

Adults and the elderly who received nutritional counseling in a city of southern Brazil: a population-based study

Recebimento de aconselhamento nutricional por adultos e idosos em um município do Sul do Brasil: estudo de base populacional

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ABSTRACT: *Introduction:* Nutrition counseling has played a critical role in the prevention and treatment of various diseases. *Objective:* To evaluate how adults and elderly people, who are residents in an urban area of Southern Brazil, received nutritional counseling. *Methods:* This was a cross-sectional population based study. Data was collected through a questionnaire applied at home. The outcome was the prevalence of nutritional counseling received in the past year that came from different means, including means of communication. Sociodemographic variables, doctor visits in the past year, nutritional state and other healthcare variables were analyzed. *Results:* The sample included 1,296 individuals (rate of answer of 90.7%). The results indicate that the majority of the people interviewed were females (56.6%), with their age ranging from 18 to 59 years-old (75.3%). The prevalence of people receiving nutritional counseling was 19.9% (95%CI 17.3–22.5). It was higher among women than men ($p = 0.01$). The sex-adjusted analyses showed a statistically significant ($p < 0.05$) association in men for the variables: schooling ≥ 12 years; medical consultation in the last year; low weight; obesity; diabetes and hypertension. Among the women, the following variables were associated with the outcome: health insurance; medical consultation in the last year; obesity and diabetes. *Conclusions:* The low prevalence of nutritional counseling and its association with diseases exposes the need for it to be implemented not only for treatment purposes but also as preventive health actions.

Keywords: Nutritional epidemiology. Cross-sectional studies. Prevalence. Counseling. Food habits.

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RESUMO: *Introdução:* O aconselhamento nutricional vem desempenhando um papel de suma importância na prevenção e no tratamento de diversas doenças. *Objetivo:* Avaliar o recebimento de aconselhamento nutricional em adultos e idosos residentes na área urbana de um município do Sul do Brasil. *Métodos:* Estudo transversal de base populacional. Os dados foram coletados através de questionário aplicado em domicílio. O desfecho foi o recebimento de aconselhamento nutricional no último ano vinculado a diversos meios, até mesmo aos de comunicação. Foram analisadas variáveis sociodemográficas, consulta médica no último ano, estado nutricional e outras variáveis de saúde. *Resultados:* Um total de 1.296 indivíduos compôs a amostra (taxa de resposta de 90,7%), sendo a maioria mulher (56,6%) e com idade entre 18 e 59 anos (75,3%). A prevalência do recebimento de aconselhamento nutricional foi de 19,9% (IC95% 17,3 – 22,5), sendo maior em mulheres do que em homens ($p = 0,01$). Na análise estratificada por sexo, nos homens houve associação significativa ($p < 0,05$) com o desfecho as variáveis: escolaridade ≥ 12 anos; consulta médica no último ano; baixo peso; obesidade; diabetes e hipertensão. Entre as mulheres, apresentaram associação com o desfecho as variáveis: plano de saúde; consulta médica no último ano; obesidade e diabetes. *Conclusão:* A baixa prevalência do aconselhamento nutricional e sua associação com doenças já instaladas expõem a necessidade de que o aconselhamento seja realizado não somente para o tratamento mas também como ações preventivas.

Palavras-chave: Epidemiologia nutricional. Estudos transversais. Prevalência. Orientação. Hábitos alimentares.

INTRODUCTION

Healthy eating is considered to be one of the most important means of promoting health¹. It contributes to a sense of physical and mental well-being² and is fundamental in the prevention of chronic diseases³. However, in recent years, the nutritional transition resulting from urbanization and industrialization has led to inadequate eating habits and the progressive decrease in physical activity, contributing to the increase in chronic non-communicable diseases (NCDs)⁴.

Thus, nutritional counseling or guidance - the process by which individuals are aided in selecting and implementing appropriate eating and lifestyle behaviors, and which can be expressed by different social agents, vehicles and formats - becomes an eminent tool for the development of good habits⁵. Studies show that while nutritional counseling is an important tool for good health, it is still not used enough⁶⁻⁹. In addition, the literature associates nutritional guidance with being overweight^{7,9-11} or having a chronic disease^{9,10,12,13}.

