



Revista da Escola de Enfermagem da USP

ISSN: 0080-6234

reeusp@usp.br

Universidade de São Paulo

Brasil

Caetano da Silva, Laís Mara; Fredemir Palha, Pedro; Rodrigues Barbosa, Guilherme; Protti, Simone
Terezinha; da Silveira Ramos, Aline

Aposentados com diabetes tipo 2 na Saúde da Família em Ribeirão Preto, São Paulo-Brasil

Revista da Escola de Enfermagem da USP, vol. 44, núm. 2, junio, 2010, pp. 462-468

Universidade de São Paulo

São Paulo, Brasil

Available in: <http://www.redalyc.org/articulo.oa?id=361033304031>

- How to cite
- Complete issue
- More information about this article
- Journal's homepage in redalyc.org

redalyc.org

Scientific Information System

Network of Scientific Journals from Latin America, the Caribbean, Spain and Portugal

Non-profit academic project, developed under the open access initiative

Pensioners with type 2 diabetes in the Family Health Program in Ribeirão Preto, São Paulo - Brazil

APOSENTADOS COM DIABETES TIPO 2 NA SAÚDE DA FAMÍLIA EM RIBEIRÃO PRETO, SÃO PAULO - BRASIL

JUBILADOS CON DIABETES TIPO 2 EN LA SALUD DE LA FAMILIA EN RIBEIRÃO PRETO, SÃO PAULO - BRASIL

Laís Mara Caetano da Silva¹, Pedro Fredemir Palha², Guilherme Rodrigues Barbosa³, Simone Terezinha Protti⁴, Aline da Silveira Ramos⁵

ABSTRACT

The objective of the present study was to characterize aged pensioners with type 2 diabetes, users of a primary health care service. Participants were 43 individuals selected according to the inclusion criteria. Data was obtained from primary and secondary sources, and analyzed using the SPSS (Statistical Package for the Social Sciences) software. The average age was 75.3 years. There was little participation in community groups and in physical activities. Seventeen aged individuals used the primary healthcare service. Twelve men were retired and twelve women received pension. The average arterial blood pressure was 130x80 mmHg and the average glucose level was 141 mg/dl. Diet orientations were given mostly by physicians. Further studies are necessary to analyze the cause of the little adherence to the groups and to physical activity. Health teams should have an effective participation in diabetes control and should encourage the family to participate in the care process, as this diseases requires long term management.

KEY WORDS

Aged.
Retirement.
Diabetes mellitus, type 2.
Chronic disease.
Primary health care.
Health Services for the Aged.

RESUMO

O estudo objetivou caracterizar idosos aposentados com Diabetes tipo 2, usuários de um serviço de atenção primária, e contou com 43 sujeitos que atenderam a critérios de inclusão. Os dados foram obtidos em fontes primárias e secundárias, e analisados no programa SPSS 15.0. A média de idade foi 75,3 anos. Houve pouca participação em grupos comunitários e na prática de atividade física. Dezesete idosos utilizam a atenção primária. Doze homens aposentaram-se por tempo de serviço, e 12 mulheres recebem pensão. Níveis pressóricos apresentaram média de 130x80 mmHg e a Glicemia, média de 141 mg/dl. Orientações sobre dieta foram realizadas na sua maioria pelos médicos. São necessários novos estudos para avaliar os motivos que levam a baixa adesão a grupos e prática de atividade física. Sugere-se participação efetiva da equipe no controle do Diabetes e no incentivo à participação da família nos cuidados, visto que essa doença demanda gerenciamento de longo prazo.

DESCRIPTORES

Idoso.
Aposentadoria.
Diabetes mellitus tipo 2.
Doença crônica.
Atenção primária à saúde.
Serviços de Saúde para Idosos.

RESUMEN

El estudio tuvo como objetivo caracterizar ancianos jubilados afectados por diabetes tipo 2, usuarios de un servicio de atención primaria. Contó con 43 sujetos que cumplieron con los criterios de inclusión. Los datos fueron obtenidos en fuentes primarias y secundarias, y analizados en el Programa Estadístico SPSS 15.0. La media de edad fue de 75,3 años. Se verificó escasa participación de los sujetos en grupos comunitarios y en la práctica de actividad física. Diecisiete ancianos utilizan la atención primaria. Doce hombres se jubilaron por tiempo de servicio y 12 mujeres reciben pensión. Los niveles de presión arterial se ubicaron en un promedio de 130 x 80 mmHg y la glucemia media fue de 141 mg/dl. Orientaciones sobre dieta fueron realizadas en su mayoría por los médicos. Se necesita de nuevos estudios para evaluar los motivos que originan la baja adhesión a grupos y a la práctica de actividad física. Se sugiere participación del equipo de salud en el control de la diabetes y en la motivación para la participación de la familia en el cuidado del anciano, entendiéndose que esta enfermedad demanda tratamiento de largo plazo.

