Counseling regarding healthy lifestyles in Primary Healthcare and the dietary practices of clients

ACONSELHAMENTO SOBRE MODOS SAUDÁVEIS DE VIDA NA ATENÇÃO PRIMÁRIA E PRÁTICAS ALIMENTARES DOS USUÁRIOS

CONSEJOS SOBRE HÁBITOS DE VIDA SALUDABLES EN LA ATENCIÓN BÁSICA Y PRÁCTICAS ALIMENTARIAS DE LOS PACIENTES

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ABSTRACT

This cross-sectional study examines a counseling program on healthy lifestyles run by health care professionals to establish the adoption of healthy dietary practices by patients attending a primary health care unit. Participants in the study included 417 clients of the unit, the majority of whom were women (78.9%), with an average age of 39 years, a high incidence of excessive weight, (59.1%), important dietary inadequacies, and with a contrastingly low frequency of receiving counseling (40.8%). Clients receiving counseling displayed more appropriate consumption of candy/gum (p=0.031), softdrinks (p=0.036), salty foods (p=0.037), artificial flavorings (p=0.005) and eggs (p=0.010). Adoption of healthy dietary practices was more common among older individuals and women (p <0.05). Despite the importance of nutritional counseling in dealing with such health problems, this was not prevalent, suggesting the need for greater intervention by health care professionals aimed at preventing and controlling disease and promoting good health.

DESCRIPTORS
Counseling
Food habits
Primary Health Care
Patient Care Team
Family Health Program

RESUMO

Trata-se de estudo seccional para verificar a realização de aconselhamento sobre modos saudáveis de vida por profissionais de saúde e sua associação com a adoção de práticas alimentares saudáveis em Serviço de Atenção Primária à Saúde. Participaram 417 usuários, a maioria mulheres (78,9%), com mediana de idade de 39 anos, elevada prevalência de excesso de peso (59,1%) e inadequações alimentares importantes, contrastando com a baixa frequência de aconselhamento (40,8%). Mas, ainda assim, usuários aconselhados apresentaram maior adequação no consumo de balas/goma de mascar (p=0,031), refrigerante comum (p=0,036), salgados (p=0,037), temperos industrializados (p=0,005) e ovos (p=0,010). A adoção de práticas alimentares saudáveis foi mais frequente entre os mais velhos e mulheres (p<0,05). Apesar da importância em se aconselhar frente ao perfil alimentar e de saúde identificado, este foi pouco frequente, sugerindo a necessidade de maior atuação dos profissionais de saúde, visando à prevenção ao controle de agravos e à promoção da saúde.

DESCRITORES
Aconselhamento
Hábitos alimentares
Atenção Primária à Saúde
Equipe de Assistência ao Paciente
Programa Saúde da Família

RESUMEN

Estudio seccional que apunta a verificar la efectivización de consejos sobre hábitos de vida saludables por profesionales de salud y su asociación con la adopción de prácticas alimentarias saludables en Servicio de Atención Básica de Salud. Participaron 417 pacientes, mayoritariamente mujeres (78,9%), con mediana etaria de 39 años, alta prevalencia de exceso de peso (59,1%) y alimentación inadecuada, contrastándose con la baja frecuencia de aconsejado (40,8%). Aún así, los pacientes aconsejados presentaron mayor adecuación en el consumo de caramelos/chicles (p=0,031), refrescos gasificados (p=0,036), pasteles fritos (p=0,037), condimentos industrializados (p=0,005) y huevos (p=0,010). La adopción de prácticas alimentarias saludables fue más frecuente entre los de mayor edad y las mujeres (p<0,05). A pesar de la importancia de aconsejarse en función del perfil alimentario y de salud identificado, éste fue poco frecuente, sugiriéndose la necesidad de mayor actuación profesional, apuntando a prevenir y controlar problemas derivados y a la promoción de salud.

DESCRIPTORES
Consejo
Hábitos alimenticios
Atención Primaria de Salud
Grupo de Atención al Paciente
Programa de Salud Familiar

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INTRODUCTION

In 2005, non-communicable diseases and injuries (NC-DI) such as cardiovascular disease, diabetes mellitus and obesity accounted for approximately 35 million deaths worldwide[1]. In Brazil, non-communicable diseases and injuries have, in recent decades, become some of the main causes of death[2]. Unhealthy diet and a sedentary lifestyle stand out as the main factors that have led to this growing problem[3].