A study conducted in the United States (US) about receiving dietary counseling during primary care physician visits found that good eating habits were discussed in 25% of the consultations⁶. Regarding the factors associated with receiving nutritional counseling, international studies report that people aged 35 to 59 years old^{7,10,14}, that have a disease^{10,12} and are obese^{7,10,14} receive more guidance.

In Brazil, studies on primary care and population-based national studies show a prevalence of nutritional counseling around 40 to 59%^{8,11,13} and 29 to 38%⁹, respectively. Furthermore,

being older^{8,9}, female^{8,9}, overweight^{9,11} and having chronic illnesses^{9,13} are associated with receiving more counseling.

Although the literature highlights the great importance of healthy eating, as well as other lifestyle habits^{1,15}, there is a shortage of Brazilian studies investigating the prevalence of nutritional counseling. Since nutritional assistance is an important public health strategy for coping with dietary problems¹⁶, this study aimed to evaluate nutritional counseling received by adults and elderly people living in the urban area of a southern Brazilian municipality in the past year. It also assessed whether socioeconomic factors, having an NCD, nutritional status and exposure to health services may influence receiving nutritional counseling.

METHODOLOGY

This is a population-based cross-sectional study conducted in the urban area of Rio Grande, Rio Grande do Sul. The study on receiving nutritional counseling is part of the project entitled “*Saúde da População Riograndina*” (Health of the Riograndina Population), which was approved by the Health Research Ethics Committee of the Universidade Federal do Rio Grande, which aimed to study health conditions and associated factors in the adult and elderly population in the urban area of the municipality in 2016.

The following parameters were used to calculate the sample size: an expected prevalence of receiving nutritional counseling of 30%, a confidence level of 95%, 1.5 for the effect of sample design, a margin of error of 3.5 percentage points and 10% for losses and refusals. In these cases, the investigation needed to include at least 1,086 individuals. For the associated factors, in order to work with an alpha error of 0.05, a beta error of 0.20, an unexposed/exposed ratio of 9.0, a prevalence of disease in those exposed of 75.87% and a risk ratio of 1.75, the survey needed to include at least 1,356 individuals. Already included in this value was 1.5 for design effect, 15% for control of potential confounders and 10% for losses and refusals.

For a representative selection of the adult and elderly population of the municipality, the sampling process took place in multiple stages, considering population size, census tracts and households, based on data from the 2010 Population Census¹⁷. In the first instance, a systematic selection of census tracts in the urban area was performed, followed by a systematic re-selection of households within each sector, resulting in a final number of 711 households with an expected average of 2.08 individuals per household¹⁷. All of the individuals aged ≥ 18 years old in the selected households were considered eligible, except those who were institutionalized in nursing homes, hospitals or prisons at the time of the study, and those with a physical and/or mental disability that prevented them from answering the questionnaire.

Data collection was performed with a single, pre-coded and standardized questionnaire, which was applied by nine selected and trained interviewers between April and July of 2016. The questionnaires were reviewed and coded by the research supervisors and typed up twice

in order to reduce any errors. Quality control was performed concurrently with data collection by applying a reduced questionnaire in 10.5% of the sample, with a Kappa index of 0.80¹⁸.

The outcome variable was constructed by asking all respondents whether or not they had received nutritional guidance through the question: "Have you received any guidance on how you should eat from <MONTH> of last year until now?". This advice could have been given through various means, even communication media. Those who responded positively to this question were asked where and from whom they received this guidance; the type of nutritional guidance they received, which included the response options of "no" or "yes" for: "eat less fatty and fried foods"; "eat less sweets or sugar"; "eat less salt"; "eat more fruits and vegetables"; "other type of advice". Furthermore, they were asked if they had received any written guidance and if their questions around food had been answered.