DESCRIPTORES

Anciano.
Jubilación.
Diabetes mellitus tipo 2.
Enfermedad crónica.
Atención primaria de salud.
Servicios de Salud para Ancianos.

¹ Undergraduate of the Nursing Teaching-Credential Course at Ribeirão Preto College of Nursing at University of São Paulo. Holder of a PIBIC/USP/CNPq grant. Ribeirão Preto, SP, Brazil. laismara@eerp.usp.br ² Nurse. Professor of the Department of Maternal-Child and Public Health at Ribeirão Preto College of Nursing at University of São Paulo. Ribeirão Preto, SP, Brazil. palha@eerp.usp.br ³ Physiotherapist. Master in Public Health Nursing by Ribeirão Preto College of Nursing at University of São Paulo. Ribeirão Preto, SP, Brazil. gbarbosa@eerp.usp.br ⁴ Nurse. Doctoral graduate of the Public Health Nursing Course at Ribeirão Preto College of Nursing at University of São Paulo. Ribeirão Preto, SP, Brazil. simoneprotti@yahoo.com.br ⁵ Nurse. Master graduate of the Public Health Nursing Course at Ribeirão Preto College of Nursing at University of São Paulo. Ribeirão Preto, SP, Brazil. alline_rs@yahoo.com.br

INTRODUCTION

Population aging is incontestable. People are living longer and this has caused important changes in several sectors in the society, including the health sector. Despite the biological limit of age not having changed, the number of people living close to that limit has increased significantly⁽¹⁾. Therefore, people have been more exposed to chronic-degenerative diseases⁽²⁾.

The referred situation is challenging, as the elderly have specific needs that are often not in harmony with health care services - which are mostly aimed at providing care in acute situations⁽²⁾.

Latina America and the Caribbean stand out for how fast their population has aged. It is estimated that by 2050, the population of Latina America and the Caribbean will be close to that of Europe and Africa, surpassing North America, and thus characterizing the fastest aging process in the world. The elderly population rate, which was 9.2% in 1950, will be 83.7% in 2050⁽³⁾.

There has been a global increase in the number of individuals with chronic diseases. Problems once considered specific to developed countries or to wealthy populations of developing countries, are now recognized as global diseases. In 2001, cardiovascular diseases were the number one cause of death in the world, accounting for 28% of all deaths, with an 80% burden in low- and middle-income countries.

Although the care delivered to chronic conditions should prioritize treatment adherence – performed in the long-term – it is observed that poor adherence is a recurrent problem. A health care service that provides information and constant monitoring could improve adherence to the treatment and orientations, thus providing better quality of life for the users⁽⁴⁾.

From an economic viewpoint, the impact of chronic conditions concerns more than the expenses related with health treatments, making the burdens extremely heavy when those conditions are not well administered. Therefore, the cost affects all those involved: patients and families; health care organizations; health care workers; governments, employers, and the society eventually suffer from the loss of work productivity because of deaths, disabilities and morbidity⁽⁵⁾.

Most chronic diseases are non-infectious, caused by population aging, and result in the loss of physical and mental functions, thus interfering in the functional capacity of individuals and in their performing Activities of Daily Living (ADLs)⁽²⁾. Despite the advancements in the knowledge of diabetes, apparently it remains among the main 20th century public health problems, both globally and in Brazil⁽⁵⁾.

Diabetes consists of a group of metabolic dysfunctions characterized by hyperglycemia due to reduced insulin production, insulin action, or both⁽⁶⁾. There are two types of diabetes (1 and 2), with the latter being the most prevalent. Individuals with Type 2 Diabetes have a history of slow progression of the disease and are often asymptomatic or receive diagnosis only when they present Coronary Insufficiency, Neuropathy, Nephropathy, or other diseases⁽⁶⁾.

