

ADHERENCE TO NUTRITION COUNSELING FOR DIABETES MELLITUS IN A PRIMARY HEALTH CARE SERVICE*

ADESÃO AO ACONSELHAMENTO NUTRICIONAL PARA O DIABETES MELLITUS EM SERVIÇO DE ATENÇÃO PRIMÁRIA À SAÚDE

ADHESIÓN A LA CONSEJERÍA NUTRICIONAL PARA DIABETES MELLITUS EN SERVICIOS DE ATENCIÓN PRIMARIA DE SALUD

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ABSTRACT

The aim of this study was to analyze the adherence to nutritional recommendations among patients with diabetes mellitus (DM) in a Primary Health Care service. We conducted a 12-month intervention study with DM patients. All study subjects received individual nutritional counseling. We collected demographic, health and nutrition data. The adherence was measured by comparing patients' self-reported evolution with nutritional recommendations for the treatment of DM. It was classified as low (<50%) or high (> 50%). Barriers to adherence were also investigated. 11 patients participated in the study. Most participants were female, elderly, and had lower income and education levels. After 12 months, the recommendations to which there was greater adherence were: eat slowly; avoid excessive consumption of foods high in complex carbohydrates; and avoid the consumption of food between meals (e.g. snacks). 63.6% of subjects showed low adherence. Dietary restrictions were reported as the main barrier to adherence. These findings corroborate that patient adherence to nutritional recommendations is a challenge to health care delivery, especially among individuals with low income. It needs to be better assessed in health care settings.

Keywords: Diabetes Mellitus; Patient Compliance; Counseling; Health Promotion; Primary Health Care.

RESUMO

Objetivou-se analisar a adesão ao aconselhamento nutricional em pacientes com diabetes mellitus (DM) em serviço de Atenção Primária à Saúde. Realizou-se estudo de intervenção com duração de 12 meses, contemplando indivíduos com DM que receberam aconselhamento nutricional individual. Foram obtidos dados sociodemográficos, de saúde e nutrição. A adesão foi obtida mediante a comparação da evolução do relato dos pacientes com as recomendações nutricionais propostas para o tratamento do DM, sendo classificada como baixa (<50%) e alta (≥50%). As barreiras para a sua efetivação também foram investigadas. Dos 11 pacientes avaliados, a maioria eram mulheres, idosos e tinham baixa renda e escolaridade. Após 12 meses, as orientações que apresentaram mais adesão foram: alimentar-se devagar, evitar consumo excessivo de alimentos ricos em carboidratos complexos e "beliscar" alimentos entre as refeições. Identificou-se que 63,6% dos indivíduos manifestaram baixa adesão, citando a restrição alimentar como a principal barreira. Os achados corroboram a adesão como um desafio para o cuidado à saúde, principalmente entre indivíduos com baixa renda, denotando a necessidade de se melhor avaliá-la em serviços de saúde.

Palavras-chave: Diabetes Mellitus; Cooperação do Paciente; Aconselhamento; Promoção da Saúde; Atenção Primária à Saúde.

RESUMEN

El objetivo del presente estudio fue analizar la adhesión a la consejería nutricional en pacientes con diabetes mellitus (DM) en servicios de Atención Primaria de Salud. Durante un año se llevó a cabo un estudio de intervención con personas con DM que recibieron consejería nutricional individual. Se obtuvieron datos sociodemográficos, de salud y nutrición. La adhesión fue evaluada al comparar la evolución indicada por los pacientes con las recomendaciones nutricionales propuestas para el tratamiento de DM, clasificadas como baja (<50%) y alta (>50%). Se investigaron también las trabas para su efectividad. De los 11 pacientes evaluados, la mayoría eran mujeres, ancianos, de bajo ingreso y nivel de educación. Después de 12

meses las orientaciones con mayor adhesión fueron: comer despacio, evitar el consumo excesivo de alimentos ricos en carbohidratos complejos y no "picar" entre comidas. Se identificó que 63,6% de los individuos presentaron baja adhesión y afirmaron que la restricción alimentaria era la traba principal. Los resultados confirman que la adhesión representa un reto para el cuidado de la salud, principalmente entre individuos de bajo ingreso. Se realiza la necesidad de evaluarla mejor en los servicios de salud.