The independent variables studied were: sex; age; skin color as reported by the interviewee; marital status; schooling, in years; property index, in tertiles¹⁹, and considered household characteristics (source of drinking water, number of sleeping arrangements and bathrooms in the house) and some household goods (car, computer, internet, landline, microwave, washing machine, tumble dryer and DVD player); health insurance; medical consultation in the last year; nutritional status obtained by calculating body mass index (BMI) using the weight and height reported by the interviewee; and dyslipidemia, diabetes *mellitus* and systemic arterial hypertension, obtained by asking about having received a medical diagnosis.

Statistical calculations were performed using Stata[®] 11.2 software. Initially, the bivariate analysis was performed with the calculation of the 95% confidence interval (95%CI), the prevalence ratio and p-value. Afterwards, the variables were analyzed using a Poisson regression model, and following a three-level hierarchical model, with only those with $p \leq 0.20$ remaining in the model. In the first (most distal), the sociodemographic characteristics included were: age; sex; and skin color. In the second, the variables were: education; goods index; and having health insurance. At the third (more proximal) level, the variables related to health were used: medical consultation in the past year; nutritional status; systemic arterial hypertension; diabetes mellitus; and dyslipidemia.

This study is part of a larger research project entitled "*Saúde da população riograndina*" (Health of the Riograndina Population), which was approved by the Health Research Ethics Committee (CEPAS) of the Universidade Federal do Rio Grande (FURG), under case number no. 1.473.344 (CAAE: 52939016.0.0000.5324), report no. 20/2016.

RESULTS

The study consisted of 1,429 individuals, with a response rate of 1,296 (90.7%) participants, and had a total of 9.3% losses and refusals. The design effect for the study outcome was 1.35 and the intraclass correlation coefficient was 0.017.

Of the 1,296 respondents, most of them were female (56.6%), aged between 18 and 59 years old (75.3%), white-skinned (82.9%), did not have a partner (53.8%), had between

0 and 11 years of schooling (72.6%), had health insurance (52.6%), had consulted a doctor in the last year (80%) and were overweight or obese (61.6%). Regarding chronic diseases, 28.2% reported having hypertension, 16.3% reported having dyslipidemia (high cholesterol and/or triglycerides) and 7% reported having diabetes.

The prevalence of receiving nutritional counseling in the last year was 19.9% (95%CI 17.3 - 22.5), and was higher among women (22.6%; 95%CI 19.2 - 26.0) than among men (16.4%; 95%CI 12.9 - 19.8), $p = 0.01$.

In the adjusted analysis among men (Table 1), it was observed that those with 12 or more years of schooling received almost 3 times more nutritional counseling than those with up to 8 years of schooling, as well as those who had consulted a doctor in the last year (PR = 2.77; 95%CI 1.34 - 5.70). Regarding nutritional status, both obese and underweight men received more guidance than eutrophic men. However, underweight men received 3 times more counseling (PR = 3.33; 95%CI 1.36 - 8.01). In relation to patients with chronic diseases, diabetic (PR = 2.55; 95%CI 1.62 - 4.01) and hypertensive men (PR = 1.98; 95%CI 1.29 - 3.05) received approximately 2 times more eating guidelines than those who reported not having these diseases

After the adjusted analysis in the group of women (Table 2), it was found that those who had health insurance had a 67% higher prevalence (95%CI 30 - 116) of receiving food counseling than those who did not. Those who had gone to a doctor's consult in the last year had a prevalence 2.8 (95%CI 1.48 - 5.30) times higher than those who did not go to a consultation. For women with obesity, this rate was 82% (95%CI 16 - 185) higher, as well as for those with diabetes who had 2.29 (95%CI 1.60 - 3.25) times more counseling.

When asked what kind of nutritional advice they received, the most common was advice to consume more fruits and vegetables (89.5%), followed by advice to consume less fatty or fried foods (88.8%), sweets or sugar (85.7%) and salt (81.4%). Of the 258 individuals who received nutritional counseling, 184 (71.3%) received all 4 of these guidelines. Still, 22.1% ($n = 57$) reported receiving guidance addressing other issues, such as: fractioning meals, drinking more water, consuming less red meat and consuming more whole foods.