The current food profile of the Brazilian population is characterized by a high consumption of foods rich in fats, sugars and sodium. Furthermore, there has been a marked reduction in the intake of foods such as cereals, legumes, fruits and vegetables in recent decades[1]. This is despite evidence that adopting a healthy diet could reduce the risk of deaths due to non-communicable diseases and injuries by 47% to 58%[3].

As for physical activity, estimates indicate that 26.3% of Brazilian adults are physically inactive in the four major areas of activity: work, commuting, household duties and leisure (4).

Given this situation, the National Health Promotion Policy has become a vital component of the Primary Health Care System[3,5]. The development and implantation of campaigns emphasizing counseling to promote healthy eating and regular physical activity is consequently of fundamental importance[5].

Counseling within the health systems can range from generalized, informal advice to specific, targeted actions that involve everything from guidance to intervention strategies carried out by health professionals[6]. Patients are not receiving adequate counseling on diet and lifestyle, despite the cost-effectiveness of such advice. Benefits include reduced body weight, cholesterol and triglycerides, as well as increased levels of physical activity[7].

One study conducted in the South, North and Northeast regions of Brazil looked into how much advice on physical activity was provided to adults and elderly patients at Primary Health Care (PHC) units and results suggest that the amount of counseling was insufficient[8]. A similar study found that nutrition counseling at PHC units was not meeting the needs of individuals who would benefit from interventions[9].

Within this context, we conducted a study among users of PHC services into how frequently health care professionals and their associates provide counseling on healthy lifestyles and the effect this advice has on the adoption of healthy dietary practices.

> Counseling within the health systems can range from generalized, informal advice to specific, targeted actions that involve everything from guidance to intervention strategies carried out by health professionals.

METHOD

We developed a cross-sectional study in a PHC unit in Belo Horizonte, MG, Brazil from October 2009 to January 2010. We sampled patients of both genders, aged 20 years or over, who were waiting treatment or elective procedure and agreed to participate in the study. Incomplete questionnaires and those applied to individuals under 20 years old or to pregnant women were excluded.

Data collection was performed by fellows and volunteers under the Work for Health Education Program (Health-PET) at the Federal University of Minas Gerais, Brazil and the City Health Department of Belo Horizonte. These students came from a variety of degree courses, such as: Nursing, Physiotherapy, Speech Therapy, Medicine, Nutrition, Dentistry and Occupational Therapy.

We applied a semi-structured and pretested questionnaire, which addressed data on socio-demographic, dietary and morbidity factors. We also took anthropometric measurements based on a tool proposed by Lopes et al.[10]. Participants were also asked about whether or not they had received advice on healthy lifestyle choices at a PHC unit through the question: *During a consultation at the health center, has a professional (doctor, nurse, nutritionist ...) ever told you that you should improve/change your diet and/or do physical activity to improve your health?* If so, we went on to ask who had given them this advice.

A two-day training session on data collection was held at the University. This was followed by two consecutive weeks of training in the field with a trained professional. The training session was conducted in groups of four people per shift (morning and afternoon). Students who showed the greatest aptitude for applying the questionnaire remained in that role. Similarly, students whose anthropometric evaluation results were closest to those obtained by the coach were selected as anthropometric reviewers. From all the students who underwent training, eight were selected to apply the questionnaire and four to conduct the anthropometric assessment. While the latter worked in pairs, the former worked individually in rotation throughout the week. The entire process of data collection was supervised by the aforementioned trainer together with health professionals who participated in the project. This supervision was also carried out on a rotating schedule.

We evaluated participants' dietary intake by estimating their monthly consumption of sugar, oil and salt, and by applying a Food Frequency Questionnaire (FFQ). Thus, participants were asked about their frequency of consumption of 30 foods in the previous six months (daily,

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weekly, monthly, rarely or never). When the frequency was *rarely* or *never*, we considered it to be a non-consumed food. The frequencies of consumption were compared to those recommended by the 'Food Guide for the Brazilian population'[11].

In order to evaluate the consumption of salt, sugar and oil, we used the recommendations of 840g of caster sugar, 240ml of oil and 150g of salt per month[11]. We also recorded the participants' number of daily meals; their consumption of animal fats; whether they had a habit of *snacking* between meals; and their fluid intake during meals.