Palabras clave: Diabetes Mellitus; Cooperación del Paciente; Consejo; Promoción de la Salud; Atención Primaria de Salud.

INTRODUCTION

Diabetes mellitus (DM) is considered a relevant public health problem due to its increasing prevalence worldwide, with the consequent increase in morbidity and decrease in quality of life of the population.¹ It is associated with the development of several complications, such as cardiovascular disease, retinopathies and neuropathies. Their connection with the aging process makes urgent the need for disease control, especially because it decreases patients' self-care ability, leading to greater therapeutic complexity and poor adherence to treatment.²

DM treatment involves changes in lifestyle, such as the practice physical activity, reduction of smoking behavior, adoption of a healthier diet, and use of medication.³ Among these, adequate food consumption is highlighted due to its ability to prevent complications and promote health.

Nutritional counseling has been used as a strategy for the adoption of healthier eating habits because it is an educational intervention in which knowledge is constructed jointly by patients and health care professionals.⁴ Such counseling should be based on the provision of education for self-care, given its effectiveness for disease control and prevention of complications. It is therefore a continuous process, which aims to provide knowledge, skills and abilities necessary for care.⁵

Although nutritional counseling is considered a good option for the treatment of patients with DM, patient's adherence to it is low.⁶⁻⁸ Adherence rates in developed countries average only about 50% and are even lower in developing countries.⁹

Assunção et al.¹⁰, in a study of patients with DM treated in 32 primary health care units (PHCU) in the urban area of Pelotas, Rio Grande do Sul, found that only 53% of patients reported having followed the recommended diet in the past 15 days; 10% reported not following any kind of treatment; and 26% reported using only taking the medication.

This difficulty in adhering to treatment is probably due to the complexity of intervening factors related to health care services (access, quality, available professionals, among others) and to the patient (time, willingness to change, financial resources, social support, among others), and constitute a challenge for health care professionals. Moreover, in the case of non-communicable diseases and conditions (NCDs), especially DM, individuals with the disease need to undergo several simultaneous changes in their lifestyle, which can further complicate treatment adherence.²

Thus, the aim of this study was to analyze the adherence to nutritional recommendations among patients with diabetes mellitus (DM) in a Primary Health Care service.

METHODS

This quasi-experimental study was conducted at a PHCU in Belo Horizonte, Minas Gerais. The study sample was composed of subjects aged 20 years or older, with a diagnosis of DM, destabilized and referred by a health promotion service called City Academy, located in the area covered by the PHCU.

All patients who sought medical attention at the PHCU from October 2007 to December 2009 and had been being nutritionally monitored for at least 12 months were included in the study.

Data collection was carried out during individual nutritional consultations. A previously tested history was performed at baseline. We collected sociodemographic data (age, sex, income, number of household members and education level), health data (self-reported morbidity and perceived health) and nutrition data (number of daily meals; consumption of foods, including sugar-free foods, fruit alone, preparations with sugar, sources of complex carbohydrates and no sugar - 'diet/zero', edible oil, sugar and salt, among others; habit of snacking between meals and of eating slowly, among others; and anthropometry).¹¹ In addition, we investigated the main barriers for the treatment of diabetes, as well as patient satisfaction with the service and with the care provided by health professionals. Biochemical data were not analyzed due to the absence of results in medical records, and because the participant patients were not routinely requested to take tests.

Body weight and height were measured in order to calculate body mass index [BMI = weight (kg)/height (m)²], which is analyzed differently for adults¹² and elders.¹³

The data obtained from the history performed during patients' first consultation subsidized the implementation of the nutrition counseling program, as well as the analysis of adherence.

The intervention consisted of individual nutritional monitoring at intervals of 30 to 50 days, defined according to the patients' needs. In 12 months, the average number of visits was 8.8 ± 1.4. In these meetings, patients received verbal and written nutritional counseling, based on a self-care strategy, i.e., seeking to achieve patient autonomy in relation to his health condition. Nutritional recommendations always took patients'

needs into consideration, in order to design a care plan that was compatible with their daily lives. According to the identified needs, an addition eating plan - in accordance with the Institute of Medicine standards¹⁴ could also be provided to patients. All nutritional consultations were carried out by Nutrition professionals and students who were properly trained and supervised by the researchers.