Evaluating guidance according to nutritional status, similarity was observed between the groups (Figure 1). Regarding receiving written nutritional counseling, 41.5% said they had not received any counseling, followed by 22.1% who had received a diet and a food list, 15.5% only received a food list, 12.4% received other materials (such as folders or pamphlets) and 8.5% received a diet only.

Evaluating the places where dietary advice was received, 50% of individuals received guidance in a clinic or private practice, 19.4% in public health clinics, 16% in other places such as at work, at home and at the gym, 11.6% in hospitals and 3.1% through the media. As for the professionals who provided these guidelines, doctors came first (50.8%), followed by nutritionists (44.9%). In the perception of more than 92% of respondents, the guidance received was able to clarify the existing doubts about food and 84.1% claimed that it contributed to the improvement of food consumption.

Table 1. Crude and adjusted analysis of nutritional counseling received in the last year by males aged 18 years and over, residing in the urban area of Rio Grande, RS, Brazil, 2016 (n = 562).

Variable	% that received counseling	Crude PR (95%CI)	Adjusted PR (95%CI)
Age range (years)			
18 to 39 years	17.8	10.2	1.00
40 to 59	14.8	0.84 (0.55 – 1.97)	0.65 (0.40 – 1.04)
≥ 60	16.4	0.92 (0.55 – 1.57)	0.63 (0.34 – 1.18)
Skin color			
White	17.1	1.00	1.00
Others	12.3	0.72 (0.39 – 1.30)	0.71 (0.39 – 1.30)
Civil status			
Single	16.3	1.00	1.00
Married	14.7	0.90 (0.61 – 1.33)	0.71 (0.45 – 1.11)
Seperated/widowed	25.0	1.53 (0.91 – 2.57)	1.67 (0.99 – 2.80)
Schooling (years)			
0 to 8	9.1	1.00	1.00
9 to 11	16.4	1.80 (1.05 – 3.10)	1.63 (0.94 – 2.85)
≥ 12	28.9	3.18 (1.92 – 5.26)	2.74 (1.58 – 4.75)
Goods index (terciles)			
Low	11.1	1.00	1.00
Intermediate	16.4	1.48 (0.89 – 2.45)	1.17 (0.69 – 1.96)
High	21.6	1.94 (1.20 – 3.14)	1.21 (0.74 – 2.01)
Health insurance			
No	11.0	1.00	1.00
Yes	21.1	1.91 (1.22 – 2.99)	1.56 (0.97 – 2.51)
Medical consult in the last year			
No	5.2	1.00	1.00
Yes	20.0	3.88 (1.84 – 8.19)	2.77 (1.34 – 5.70)
Nutritional status ^a			
Underweight	25.0	1.96 (0.29 – 13.3)	3.30 (1.36 – 8.01)
Eutrophic	12.8	1.00	1.00

Continue...

Table 1. Continuation.

Variable	% that received counseling	Crude PR (95%CI)	Adjusted PR (95%CI)
Overweight	15.2	1.19 (0.73 – 1.96)	1.13 (0.71 – 1.80)
Obese	24.8	1.94 (1.20 – 3.14)	1.61 (1.03 – 2.52)
Dyslipidemia ^b			
No	15.3	1.00	1.00
Yes	23.6	1.54 (0.98 – 2.44)	0.89 (0.54 – 1.47)
Diabetes mellitus ^b			
No	14.5	1.00	1.00
Yes	43.2	2.98 (2.02 – 4.01)	2.55 (1.62 – 4.01)
Arterial hypertension ^b			
No	12.7	1.00	1.00
Yes	26.9	2.11 (1.45 – 3.08)	1.98 (1.29 – 3.05)

PR: prevalence ratio; 95%CI: 95% confidence interval; values highlighted in bold were statistically significant ($p < 0.05$);^a calculated by self-reported weight and height; ^b self-reported medical diagnosis.