In Brazil, Diabetes affects about 8% of the adult population, with a tendency for the disease that increases with age, reaching a prevalence of 17% among individuals older than 60 years⁽⁷⁾. There are estimates that by 2010 approximately 11 million people will have diabetes, which represents an increase of more than 100% in relation to the 5 million people with diabetes in the year 2000⁽⁸⁾.

In Brazil, is it common for chronic disease to appear associated with the process of aging, and most (over 85%) of the elderly have at least one chronic disease, and about 15% live with five chronic diseases, such as hypertension and diabetes⁽⁹⁾.

Type 2 Diabetes is more common among individuals with Systemic Arterial Hypertension, Dyslipidemia and overweight...

Type 2 Diabetes is more common among individuals with Systemic Arterial Hypertension, Dyslipidemia and overweight, as they have a three-fold risk for developing diabetes compared to the population without the referred risk factors. Systemic Arterial Hypertension is the strongest determinant of the occurrence of cardiovascular events in patients with Type 2 Diabetes, and is twice as prevalent among individuals with diabetes, which contributes for the occurrence of micro and macrovascular diseases⁽¹⁰⁾.

Diabetes is the six most frequent cause of hospitalizations in Brazil and contributes significantly (30% to 50%) with other causes, such as Ischemic Heart Disease, Heart Failure, Cholecystopathy, Cerebral Vascular Accident and Systemic Arterial Hypertension⁽¹¹⁾, with hospitalization occurring due to acute problems caused by inadequate management of the disease and problems involving the eyes (blindness), kidneys (renal failure), as well as neurological and vascular problems (lower limb amputations), emphasizing the need for adequately following patients to control their glucose and blood pressure levels thus preventing complications and/or sequelae⁽¹²⁾.

In Ribeirão Preto the prevalence of Diabetes and glucose intolerance is 12% and 7.7%, respectively, among the population with ages ranging from 30 to 69 years⁽¹¹⁾. In regards to hospitalization due to Diabetes, in the period from 1988 to 1997, there was an increase greater to other causes of hospitalization and population growth⁽¹²⁾.

Besides a considerable increase in prevalence and the need for permanent follow up, chronic diseases have caused important impact in every country, and thus pose a challenge for Healthy Systems organization⁽⁵⁾.

With the growing incidence of chronic diseases as diabetes as well as of life expectancy, it is important to create health strategies and actions that aim at providing services that are more in line with the needs of people in this age group⁽³⁾.

The current Brazilian health model - the Family Health Strategy (FHS) – can be used as a means to deal with chronic diseases. Using this care model, health workers are able to address all phases of the health-disease process, hence providing comprehensive health care. Health workers establish partnerships with community and family groups, helping to find solutions and working to minimize the health problems of the population⁽⁸⁾.

OBJECTIVE

The objective of the present study was to characterize the population of aged individuals enrolled at a Family Health Center (FHC) regarding their socioeconomical and clinical variables and their frequency at health services, in addition to analyzing the presence of risk factors for individuals with diabetes – such as smoking, alcohol consumption, sedentary lifestyle and eating habits.

METHOD

The studied municipality has a population of approximately 567,917 and is among the largest municipalities in the state of São Paulo⁽¹³⁾. It is divided into five Health Districts (North, South, East, West and Central), with each district being run and supervised by a specific institution of superior education. The study was performed at the West health district, which comprises five Family Health Centers (FHC), with teams formed by physicians, nursing team (nurse, nursing aides and technicians), community health agent, janitor and administrative personnel. For the present study, one of the referred FHCs was selected.

In compliance with Resolution 196/96, before being conducted the present study was submitted to and approved by the Research Ethics Committee at the Teaching Health Center of Ribeirão Preto College of Medicine, University of São Paulo (Approval Register 0185/CEP/CSE-FMRP-USP).

The study included aged individuals that met the following inclusion criteria: age above 65 years, retired and having type 2 diabetes. The first sample had 45 individuals, but dropped to 43 because one of them died and another did not meet all the inclusion criteria.

Data collection was performed in three steps: *survey of users who were retired and lived in the FHC area, who were older than 65 and had type 2 diabetes; survey of medical history records and collection of the following data* sociodemographic data, how long ago they received their diagnosis for diabetes and clinical data (blood glucose levels, glycosylated hemoglobin, cholesterol – total, LDL and

HDL, arterial blood pressure), presence of complications and how often they used health services by means of the information available on their records and, finally, an *interview* was performed with the users to collect data about their lifestyle.

