20. American Diabetes Association. Summary of revisions: standards of medical care in diabetes-2020. *Diabetes Care.* 2020;43(Suppl 1).
21. American Heart Association. Guideline on the primary prevention of cardiovascular disease. *Circulation.* 2019;140:596-646.
22. Kushner RF, Van Horn L, Rock CL, Edwards MS, Bales CW, Kohlmeier M, et al. Nutrition education in medical school: a time of opportunity. *Am J Clin Nutr.* 2014;99(5):1167S-73S.
23. Gadenz SD, Harzheim E, Castro SMDJ, Hauser L, Drehmer M. Elaboração e validação de uma medida para avaliar o conhecimento de médicos de atenção primária do Brasil sobre recomendação nutricional para controle da hipertensão. *Cad Saúde Colet.* 2019;27(4):404-11.
24. Lindemann IL, Mendoza-Sassi RA. Orientação para alimentação saudável e fatores associados entre usuários da atenção primária à saúde no sul do Brasil. *Rev Bras Promoç Saúde.* 2016;29(1):34-42.
25. Santos RP, Horta PM, Souza CS, Santos CA, Oliveira HBS, Almeida LMR, et al. Aconselhamento sobre

- alimentação e atividade física: prática e adesão de usuários da atenção primária. *Rev Gaúch Enferm.* 2012;33(4):14-21.
26. Guimarães AB, Tapety FI, Martins MCC, Lago EC, Ramos CV. Formação do enfermeiro na atenção nutricional de usuários na estratégia saúde da família. *Rev Enferm UFPI.* 2015;4(3):59-64.
 27. Barros MB, Rodrigues BD, Porto LK, Ferreira IP, Botelho NM. Atitudes e Conhecimentos de Estudantes de Medicina sobre Nutrição Clínica. *Rev Bras Educ Med.* 2019;43(1):127-34.
 28. Brouns F. Overweight and diabetes prevention: is a low-carbohydrate–high-fat diet recommendable? *Eur J Nutr.* 2018;57(4):1301-12.
 29. World Health Organization. Information note about intake of sugars recommended in the WHO guideline for adults and children [Internet]. Geneva: WHO; 2015 [accessed on 2020 Jun 2]. Available from: https://www.who.int/nutrition/publications/guidelines/sugar_intake_information_note_en.pdf?ua=1#:~:text=The%20World%20Health%20Organization's%20new,10%25%20of%20total%20energy%20intake
 30. Evert AB, Dennison M, Gardner CD, Garvey WT, Lau KHK, MacLeod J, et al. Nutrition therapy for adults with diabetes or prediabetes: a consensus report. *Diabetes Care.* 2019;42(5):731-54.
 31. Previdelli AN, Goulart RMM, Aquino, RC. Balanço de macronutrientes na dieta de idosos brasileiros: análises da Pesquisa Nacional de Alimentação 2008-2009. *Rev Bras Epidemiol.* 2017;20(1):70-80.
 32. Zanetti ML, Arrelias CCA, Franco RC, Santos MAD, Rodrigues FFL, Faria HTG. Adesão às recomendações nutricionais e variáveis sociodemográficas em pacientes com diabetes mellitus. *Rev Esc Enferm USP.* 2015;49(4):619-25.
 33. Dyson PA, Twenefour D, Breen C, Duncan A, Elvin E, Goff L, et al. Diabetes UK evidence-based nutrition guidelines for the prevention and management of diabetes. *Diabetic Med.* 2018;35(5):541-47.
 34. Rietsema S, Eelderink C, Joustra ML, van Vliet IM, van Londen M, Corpeleijn E, et al. Effect of high compared with low dairy intake on blood pressure in overweight middle-aged adults: results of a randomized crossover intervention study. *Am J Clin Nutr.* 2019;110(2):340-48.
 35. Villaverde P, Lajous M, MacDonald CJ, Fagherazzi G, Boutron-Ruault MC, Bonnet F. Dairy product consumption and hypertension risk in a prospective French cohort of women. *Nutr Jornal.* 2020;19(12):1-8.
 36. Zhang Z, Hu G, Caballero B, Appel L, Chen L. Habitual coffee consumption and risk of hypertension: a systematic review and meta-analysis of prospective observational studies. *Am J Clin Nutr.* 2011;93(6):1212-19.
 37. Instituto Brasileiro de Geografia e Estatística. Pesquisa de orçamentos familiares 2017-2018: análise do consumo alimentar pessoal no Brasil. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística [Internet]. Rio de Janeiro: IBGE; 2020 [accessed on 2020 Jun 26]. Available from: <https://biblioteca.ibge.gov.br/index.php/biblioteca-catalogo?view=detalhes&id=2101742>.
 38. Lima SML, Portela MC, Koster I, Escosteguy CC, Ferreira VMB, Brito C, et al. Utilização de diretrizes clínicas e resultados na atenção básica à hipertensão arterial. *Cad Saúde Pública.* 2009;25(9):2001-11.
 39. Mion D Júnior, Silva GVD, Gusmão JLD, Machado CA, Amodeo C, Nobre F, et al. Os médicos brasileiros seguem as diretrizes brasileiras de hipertensão? *Arq Bras Cardiol.* 2007;88(2):212-17.
 40. Herforth A, Arimond M, Álvarez-Sánchez C, Coates J, Christianson K, Muehlhoff E. A global review of food-based dietary guidelines. *Adv Nutr.* 2019;10(4):590-605.
 41. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Estratégias para o cuidado da pessoa com doença crônica. Brasília: Ministério da Saúde; 2014.
 42. Borelli M, Domene SMA, Mais LA, Pavan J, Taddei JADAC. A inserção do nutricionista na Atenção Básica: uma proposta para o matriciamento da atenção nutricional. *Ciênc Saúde Coletiva.* 2015;20:2765-78.

Running title:

First author`s address:

Getúlio Vasconcelos Fiuza

Universidade de Fortaleza

Av. Washington Soares, 1321

Bairro: Edson Queiroz

CEP: 60811-905 - Fortaleza - CE - Brazil

E-mail: getuliofiuza@edu.unifor.br

Mailing address:

Antônio Augusto Ferreira Carioca

Programa de Pósgraduação em Saúde Coletiva da Universidade de Fortaleza

Av. Washington Soares, 1321/ Bloco B

Bairro: Edson Queiroz

CEP: 60811-905 - Fortaleza - CE - Brazil

E-mail: carioca@unifor.br

How to cite: Fiuza GV, Alencar AP, Barbosa BB, Carioca AAF. Conhecimento de recomendações nutricionais por outros profissionais da Estratégia Saúde da Família. Rev Bras Promoç Saúde. 2021;34:11195.
