Dietary profile and nutritional status of climacteric women

Vanessa Huber Idalencio[1]*, Francieli Aline Conte[1], Ligia Beatriz Bento Franz[1]

[1]Universidade Regional do Noroeste do Estado do Rio Grande do Sul (UNIJUÍ), Ijuí, RS, Brazil

Abstract

Objective: To identify the dietary profile and nutritional status of climacteric women, and the relationship between these two spheres. Methods: A cross-sectional study with 140 women between 35 and 65 years old, examined about dietary patterns and nutritional status and later analysis of the relationship between diet classification and body mass index, waist circumference, and body fat percentage. Results: The dietary pattern presented a median score, related to nutritional status of overweight and obesity, high or very high waist circumference, and percentages of high or very high fat mass; statistical association between dietary pattern classification and body mass index as well as waist circumference was found. No statistical association was found between the classification of diet and the percentage of body fat. Conclusions: These data reinforce the need for continuity of the project to elucidate the phenomenon of menopause and identify the potential risks arising from the aging process related to the climacteric.

Keywords: climacteric; nutritional status; feeding.

Introduction

The majority of Brazil population is composed by women, who are the main users of the Brazilian public health system (Sistema Único de Saúde - SUS). This emphasize the importance of women's health evaluation, in the reproductive age as well as in the climacteric period, when hormonal changes occur, affecting physiological, aesthetic and even physical aspects, due to the decrease in the estrogen hormone production (hypoestrogenism).[1]

Vasomotor symptoms as hot flashes and menstrual irregularities are the main symptoms of menopause, although conditions such as cardiovascular disease (CVD), depression and cognitive dysfunction are also common in the period.[2] Perimenopausal women report an increased psychological and physiological symptoms, followed by a relative decrease in the postmenopausal period, specially depressive symptoms.[3]

Menopause period is associated with an increase in body weight, higher deposition of fat in the abdominal region with an increase in the risk of CVD, modification of body fat distribution and reduction of energy expenditure.[4] Transient hormonal, psychic and physical changes, coupled with the emotional stress that the period may imply, can negatively impact women´s health and life quality.[5]

An adequate diet can reduce the risk of death from chronic diseases, so feeding has various meanings, both psychological and physiological.[6] Moreover, an suitable diet also assists in the prevention and treatment of obesity, especially when combined with physical activity, which is greatly reduced at this stage of life.[7]

Changes in body composition may be related to socioeconomic factors, use of medications, incidence of climacteric symptoms, hyper- or hypocaloric diets.[8] Based on these considerations, this study aimed to identify the dietary pattern, nutritional status and the relationship between these aspects, in women in the climacteric period.

Materials and methods

Study design

A cross-sectional study was conducted during a 5 year project called "Female Aging Study" (2014) from Research Group on Human Aging (GERON) from Universidade Regional do Noroeste do Estado do Rio Grande do Sul (UNIJUÍ) and approved by local institutional review board (number 864.988).

Patients

There was 301 registered women at a Family Health Strategy program (ESF) in November 2016. The exclusion criteria were: women with cancer or in chemotherapeutic/radiotherapeutic treatment, pregnant women, women with incomplete data in the database (incomplete data from the general health and / or dietary questionnaire) or who did not carry out nutritional status assessment, totaling 161 exclusions and resulting in 140 analyzed women. These women were interviewed regarding dietary patterns (food frequency questionnaire), nutritional status (body mass index, waist circumference, and body fat percentage), and social demographic information.

Measures and data

The stature was measured using a Sanny® Personal Portable stadiometer; the body weight was verified by digital Camry® digital scale (with capacity of 150 Kg) and from these two measures the body mass index was calculated (BMI).

The abdominal perimeter evaluation was performed in the orthostatic position, with a relaxed abdomen, with anthropometric positioning in the horizontal at the natural waist level (narrower part of the trunk); the evaluation of the body composition was made by bioelectrical impedance analysis (BIA), with the aid of the OMRON® brand bipolar portable device. The anthropometric evaluation followed the recommendations and guidelines of the Food and Nutrition Surveillance System (SISVAN) of the Brazilian Ministry of Health.[9]

BMI and waist circumference (WC) were classified according to the parameters of the World Health Organization;[10] the BMI, from 60 years old, was classified according to The Nutrition Screening Initiative (NSI).[11] The body composition characteristic was measured and classified by the equipment manual itself.[12]

The evaluation of dietary habits was carried out following the protocol of the questionnaire "How is your diet" of the Food Guide for the Brazilian Population of 2006,[13] which evaluates the food consumption by assigning, in the end, a score and classification: "Up to 28 points", " 29 to 42 points "and" 43 points or more ". In this scale, the higher the number of points, the more positive the result.