The anthropometric evaluation consisted in taking weight, height, waist circumference (WC) and hip circumference (HC) measurements, in accordance with the World Health Organization (WHO) recommendations[12]. Weight was measured on an electronic scale with a capacity of 180 kilograms (kg) and accuracy of 100 grams. Height was recorded using a portable stadiometer with a 220cm tape measure. Waist and hip circumferences were measured three consecutive times using an inelastic tape measure and then the arithmetic mean of the measurements was calculated.

From these measurements of weight and height, we calculated the Body Mass Index (BMI), and then used the WC and HC to find the waist/hip ratio (WHR). We used the following WHO guidelines to classify the BMI of adult participants[12]: BMI <18.5 kg/m2 underweight, 18.5 to 24.9 kg/m2 normal weight, ≥ 25 to 29.9 kg/m2 overweight and ≥ 30 kg/m2 obese. For the BMI of elderly participants (60 years-old or above), we used the classification proposed by Lipschitz[13]: BMI ≤ 21.9 kg/m2 underweight, 22.0 to 26.9 kg/m2 normal weight and ≥ 27.0 kg/m2 overweight.

Men with WC ≥ 94 cm to 101.9 cm and women with WC ≥ 80 cm to 87.9 cm were classified as being at high risk of metabolic complications associated with obesity, and men with WC ≥ 102 cm and women with WC ≥ 88 cm were considered to be at very high risk. For the waist/hip ratio (WHR), men whose ratio was> 1.00 and women with a value> 0.85 were classified at risk for developing cardiovascular diseases[12].

We used data from the Food Frequency Questionnaire to analyze the adequacy of participants' consumption of 20 foods, which have been related to the development of non-communicable diseases and conditions. We went on to analyze the per capita consumption of oil, salt and sugar according to the 'Food Guide for the Brazilian population'[11]. Due to the subjectivity of some of the recommendations in the Food Guide, additional criteria were proposed to determine the suitability of the consumption of some foods (Chart 1).

Chart 1 - Criteria for recommended consumption of various food types(11).

Food	Recommendation	Adopted criteria
Filled biscuits	Reduce consumption - we used the recommended intake of sweets	2 times per week or less
Regular sodas	Reduce consumption - we used the recommended intake of sweets	2 times per week or less
Artificial juices	Reduce consumption - we used the recommended intake of sweets	2 times per week or less
Fried food	Avoid or reduce consumption	2 times per week or less
Industrialized sauces	Avoid consumption	Rarely or never
Artificial flavorings	Avoid or reduce consumption	Rarely or never
Cold cured meat (salami, etc.)	Occasional consumption	Up to twice a month
Eggs*	Restrict consumption*	Up to 2 per week*
Meat	Daily consumption	5-7 times per week
Animal fat and chicken skin	Remove all fat prior to preparation.	Prepared without fat.
Lard	Occasional consumption	Up to twice a month
Instant noodles	Avoid consumption	Rarely or never
Savory, salty snacks and burgers	Occasional consumption	Up to twice a month

Note: *Recommendation of the Brazilian Guidelines on Dyslipidemias III and Guideline of Atherosclerosis Prevention - Department of Atherosclerosis of the Brazilian Society of Cardiology(14).

For the purposes of this study, we considered a healthy diet as one that, in general, contained adequate amounts of fruits and vegetables and was low in foods with high caloric density, rich in fats, sugars and salt and low in fibers, such as industrialized foods[11].

We performed the statistical analyses with the aid of the Statistical Package for Social Sciences (SPSS) (version 17.0, SPSS inc., Chicago, 2008). We went on to conduct a descriptive analysis and run a series of tests: Kolmogorov-Smirnov, Chi-square, Chi-square for linear trend, Fisher's exact test and the Mann-Whitney test. We considered a significance level of 5%.

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The non-parametric variables were presented as median, minimum and maximum values, while those for parametric variables were given as mean and standard deviation.

Regarding ethical aspects, this study was approved by both the Ethics and Research Committees of the City of Belo Horizonte, MG, Brazil (0037.0.410.000-09 CAAE) and the Federal University of Minas Gerais (ETIC 037.0.410.203-09). At the beginning of each interview, participants were given appropriate information and signed a free and informed consent form.