DISCUSSION

In the present study, only 1 in 5 respondents had received any nutritional guidance (19.9%) in the past year. This prevalence was similar to those found in studies conducted in the US and Australia^{14,20}. National survey data from *Health Interview 2000* (US), with 32,374 people, found a 21.3% prevalence of receiving medical dietary advice¹⁴. Booth and Nowson²⁰ interviewed 2,947 residents of South Australia. A total of only 17% said they had received some advice from their doctor regarding diet and/or exercise to lose weight. In other countries, the prevalence of guidance found was higher when compared to this study, as shown by studies conducted in Lithuania (26%)⁷, Poland (40%)²¹ and France (42.4%)¹⁰.

The value obtained in this research is below that observed in the literature of other Brazilian studies, which range from 29 to 59%^{8,9,11,13}. However, it is important to note that of these, only one study was nationally-based⁹, in which the prevalence of nutritional counseling in the past year ranged from 29 to 38%, according to the type of guidance provided. The others were restricted to samples composed of people who accessed primary health care (PHC)^{8,11,13}.

The prevalence of receiving nutritional counseling was higher among women than among men (22.6 versus 16.4%; $p = 0.01$), a result also found by other studies^{8,9}. This may be related to the fact that women are more concerned with body appearance and health. Thus, they request more nutritional guidance from health professionals than men.

Table 2. Crude and adjusted analysis of nutritional counseling received in the last year by females aged 18 years and over, residing in the urban area of Rio Grande, RS, Brazil, 2016 (n = 734).

Variable	% that received counseling	Crude PR (95%CI)	Adjusted PR (95%CI)
Age range (years)			
18 to 39	20.9	1.00	1.00
40 to 59	21.3	1.02 (0.71 – 1.46)	1.02 (0.71 – 1.46)
≥ 60	27.0	1.29 (0.89 – 1.88)	1.29 (0.89 – 1.88)
Skin color			
White	22.5	1.00	1.00
Others	23.5	1.04 (0.70 – 1.55)	1.08 (0.73 – 1.61)
Civil status			
Single	25.6	1.00	1.00
Married	21.1	0.82 (0.59 – 1.15)	0.88 (0.61 – 1.27)
Seperated/widowed	21.2	0.83 (0.57 – 1.20)	0.76 (0.52 – 1.12)
Schooling (years)			
0 to 8	19.4	1.00	1.00
9 to 11	23.5	1.21 (0.84 – 1.74)	1.24 (0.85 – 1.80)
≥ 12	26.3	1.36 (0.94 – 1.96)	1.33 (0.91 – 1.93)
Goods index (terciles)			
Low	18.8	1.00	1.00
Intermediate	21.3	1.13 (0.76 – 1.69)	1.05 (0.69 – 1.59)
High	28.0	1.49 (1.06 – 2.08)	1.17 (0.80 – 1.71)
Health insurance			
No	16.5	1.00	1.00
Yes	28.2	1.71 (1.33 – 2.19)	1.67 (1.30 – 2.16)
Medical consult in the last year			
No	7.3	1.00	1.00
Yes	25.7	3.51 (1.85 – 6.65)	2.80 (1.48 – 5.30)
Nutritional status			
Underweight	28.6	1.52 (0.65 – 3.57)	2.75 (0.60 – 12.60)
Eutrophic	18.8	1.00	1.00

Continue...

Table 2. Continuation.

Variable	% that received counseling	Crude PR (95%CI)	Adjusted PR (95%CI)
Overweight	21.6	1.15 (0.80 – 1.65)	1.09 (0.66 – 1.81)
Obese	33.5	1.79 (1.27 – 2.51)	1.82 (1.16 – 2.85)
Dyslipidemia			
No	21.3	1.00	1.00
Yes	29.0	1.36 (0.98 – 1.90)	0.92 (0.68 – 1.25)
Diabetes mellitus			
No	20.4	1.00	1.00
Yes	52.8	2.60 (1.82 – 3.70)	2.29 (1.60 – 3.25)
Arterial hypertension			
No	21.0	1.00	1.00
Yes	26.4	1.26 (0.93 – 1.69)	0.97 (0.69 – 1.38)

PR: prevalence ratio; 95%CI: 95% confidence interval; values highlighted in bold were statistically significant ($p < 0.05$).