Subjects were reassessed after 6 and 12 months of nutritional counseling: a second history was performed in order to obtain information on patients' evolution and adherence to the nutritional treatment. Throughout this period, subjects were monitored by the nutrition team.

Adherence was measured by comparing patients' self-reported compliance to the nutritional recommendations given during consultations with the anthropometric and eating habits data previously collected. We set up a database in Excel, version 2007, with all the information collected at baseline, and after 6 and 12 months follow-up. In this article, we only analyze the data regarding the 12 months follow-up.

The adherence indicators used in this study were designed based on the comparison between patients' self-reported evolution with DM nutritional treatment recommendations proposed by the American Diabetes Association³ and the Brazilian Society of Diabetes¹⁵, complemented by the Guia Alimentar para a População Brasileira (Food Guide for the Brazilian Population).¹⁶

For the analysis of patients' self-reported evolution, the data collected at baseline were compared with those obtained during the annual reassessment. Thus, we could verify if patients had adopted healthier eating habits, according to recommendations received.^{3,15,16}

Adherence to each nutritional recommendation was compared to the value suggested by the World Health Organization/WHO.⁹ Good adherence was considered to be an adherence rate of 50% or more; low adherence was considered as an adherence rate of less than 50%; and partial adherence was when there was an improvement in eating habits, but the proposed target was not achieved. The overall rate of adherence (recommendations adhered to/ total number of recommendations given) was also analyzed according to the WHO criteria, and classified as good (> 50%) or poor (50%).⁹

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) for Windows (version 17.0: SPSS, Inc. Chicago, IL). Nonparametric Mann Whitney, Wilcoxon, McNemar and Fisher's exact test were carried out according to the number of participants (n <30).¹⁷ The significance level was set at 5%.

This study was approved by the Ethics Research Committees of the Federal University of Minas Gerais and of the Belo Horizonte City Hall.

RESULTS

In this study, 11 destabilized DM patients were monitored for 12 months. Most participants were female, elderly, and had low income and education levels (Table 1).

Table 1 - Sociodemographic profile of patients with diabetes mellitus, who received individual nutritional counseling for 12 months in a Primary Health Care service

Variables	Subjects followed up for 12 months (n=11)
Sex (%)	
Female	91,7
Male	8,3
Age group (years) (%)	
< 40	64,0 (53,9; 68,8)*
40-59	8,3
≥ 60	16,7
Occupation (%)	
Retired	75,0
Homemaker	50,0
Autonomous	33,3
Unemployed	8,3
Per capita Income (R\$)	
Number of persons living in the household	332,0 (209,4; 497,3)*
Years of education	3,0 (1,7; 5,2)*
	4,0 (1,6; 7,5)*

* median, minimum and maximum values.

Nutritional counseling included recommendations for the treatment and control of DM, aiming at the adoption of healthier eating practices. The recommendations to which there was a higher adhesion ($\geq 50\%$) were: eat slowly; avoid excessive consumption of foods high in complex carbohydrates; and avoid "snacking" between meals. In contrast, there was poor adherence (<50%) to the following recommendations: consume preferably raw vegetables; reduce edible oil and fatty foods consumption; and increase consumption of fruits (Table 2).

As for the overall rate of adherence, i.e., all recommendations given, we found that 36.4% of patients showed good adherence and 63.6% poor adherence. There was no statistically significant association among adherence, sociodemographic variables, self-reported morbidity and nutritional status ($p > 0.05$).

The main self-reported barriers to adherence to nutritional treatment for diabetes were: dietary restriction (40%) and the difficulty of changing habits (20%) (Figure 1). Most patients were satisfied with the care provided by the health care professionals in the PHCU (Figure 2).