Statistical analysis

Data were evaluated in the Statistical Program for Social Sciences (SPSS), version 18.0. A normality test of Komogorov-Smirnov for each variable was used. Descriptive statistics was done (frequency, mean and standard deviation) was done for nutritional status and food consumption variables. Statistics analysis for association between variables was done using the Pearson Chi-square test.

Results

A total of 140 women were evaluated, with a mean age of 51.64 years ± 7.55 years, ranging from 36 to 65 years. As a result of the nutritional assessment and dietary profile, a mean BMI of 29.5 Kg/m^2 ± 5.7 Kg/m^2, with a minimum of 17,0 Kg/m^2 and a maximum of 52,8 Kg/m^2. The mean result for the WC was 91.3 cm ± 12.1 cm, with a minimum of 59.0 cm and a maximum of 139.0 cm. Regarding the percentage of fat mass (PFM), an average of 37.2% ± 5.8% of body fat was observed, with a minimum percentage of 14.4% and a maximum of 49.0%.

Nutrition score was 34.5 points ± 6.2 points, with a minimum score of 15 and a maximum of 51 points. Considering the classification as a growing scale of points, where the food quality increases as the score increases, this result can be considered a reasonable food.

The BMI revealed high rates of overweight and obesity (I, II and III) among adult and elderly women, accounting for 76.5% of the participants. In the eutrophic interval, there were 22% of the interviewed women, while two of the participants (1.4%) were underweight.

Regarding WC, 57.8% of the women showed a very high WC and 26.4% a high WC, in a total of 118 women.

The PFM evaluation showed a high number of women classified as high or very high PFM, comprising 69.6% of the participants (n=94).

The food score classification according to the "How is your diet" questionnaire allowed us that 76.4% of the women had 29 to 42 points. The lowest percentage of women were those that obtained the best scores - "43 points or more", totaling 9.3% of the participants. As a consequence, 14.3% of the women had a score of "up to 28 points", with the lowest scores.

The relationship between diet and nutritional status was verified through data crossing, allowing the identification of a greater concentration of results between 29 and 42 points (median score), mainly among eutrophic women. More than a half of the interviewed women were overweight or obese I women, as shown in Table 1.

The combined results of the PC and the food classification revealed a higher concentration of women with food classified between 29 and 42 points, with very high WC, as seen in Table 2.

The mixed combined of the PFM evaluation and the food classification also showed results close to the high and very high percentages of PFM, and food classified between 29 and 42 points, which can be observed in Table 3.

Table 1. Association of the Body Mass Index with the Food Classification. Ijuí/RS, 2016

	Up to 28 points	29 to 42 points	43 points or more	Total	p
Eutrophic (elderly)	0	7	0	7	
Excess weigh (elderly)	0	6	0	6	
Thinness	0	2	0	2	
Eutrophy	0	19	5	24	
Overweight	9	32	6	47	0,031*
Obesity I	7	28	2	37	
Obesity II	2	10	0	12	
Obesity III	2	3	0	5	
Total	20	107	13	140	

Pearson's Chi-square test; *statistically significant, with reliability <95%.

Table 2. Relation of Waist Perimeter with Feed Classification. Ijuí/RS, 2016

	Up to 28 points	29 to 42 points	43 points or more	Total	p
Normal	1	18	3	22	
High	4	30	3	37	0,020*
Very High	15	59	7	81	
Total	20	107	13	140	

Pearson's Chi-square test; *statistically significant, with reliability <95%.

Table 3. Association of Body Fat Percentage with Food Rating. Ijuí/RS, 2016

	Up to 28 points	29 to 42 points	43 points or more	Total	P
Low	0	1	1	2	
Recommended	3	33	3	39	
High	8	35	6	49	0,280
Very high	7	35	3	45	
Missing	2	3	0	5	
Total	20	107	13	140	

Pearson's Chi-Square Test.

General results regarding nutritional status and the food classification displayed a relationship between the classification of the food profile and BMI, that is, women who obtained lower scores of food profile also presented a higher BMI ($p = 0.031$). There was also an association between the WC classification and the food classification ($p = 0.02$). However, there was no statistical association between the dietary profile and PFM. Therefore, there was an inverse relationship between feeding and the nutritional status of women through BMI and WC.

Discussion

A menopause syndrome can result in vasomotor symptoms, sleep and mood disorders, osteoporosis, CVD, neurodegenerative diseases, oxidative damage, and others symptoms.[14] A diet rich in antioxidants, could prevent the accumulation of these damage.

The nutritional status and body composition evaluation are important for the identification of CVD risk, such as dyslipidemia, hypertension, diabetes, breast cancer[15] and other diseases.