RESULTS

We interviewed 417 users, the majority of whom were adults (87.8%) and women (78.9%). We observed a high prevalence of overweight participants (59.1%). According to their WC measure, these participants were at significant risk of metabolic complications associated with obesity, and high WHR measurements also put them at risk of cardiovascular disease, hypertension, hypercholesterolemia and diabetes mellitus (Table 1).

Table 1 - Criteria for recommended consumption of various food types(11).

Variable	n	Values
Age in years (median, minimum, maximum)	417	39 (20; 85)
Age group (%)	-	-
Adult	366	87.8
Elderly	51	12.2
Females (%)	329	78.9
Monthly Per Capita Income - R$ (median, minimum, maximum) **	387	250.00 (7.00; 1,265.00)
Years of study (median, minimum, maximum)	417	8 (0; 18)
Nutritional status (%)+	-	-
Underweight	10	2.5
Normal weight	156	38.4
Overweight	139	34.2
Obese	101	24.9
Risk of metabolic complications - Waist Circumference**	-	-
High	96	23.5
Very high	123	30.1
Risk of developing diseases - Waist / Hip**	103	25.2
Morbidities (%)	-	-
Hypertension	139	33.3
Constipation	122	29.3
Hypercholesterolemia	72	17.3
Diabetes mellitus	42	10.1
Coronary Diseases	35	8.4
Hypertriglyceridemia	28	6.7
Kidney Failure	16	3.8

Note: *Individuals with no information = 30 **Individuals with no information = 9 + Individuals without information = 11.

When analyzing the participants' dietary profiles, we can see that only 27.8% ate the recommended 5-6 daily 'meals', with 59.2% skipping the mid-morning 'meal' and 66.2% not eating mid-afternoon. Furthermore, 46.6% had the habit of *snacking* between meals and 64.3% of participants liked to drink while they were eating.

Regarding the daily per capita consumption of salt, sugar and oil, we can see a median daily intake of 5.5 g (0.5 to 111.1 g), 55.5 g (0.0 to 333.3 g) and 24.0 mL (0.0 to 133.3 mL), respectively, with 80.4%, 62.7% and 94.6% of participants consuming quantities above those recommended[10].

On the whole, participants' intake of healthy food was quite inadequate, especially the low consumption levels of fruits (40.5%), greens (52.9%), vegetables (61.6%), milk (42.2%) and derivatives (23.5%), and they also presented a low weekly consumption of fish (10.3%). On the other hand, foods such as sweets/chocolate (13.4%), candy/gum (13.9%), fried foods (13.0%), soft drinks (22.3%), artificial juices (33.8%) and artificial flavorings (52.8%) had high levels of daily intake.

We found that 40.8% (n = 170) of participants had received advice on healthy lifestyles at a PHC unit, of whom 81.2% women and 87.1% adults. Participants who had received counseling had a higher median age (45 *vs*. 36 years, p <0.001), however, the prevalence of advice was similar for adults and for the elderly (≥ 60 years).

Among the health professionals mentioned as responsible for carrying out the counseling, the most frequent categories were doctors (87.6%), followed by nurses (10.0%), interns working with nutrition (7.6%), nutritionists at the Support for Family Health Center (1.8%), nursing assistants (0.6%) and dentists (0.6%). There was no reference to the Community Health Agents (CHA).

As can be seen in Table 2, participants who had received counseling showed a more adequate consumption of candy/gum (p = 0.031), regular soda (p = 0.036), artificial flavorings (p = 0.005), eggs (p = 0.010) and savory snacks (p = 0.037).

There were no significant differences between the genders in either consumption patterns or in whether or not participants had received counseling. However, women who had received dietary advice showed a more adequate intake of sweets (p = 0.047), eggs (p = 0.027), savory snacks (p = 0.040), burgers (p = 0.044), lard (p = 0.029), artificial flavorings (p = 0.002) and salt (p = 0.034) than those who had not received advice (Table 3).

In general, diet became more adequate with age (p <0.05), with the exception of fruit and vegetables intake (Table 4).