Table 2 - Characterization of the counseling provided and the adherence to it, according to indicators, among patients with diabetes mellitus, who received individual nutritional counseling for 12 months in a Primary Health Care service

Counseling	Total participants*	Partial adherence		Full adherence	
	N	n	%	n	%
Eat 5-6 meals daily	9	1	11,1	2	22,2
Increase consumption of vegetables	10	2	20,0	4	40,0
Increase consumption of green vegetables	9	3	33,3	3	33,3
Increase consumption of raw vegetables	4	3	75,0	0	0,0
Increase consumption of fruits	10	2	20,0	1	10,0
Do not consume fruits alone	7	0	0,0	4	57,1
Avoid consumption of foods high in sugar	10	5	50,0	5	50,0
Avoid excessive consumption of foods high in complex carbohydrates	8	1	12,5	6	75,0
Decrease consumption of edible oil and fatty foods	11	11	100,0	0	0,0
Avoid consumption of foods high in salt	8	4	50,0	4	50,0
Drink 8-10 glasses of water per day	7	1	14,4	3	42,8
Eat slowly	1	0	0,0	1	100,0
Eat preferably sugar-free foods: 'zero', 'light' or 'diet'	6	0	0,0	3	50,0
Use sweetener to replace sugar	6	3	50,0	3	50,0
Avoid the consumption of food between meals (e.g. snacks)	4	0	0,0	3	66,7
Eat before practicing physical activity	2	0	0,0	1	50,0
Drink preferably natural juices or sugar-free juices	4	2	50,0	2	50,0
Decrease consumption of coffee with sugar	4	1	25,0	2	50,0
Substitute whole milk for skim milk	3	0	0,0	1	33,3

Subjects who did not adhere to counseling were not described here. * Because patients received individualized counseling, not all participants received all recommendations.

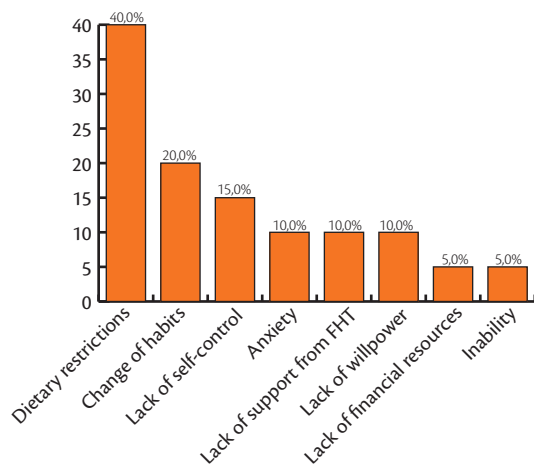


Figure 1 - Self-reported barriers to adherence to nutritional counseling among patients with diabetes mellitus, who received individual nutritional counseling for 12 months in a Primary Health Care service. Note: FHT – Family Health Team.

DISCUSSION

Adherence to nutritional counseling among the individuals assessed was low - about 40% -, which corroborates the results found by other studies^{2,6,8}, despite the use of different instruments to assess adherence. This directly reflects the evolution of eating habits of patients with DM and, consequently affects disease control, which reinforces the need to achieve higher adherence rates.⁹

Changes in lifestyle are a challenge for individuals, especially when it comes to following nutritional guidance and/or a meal plan. DM patients, in particular, have to make daily decisions to manage their condition. These decisions interfere more in their well-being than those taken by health professionals, which may contribute to their non-adherence.²