We observed a mean BMI of 29.5 Kg/m^2 among analyzed women, with a classification of overweight and obesity (I, II and III) in 76.5% of them. In a study conducted in Passo Fundo, Rio Grande do Sul, Brazil, the mean BMI of climacteric women was similar to this present study (mean BMI of 28.3 Kg/m^2 ± 7.0 Kg/m^2),[16] as well as a UNESP study (mean BMI for women <50 years 29.9 Kg/m^2 ± 7.2 Kg/m^2).[17]

In a group of climateric women from Montes Claros, Minas Gerais - Brazil, the mean BMI was 28.1 Kg/m^2 ± 5.6 Kg/m^2; and 34% were classified as eutrophic, 30.8% were overweight and 35.2% were obese.[8]

Elevated body mass indexes are related to the onset of CVD and degenerative diseases, especially among women with a BMI ≥ 30 kg/m^2, independently of climacteric phase.[18]

Regarding the WC evaluation, the mean value was 91.3 cm ± 12.1 cm, considered elevated or very high. Similar results were found in a study carried out in Passo Fundo (91.3 cm ± 13,7 cm).[19] In another study, at Feira de Santana, Bahia, Brazil, an average of 84.65 cm ± 10.57 cm was observed for WC.[20]

The PFM averages were considered high and very high for 69.6% of the evaluated women, with an average value of 37.2% ± 5.8%. Buonani et al.[17] showed an average PFM score of 45.1% ± 5.5%, and in a part of the PONS Study, the average adiposity was 34.1% ± 6.7% for pre-menopausal women and 36.2% ± 6.5% for postmenopausal women.[21]

The observed food profile had a reasonable quality, with a mean score of 34.5 ± 6.2 points. No updated references were found for the questionnaire "How is your diet?", but in an evaluation of the food consumption pattern of climacteric women in southern Brazil, it was possible to notice a food pattern among climacteric phases, with prevalence of traditional food and culinary preparations,[22] in agreement with Food Guide recommendation.[23]

A previous study with 215 postmenopausal women concluded that 82.8% of the women consumed a diet classified as "needs improvements" and 16.3% consumed a "poor" quality diet, resulting in a percentage of only 0.9% consuming an "adequate" diet.[24] Diet quality may be associated with higher quality of life and lower risk of developing diseases, such as CVD.

The quality of diet is related to cardiovascular risk, since women with higher consumption of Mediterranean diet consumed larger quantities of fruits, vegetables and nuts, whole grains and fish, as well as smaller amounts of red or processed meat, poultry and meat with high lipid concentration. Women who consumed the Dietary Approaches to Stop Hypertension (DASH) had a similar consumption to the Mediterranean, but less consumption of sugary drinks.[25] Relative to fruits and vegetables consumption, a part from the PONS Study showed that premenopausal and postmenopausal period women, used to consume similar portions (4.06 ± 1.71 servings/day for premenopausal and 4.07 ± 1.71 portions / day for postmenopausal women).[21]

Diet quality has implications on the health of menopausal women, and is related to several factors. In an American study, when evaluating the relationship between diet and optimism, healthy eating indexes had an inverse association with BMI, WC, history of diabetes or hypertension and depression.[26]

Conclusion

The mean BMI of the 140 evaluated women was 29.5 Kg/m^2, similar to other previous results. Mean WC was very high (91.3 cm), suggesting a high risk of developing CVD. The high PBF (37.2%) is related to bone loss along with abdominal obesity. When analyzing the food profile, the average score was 34.6 points, classified as reasonable, suggesting the need for improvements.

This moderate food profile had a significant impact on the BMI, WC and PFM, since "between 29 and 42 points" was higher in BMI of overweight and obesity (n = 60), high or very high WC (n = 89; 70), showing an association between BMI ($p = 0.031$) and WC ($p = 0.02$) with the quality of diet.

Our results reinforces the need for continuity of this project, with the data classification in the respective phases of the climacteric in order to elucidate the phenomenon of menopause and its intercurrences. It is imperative to provide health education and nutritional intervention through dietary guidelines, aiming the improvement of health indicators.

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*Correspondence

Vanessa Huber Idalencio
Universidade de Passo Fundo (UPF)
Rua Paissandu, 1455, ap. 402, Centro
CEP 99010-101, Passo Fundo, RS, Brazil
Tel.: +55 (55) 9 9106-4908
E-mail: vanessa.idalencio@hotmail.com

Authors information

VHI - Nutritionist; Multiprofessional Resident Professional in Health of the Elderly, Universidade de Passo Fundo (UPF). FAC - Nutritionist; Master's Degree in Integral Health Care, Universidade Regional do Noroeste do Estado do Rio Grande do Sul. LBBF - Nutritionist; PhD in Public Health, Universidade Regional do Noroeste do Estado do Rio Grande do Sul.

Authors contribution

VHI: He wrote the manuscript in all its stages. FAC: Contributed to the accomplishment of the statistical analyzes and interpretation of the data, part of the writing and formatting and normalization of the article for submission to the magazine. LBBF: Contributed in all stages of the process: project orientation, writing, reading and correction of the article.