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Table 2 - Counseling on healthy lifestyles and participants' adequacy of food consumption - Belo Horizonte, MG, Brazil - 2009/2010

Variable	Counseled (n=170)				Not counseled (n=247)				p-value pª
	Adeq		Inadeq		Adeq		Inadeq		
	n	%	n	%	n	%	n	%	
Fruit	71	41.8	99	58.2	98	39.7	149	60.3	0.669
Greens	92	54.1	78	45.9	128	52.0	118	48.0	0.675
Vegetables	104	61.2	66	38.8	153	61.9	94	38.1	0.874
Sweets/ desserts	140	82.4	30	17.6	186	75.3	61	24.7	0.087
Candy /chewing gum	147	86.5	23	13.5	193	78.1	54	21.9	0.031
Filled biscuits	159	93.5	11	6.5	222	89.9	25	10.1	0.190
Milk	69	40.6	101	59.4	107	43.3	140	56.7	0.579
Regular soda	117	68.8	53	31.2	145	38.7	102	41.3	0.036
Artificial juice	92	54.1	78	45.9	129	52.2	118	47.8	0.704
Fried foods[*]	119	70.4	50	29.6	182	73.7	65	26.3	0.464
Savory snacks	129	75.9	41	24.1	164	66.4	83	33.6	0.037
Cold cured meat (salami, etc.)	112	65.9	58	34.1	156	63.2	91	36.8	0.568
Artificial flavorings	52	36.6	118	69.4	46	18.6	201	81.4	0.005
Industrialized sauces	105	61.8	65	38.2	144	58.3	103	41.7	0.478
Burgers[*]	132	77.6	38	22.4	174	70.7	72	29.3	0.116
Eggs[*]	152	89.9	17	10.1	199	80.6	48	19.4	0.010
Meat[*]	128	75.3	42	24.7	190	77.2	56	22.8	0.646
Fish[*]	4	2.4	166	97.6	14	5.7	232	94.3	0.141[b]
Remove skin from chicken[+]	16	51.6	151	39.7	15	48.4	229	60.3	0.195
Remove fat from meat[*++]	15	41.7	148	40.1	21	58.3	221	59.9	0.856

Note: * Individuals with no information = 1 + Individuals who do not eat chicken = 6 + + Individuals who do not eat meat = 12
ª Chi Squared test bExact Fisher test.

Table 3 - Adequate consumption of various food groups according to gender and whether respondent received counseling - Belo Horizonte, MG, Brazil - 2009/2010

Consumption	Women (n=329)					Men (n=88)				
	Counseled		Not counseled			Counseled		Not counseled		
	Adeq	Inadeq	Adeq	Inadeq		Adeq	Inadeq	Adeq	Inadeq	
	%	%	%	%	p-value pª	%	%	%	%	p-value pª
Fruits	47.8	52.2	44.0	56.0	0.489	15.6	84.4	25.0	75.0	0.304
Greens[*]	59.4	40.6	56.0	44.0	0.538	31.3	68.8	38.2	61.8	0.515
Vegetables	65.2	34.8	67.0	33.0	0.734	43.8	56.3	44.6	55.4	0.935
Sweets/desserts	82.6	17.4	73.3	26.7	0.047	81.3	18.8	82.1	17.9	0.917
Candy /chewing gum	84.8	15.2	77.5	22.5	0.099	93.8	6.3	80.4	19.6	0.122[b]
Filled biscuits	93.5	6.5	90.6	9.4	0.344	93.8	6.2	87.5	12.5	0.294[b]
Milk	41.3	24.6	45.5	54.5	0.444	37.5	62.5	35.7	64.3	0.867
Regular soda	72.5	27.5	63.9	36.1	0.101	53.1	46.9	41.1	54.5	0.275
Artificial juice	55.1	44.9	50.3	49.7	0.389	50.0	50.0	58.9	41.1	0.417
Eggs	92.0	8.0	83.8	16.2	0.027	80.6	19.4	69.6	30.4	0.265
Fried foods	73.9	26.1	75.9	24.1	0.679	54.8	45.2	66.1	33.9	0.301
Savory snacks	79.7	20.3	69.6	30.4	0.040	59.4	40.6	55.4	44.6	0.714
Cold cured meat	68.1	35.3	62.3	37.7	0.276	62.5	37.5	66.1	33.9	0.360
Lard	96.4	3.6	90.1	9.9	0.029	81.3	18.8	87.5	12.5	0.427
Sauces	63.0	37.0	59.2	40.8	0.477	56.3	43.8	55.4	44.6	0.935
Burgers	80.4	19.6	70.7	29.3	0.044	65.6	34.4	70.9	29.1	0.607
Artificial flavorings	30.4	69.6	16.2	83.8	0.002	31.3	68.8	26.8	73.2	0.655
Per capita daily salt	46.1	53.9	34.1	65.9	0.034	25.0	75.0	31.1	68.9	0.594
Meat	77.5	22.5	75.9	24.1	0.732	65.6	34.4	81.8	18.2	0.089
Fish	2.2	97.8	6.8	93.2	0.053	3.1	96.9	1.8	98.2	0.598[b]