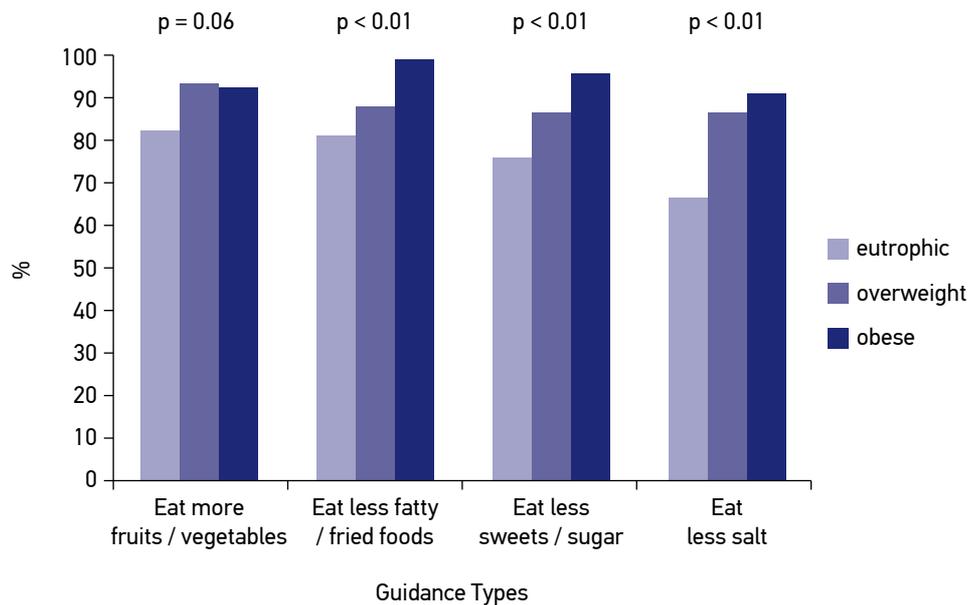


Figure 1. Types of nutritional advice received, according to nutritional status, by individuals 18 years of age and over, living in urban Rio Grande, RS, Brazil, 2016 (n = 258).

Regarding the factors associated with receiving nutritional guidance, several studies show that greater exposure to medical care can positively influence a patient's quality of life and change their habits^{22,23}. The present study demonstrated that, for both sexes, having consulted the doctor in the past year increased the probability by three of having received nutritional counseling. Through these data, it is possible to emphasize physicians' role as distributors of nutritional counseling, and the fact that medical consultations are opportunities to offer it.

In both sexes obesity was a significant factor for receiving nutritional guidance. A survey conducted in Lithuania between 2000 and 2004 of 3,000 people aged 20-64 found that only 26% of individuals had been advised to change their diet. However, this study found that the higher the BMI, the greater the likelihood of receiving nutritional counseling⁷. These results reveal a concern from professionals regarding the inadequate nutritional status of the population, but emphasizes the fact that nutritional guidance is infrequently used as a prevention tool.

As seen in other studies, the presence of NCDs has been associated with a higher likelihood of receiving nutritional counseling⁹⁻¹². In this study, it was observed that men who had diabetes or hypertension, as well as women with diabetes, received about twice as much nutritional counseling as self-reported people without a disease. In Canada, a study of 2,335 patients reporting type II diabetes showed that 47.8% of patients reported receiving at least one type of dietary advice from a health professional in the past year²⁴. A US study of diabetic and/or hypertensive individuals found a 53% prevalence of receiving counseling on diet and nutrition services²⁵. Brazilian researchers analyzed health conditions, dietary advice and physical activity in PHC and found that 76.2% ($p < 0.001$) of individuals diagnosed with diabetes and 67.9% ($p < 0.001$) of those diagnosed with hypertension received counseling, compared with the groups that did not have these diseases, which had a prevalence of 41.9 and 47.4%, respectively¹¹. It seems evident that nutritional counseling has been used as an aid in the treatment of NCDs, which is something positive regarding the importance of healthy eating habits in the prognosis of these diseases.