Hence, the primary sources for data collection were the interviews with the elderly participants, and secondary data were collected using the Primary Health Care Information System (SIAB, abbreviation in Portuguese for *Sistema de Informação da Atenção Básica*), medical records (personal and family) and the HYGIA (a municipal information system that includes, among other information, the frequency with which they used health services).

Data collection was performed using a semi-structured questionnaire, filed in base on interviews with the participants and using information from their records. Besides surveying the FHC records, we used the records of patients who, at the same time, were followed by a secondary reference center, the Teaching Health Center of Ribeirão Preto College of Medicine, University of São Paulo (CSE-FMRP-USP).

The analysis of univariate and bivariate data was performed using the *Statistical Package for the Social Sciences* (SPSS) 15.0. Qualitative variables were analyzed and presented in tables of simple and contingency frequency, whereas for quantitative variables, central tendency averaged (mean and median) and variability (standard deviation) were obtained.

RESULTS

The average age of individuals included in the study was 75.3 years, about 10 years more than the minimum ages established as an inclusion criterion for the study. The sample consisted of 26 (60.5%) men and 17 (39.5%) women. Participants had a low educational level (in average 4 years of study). Twelve (27.9%) participants are from the Ribeirão Preto region, 8 (18.6%) from the state of São Paulo, 3 (7%) from Ribeirão Preto, 9 (21%) from other states, and the records of 11 (25.6%) participants did not contain this information.

Most participants, i.e. 23 (53.5%), were married. Of the 43 elderly participants, only 7 (16.3%) had some kind of remunerated activity in addition to receiving their pension, which included handicraft and trading business. Among the participants, 12 men were retirees and 12 women were pensioners, with a frequency of 27.9% for both gender groups. As for the date of retirement, only 10 (23.3%) participants were able to remember the year they retired.

Ten (23.3%) participants participated in some type of community group, nine (20.9%) of which participated in church groups and 1 (2.3%) in a cooperative group. As for private health care, 11 (25.6%) participants used this service, three (6.97%) of which attended a follow-up program at the FHC as well as at the private service. Among the par-

ticipants who did not have any private service, 17 (39.5%) attend a follow-up program at the FHC, 13 (30.2%) follow up at the CSE-FMRP-USP (secondary service), and 13 (30.2%) did not attend any follow-up program for diabetes management.

As for searching health services, there were no records regarding how often they attended the FHC or regarding hospitalizations. One participant (2.3%) attended the tertiary specialized outpatient clinic, 19 (44.2%) participants attended the secondary specialized outpatient clinic and 27 (62.79%) referred to the Emergency Service throughout the year.

Eleven (25.6%) participants have had type 2 diabetes for over 15 years, 8 (18.6%) of which present some kind of sequelae. As for the type of treatment, 26 (60.5%) participants referred using oral hypoglycemia medication.

The mean glucose level in the group was 141 mg/dl. The average arterial blood pressure value was 130x80 mmHg. The average Body Mass Index (BMI) of the participants was 28.6 kg/m², and their weight ranged between 50.6 and 93.1 kilograms, with an average of 78.1 kilograms. The following table lists arterial blood pressure values found in the study, compared to the recommendation of the 5th Brazilian Guidelines in Arterial Hypertension in 2006⁽¹⁴⁾:

Table 1 - Arterial blood pressure values among the elderly retirees with type 2 diabetes followed by a Family Health Center - Ribeirão Preto - 2007

Classification according to the 5th Brazilian Guidelines in Arterial Hypertension (2006)	Values presented in the study	Frequency
Excellent Arterial Blood Pressure	80x60 mmHg – 120x80 mmHg	11
Normal/Borderline Arterial Blood Pressure	120x90 mmHg – 130x90 mmHg	11
Stage I Hypertension	140x60 mmHg – 150x90 mmHg	10
Stage II Hypertension	160x90 mmHg – 170x100 mmHg	2
Stage III Hypertension	180x100 mmHg – 190x100 mmHg	3
Total		37

Source: Medical records (2007).