Note: Adeq: Adequate; Inadeq: * Inadequate Individual male with no information= 1. a- Chi-square bTeste Fisher exact test.

Table 4 - Adequate consumption of various food groups according to age and whether respondent received counseling - Belo Horizonte. MG, Brazil – Brazil - 2009/2010

Variable	Counseling									
	20 to 29 years		30 to 39 years		40 to 49 years		50 to 59 years		≥ 60 years	
Adequate consumption	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	p-value[a]
Daily servings of fruits (n = 16)	16.7	20.0	0.0	30.0	16.7	20.0	50.0	10.0	16.7	20.0	0.345
Daily servings of greens and vegetables (n=59)	31.8	21.6	18.2	27.0	22.7	27.0	13.6	21.6	13.6	2.7	0.945
Daily servings of FGV (n=23)	20.0	15.4	10.0	23.1	20.0	30.8	40.0	7.7	10.0	23.1	0.862
Sweets/ desserts (n=326)	11.4	29.0	20.7	27.4	26.4	16.1	26.4	15.1	15.0	12.4	< 0.001
Candy and/or chewing gum (n=340)	14.3	28.5	19.0	27.5	25.9	16.1	27.2	14.5	13.6	13.5	0.001
Filled biscuits (n=381)	17.0	28.4	18.2	27.5	25.8	18.0	25.2	14.0	13.8	12.2	0.001
Eggs (n=351)	18.4	31.2	17.8	25.6	25.7	17.1	23.7	13.6	14.5	12.6	0.001
Milk (n=176)	17.4	27.1	13.0	27.1	21.7	14.0	29.0	15.0	18.8	16.8	0.020
Regular soda (n=262)	11.1	23.4	19.7	25.5	26.5	18.6	24.8	13.8	17.9	18.6	0.018
Artificial juice (n=221)	16.3	25.6	12.0	25.6	28.3	14.7	26.1	17.8	17.4	16.3	0.025
Fried food (n=301)	9.2	28.0	20.2	29.7	25.2	15.9	28.6	13.2	16.8	13.2	< 0.001
Instant noodles (n=324)	16.7	28.5	18.1	26.9	25.4	17.2	26.8	12.9	13.0	14.5	0.005
Cold cured meat (n=268)	10.7	33.3	19.6	25.0	26.8	10.9	27.7	15.4	15.2	15.4	< 0.001
Savory snacks (n=293)	12.4	26.2	16.3	26.8	27.9	17.1	27.1	14.0	16.3	15.9	0.001
Burgers (n=306)	10.6	24.1	18.2	26.4	28.0	18.4	26.5	14.9	16.7	16.1	0.002
Industrialized sauces (n=249)	14.3	30.6	19.0	25.7	23.8	13.2	24.8	15.3	18.1	15.3	0.003
Lard (n=380)	18.9	33.0	19.5	27.1	24.5	16.3	23.9	12.7	13.2	10.9	< 0.001
Per capita daily salt (n=139)	15.4	27.0	20.0	35.1	27.7	20.3	24.6	5.4	12.3	12.2	0.009

Note: [a] Chi-square test for linear trend. FGV = fruit, greens and vegetables.

DISCUSSION

We observed a high prevalence of overweight participants and high levels of morbidity. The majority of participants were shown to have unhealthy eating habits. Even though results showed that little counseling was being provided by health professionals, were it did take place we saw a positive impact on the participants' diet.

The percentages of both overweight and obese participants were higher than the national average[4]. In particular, we observed a high prevalence of abdominal obesity, which is an important risk factor for non-communicable diseases and injuries[15].