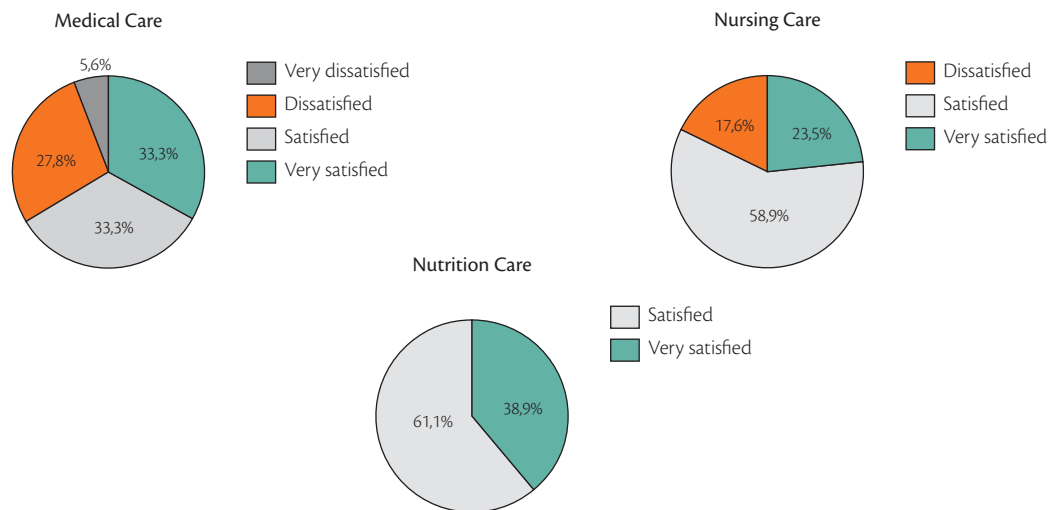


Figure 2 - Satisfaction with health care services among patients with diabetes mellitus who received individual nutritional counseling for 12 months in a Primary Health Care service.

We found that the recommendations to which there was a higher adhesion were related to important actions for the treatment of diabetes, such as: avoid excessive consumption of foods high in complex carbohydrates; avoid consuming fruits alone; avoid excess consumption of foods high in sugar; preferably consume sugar-free foods: 'zero', 'light' or 'diet'; use sweetener to substitute sugar; and decrease the consumption of coffee with sugar. All these habits directly influence the glycemic control of DM patients, and, when adopted, they help prevent complications.^{3,18} Moreover, controlling the amount and type of carbohydrates consumed helps in reducing glycated hemoglobin levels.¹⁹

Despite the health benefits of adequate nutrition, studies reveal a difficulty in the adherence to nutritional counseling among DM individuals.^{2,5,8,10} This is due to several factors, such as socioeconomic^{9,20} and family factors^{21,22}, and the lack of willpower to follow the proposed treatment.⁹ It is noteworthy that, in this study, only 10.0% of respondents identified lack of willpower as a barrier to adherence.

Among the self-reported difficulties in adhering to the nutritional treatment, dietary restriction was the most prevalent. This finding reveals the importance of how nutritional counseling is performed, which may positively or negatively affect adherence. For greater effectiveness of counseling in health, health professionals should take into consideration the patients' work routine, socioeconomic status, prescribed medications, eating habits prior to DM diagnosis, as well as promote effective self-care strategies.²⁰ Although these strategies were adopted, dietary restriction still was a challenge to adherence, probably because individuals with diabetes have to perform numerous actions imposed by the disease throughout their lives.

The other barriers to adherence have also been identified in other studies, such as lack of control, anxiety/nervousness,

lack of willpower⁶, scarcity of financial resources¹⁹ and inability or complications caused by the disease.⁹ In the literature, the lack of support from a health care professional^{7,9} is also cited as an important barrier to adherence. However, in this study we found that participants were highly satisfied with the care provided by the health professionals, which commonly contributes to better treatment adherence.⁸

Besides the barriers reported by individuals as barriers to the adherence to nutritional treatment, there is also the limitation inherent to the assessment process, particularly due to the scarcity of methods specific to the assessment of adherence.

For a higher adherence to nutritional treatment among individuals with DM, we suggest that some recommendations are better addressed in nutritional counseling - such as increase the consumption of raw vegetables and fruits, and reduce the consumption of edible oil and fatty foods -, in order to facilitate glycemic control and prevent complications related to DM. Moreover, the existence of a specific instrument to guide the performance of nutritional counseling (based on recommendations for the treatment of DM), is an important strategy to facilitate the conduction of counseling by health professionals, as well as to promote understanding of the subject by patients.

CONCLUSION

Like other studies, this paper identifies adherence as one of the main challenges to achieve health improvements among patients with diabetes, with low income and in situations and limited treatment resources available. In addition, nutritional counseling plays a very important role in the treatment of DM, because it is an educational strategy to help individual solve their eating problems. Thus, there is a need for further studies

regarding the adherence to nutritional counseling for the treatment of chronic diseases such as diabetes mellitus, in order to expand the understanding of the topic and increase the standardization of its assessment.

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