With regard to the factors that positively influenced having received nutritional guidance, among men it can be observed that those with 12 years or more of schooling were almost 3 times more likely to be counseled. A study of 32,374 individuals ≥ 18 years in the US showed that having a bachelor's degree or higher was associated with a higher likelihood of receiving dietary advice¹⁴. In the group of women, having health insurance increased the probability of receiving nutritional counseling by 67%. Also in the US, in a study with 1,787 obese individuals, having health insurance was also significantly associated with receiving counseling ($p < 0.001$)¹². The fact that having a higher level of education or having health insurance is associated with a greater chance of receiving nutritional counseling demonstrates the existing inequity regarding exposure to this health measure.

In evaluating the places where guidance was received, half of the individuals received it at a private clinic or office, which may have positively influenced the group of women with health insurance. However, a multi-center study conducted in Brazil found that basic health clinics were the most frequent place to receive nutritional advice⁹. Lopes et al.¹¹ point out that PHC is responsible for prevention and health promotion actions, and should therefore guarantee the provision of counseling regardless of the health status of the patients.

When we investigated who was responsible for the counseling, we found that doctors were cited by 50.8%, followed by nutritionists at 44.9%. It is part of the role of nutritionists, as a professional who trains eating habits, to pay attention to the growing changes in the population's food consumption, acting directly in advocating for the adoption of habits that aim to promote the health and quality of life of individuals²⁶. However, health professionals, especially doctors, because they have direct contact with patients, are found to be the main medical professionals responsible for nutritional counseling and a healthy lifestyle^{9,11,13,22,23}. Although nutritionists are the most prepared to give this guidance, unfortunately access to these professionals is still scarce, especially among the lower income population.

It is clear that providing guidance on healthy habits is the responsibility of all health professionals²⁷. However, considering that the health clinic was the second most prevalent place to receive guidance, the role of other health professionals, for example nurses and health-care workers, was scarce. We emphasize the missed opportunities for health prevention and bringing awareness to individuals at times other than during consultations.

Regarding the types of counseling provided, it was observed that almost 90% of the participants reported consuming more fruits and vegetables; less fatty or fried foods; less sweets, sugar and salt after receiving guidance. Silva et al.⁹, in a study that investigated receiving guidance in the past year, to reduce the intake of salt, sugar and fat, found that the profile of people receiving the different guidelines was very similar. It was more prevalent among women and grew linearly with age, regardless of the type of guidance. Although dietary guidance should not only be understood as the transmission of guidelines related to nutrients, it is extremely important to stimulate greater consumption of fresh foods, and discourage the consumption of ultra-processed foods that are rich in sugar, sodium, trans fats, among other components that, in excess, are harmful to health.

The findings of this study show that, in addition to the low prevalence of nutritional counseling (19.9%), it has been given as a result of an already present disease or when the patient is obese. Doctors and nutritionists are the main sources of information for these patients. It is worth noting that in both sexes, healthy individuals received less guidance, which should not occur.

Nevertheless, some limitations of this study need to be considered. Because it has a cross-sectional design, it leads to reverse causality, which prevents the establishment of cause and effect relationships. A pertinent example is the variable medical consultation in the past year, where it is difficult to say whether having a consultation alone increases the chance of receiving counseling or whether seeking counseling leads to a consultation. Additionally, obtaining health history data and receiving counseling were self-reported, creating the possibility of recall bias, as some participants may have forgotten or omitted data during the interview. Despite the limitations, the results suggest the feasibility of the methodology used, as other studies on nutrition counseling^{8,9,13} used this method.

It is worth noting that Brazilian studies addressing nutritional counseling are rare, and in a population-based sample,⁹ they are even rarer. Thus, it is important to highlight that the primary data, the sample's scope, as well as its population representativity and the low

non-response rate allow for the results of this research to be less limited to the collection site and to the specific characteristics of the individual.

CONCLUSION

The low prevalence of receiving nutritional counseling, especially among healthy individuals, individuals with low levels of education, those who do not have health insurance, and those who did not have medical consultations in the last year, demonstrates the infrequent use of this practice as a health prevention method that brings awareness to the importance of healthy eating.

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