This could be explained by some aspects of participants' dietary profile such as: skipping meals, the habit of *snacking* and a high daily intake of sugar and oil. A poor distribution of daily food intake, caused by the habit of skipping meals, has been linked to weight gain[16]. Likewise, eating at sporadic times can raise the daily calorie intake, causing a predisposition to weight gain[17]. Finally, the high intake of sugar and oil observed amongst the participants, with a median consumption of the latter three times higher than those recommended by the 'Food Guide for the Brazilian population'[11] is also related to being overweight or obese.

Although the median *per capita* intake of salt was close to that recommended for a healthy population, the high prevalence of hypertension among the participants meant that their consumption was excessive. In addition, foods high in sodium such as cold cured meats and industrialized sauces and artificial flavoring were consumed in excess, as were foods rich in saturated fats (red meat with fat and chicken with skin). We also observed an inadequate consumption of fruits, greens, vegetables and fish. This study highlighted a pattern of poor diet and excessive intake of sugar[18], which may contribute to increased risk or aggravation of non-communicable diseases and injuries, already very prevalent within the group[11,16].

Given this situation, providing counseling on healthy lifestyles should be a priority for Primary Health Care Services, where current practice has been shown to be insufficient. Similar findings were reported in Chicago, United States[19] where it was found that 40% or less of patients had received advice about diet, according to the reports of the doctors interviewed. In Brazil, a study showed that 28.9% of adult participants and 38.9% of elderly participants received counseling on physical activity[8].

It has been suggested that health professionals, mainly physicians and nurses, choose not to give advice on healthy lifestyles as a consequence of the difficulty on how best to approach issues of diet and physical activity. These difficulties are possibly due to limited knowledge on the subject acquired at the undergraduate, residency, or specialization stages; short consultation times and possible difficulties in implementing changes in eating behavior itself[9].

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It should be noted that guidance on eating habits is the responsibility of all health workers[11]. However, in this study, the Community Health Agents had not been responsible for any of the counseling the participants received, even though offering guidance on self-care and health protection measures constitutes the central role of their professional practice[20].

Results from our study suggest the urgent need for the training of health professionals in order to ensure that providing counseling on healthy lifestyles is part of their daily practice[11]. This is of great importance, as this type of counseling can promote weight reduction and increased daily consumption of fruits and vegetables, with a consequent reduction of the risk of developing or worsening non-communicable diseases or injuries[7].

Despite the infrequent counseling provided by health professionals, we observed its beneficial effect on the eating habits of users. Individuals who had received advice had more adequate intake of sweets/chewing gum, artificial flavorings, regular sodas, savory snacks and eggs when compared to those who had not received advice. This reduction in consumption of high calorie and high sodium foods can contribute to disease prevention and weight control, reflecting positively on health. This serves to reinforce the importance of counseling for professional practice.

As for dietary differences between the genders after receiving counseling, it can be said that women responded more positively to counseling. They were shown to pay greater attention to their health[21], as reflected in their healthier eating patterns. Furthermore, counseling on diet and physical activity was more frequent among patients with a higher than median age, probably due the occurrence of non-communicable diseases and injuries

increasing with age[22]. In this regard, the fact that the participants in the 40 year-old age bracket showed the most adequate intake of food is significant.

In addition to a better control of non-communicable diseases and injuries among the elderly, we would like to highlight the need to carry out preventive actions in the younger age groups and among men. Such actions become particularly relevant when we consider that these diseases have long latency periods and therefore originate in earlier phases of life[2]. It is therefore essential to strengthen and equalize the practice of counseling at all ages.

Cross-sectional studies have certain limitations, which prevent us from establishing temporal relationships of cause and effect between the studied variables. In addition, some data were lost due to invalid questionnaires. As the sampling process was performed in only one Primary Health Care unit, the results cannot be extrapolated to the general population. Despite these issues, we believe our findings are important in that they indicate the need to rethink the way in which health professionals within the Primary Health Care System promote healthy living.

CONCLUSION

Counseling was seldom observed despite the important role it would play given the eating and health profiles identified, which suggests health professionals should be more proactive in providing such guidance with a view to prevent and control diseases and promote health. Counseling healthy life habits is essential, especially among men and young individuals, considering its healthy influence on the population's eating habits, and consequently on its health and quality of life.

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