Based on the results presented above, it was identified that 11 (25.6%) elderly participants presented arterial blood pressure values referred to as excellent by the Brazilian Guidelines in Arterial Hypertension (2006). Another 11 (25.6%) participants presented values within normal and borderline. Ten (23.3%) participants presented values classified as Stage I Hypertension, 2 (4.7%) presented values referring to Stage II Hypertension, and 3 (6.9%) to Stage III Hypertension. In view of these findings, 15 elderly participants present Systemic Arterial Hypertension between stages I and III. Among the 43 medical records analyzed, 6 (14.1%) did not contain this information.

The average value for glycosylated hemoglobin (HbA1c) was 8.20. The average values for cholesterol levels were as follows: 188.63 mg/dl for total cholesterol; 130.74 mg/dl for LDL cholesterol; and 49.8 mg/dl for HDL cholesterol.

As for the presence of risk factors, 5 (11.63%) interviewees were smokers and have smoked for an average of 56.6 years. Alcohol consumption was reported by 3 (7.0 %) elderly participants and 19 (44.2%) referred they drank socially; the same number of participants reported they did not drink alcoholic beverages. None of the interviewees reported consuming only distilled beverages, most consumed fermented or an association of distilled and fermented beverages.

Among the 18 (41.86%) participants who reported they exercised, 14 (32.6%) did so at least three times a week for at least 36 minutes/day and exercises were of low to moderate intensity. Two (4.7%) participants reported they exercised twice a week and 2 (4.7%) reported they exercised three or less times a week. Only one participant (2.3%) re-

ported following an exercise program coordinated by the Community Integration Program (*Programa de Integração Comunitária* - PIC) of the Municipal Health Department, which offers free oriented and supervised physical activities in the participants' area of residence.

Diet orientations were provided by a physician for 29 (67.4%) participants, 9 (20.9%) reported they were instructed by a physician and nutritionist together, 2 (4.7%) said they received orientations only from a nutritionist and 2 (4.7%) reported the orientations they received were provided by a different professional – nurse or community health agent, and 1 (2.3%) was unable to answer the question. Of the 43 elderly individuals included in the study, 32 (74.42%) reported they followed the diet as recommended, and most also reported they used sweeteners instead of sugar and reduced carbohydrate intake.

Table 2 - Orientations provided by different Health Team professionals - Ribeirão Preto - 2007

Professional	Frequency
Physician	29
Physician and Nutritionist	9
Nutritionist	2
Nurse or Community Health Agent	2

Source: Elderly individuals with diabetes (2007).

Twenty-one (50%) participants had some type of comorbidity, eight (18.6%) of which presented some kind of complication associated with type 2 diabetes. Comorbidities included Systemic Arterial Hypertension, in 15

(34.9%) participants (according to values as per the 5th Brazilian Guidelines in Arterial Hypertension – Systolic Arterial Blood Pressure above 140 mmHg and Diastolic Arterial Blood Pressure above 90 mmHg)⁽¹⁴⁾, and Dyslipidemia in 17 (39.5%). Five (11.6%) participants presented Retinopathy and 4 (9.3%) had Nephropathy, and the association of both complication was present in 2 (4.7%) participants. These two complications can appear alone or together, depending on the stage of the disease and its management.

Table 3 - Comorbidities in elderly retirees with type 2 diabetes followed by a Family Health Center - Ribeirão Preto - 2007

Comorbidity	Frequency
Systemic Arterial Hypertension	15
Dyslipidemia	17
Retinopathy	5
Nephropathy	4
Retinopathy and Nephropathy	2

Source: Medical records (2007).

DISCUSSION

As in a previous study performed in the same city from 2003 to 2005, the present study found similar findings regarding the characterization of the users of a diabetes patient health care service.

In the present study, most users were married and retired. Regarding education, most participants had incomplete primary education⁽¹⁵⁾, and in the present study the average time at school was four years. The low education level of the elderly participants should be looked into due to the influence that education may have on aspects such as their understating and following the recommended treatment, nursing instructions, following the diet plan, performing glucose level control and other follow-up exams that may influence health-disease. The referred factor should be considered in educational activities, and be taken as an essential part of the treatment and service for users with diabetes and of the individual or group clinic, paying close attention to the use of resources and adequate language.

It should be emphasized that aging does not alter the cognitive capacity of the elderly, which is noticed is that, with time, there is a reduction in their physical activity, as well as in their sense of smell and taste, and speaking skills, but with no reduced capacity of understanding. Knowledge can be internalized by means of adjustments that take into consideration individual aspects as well as the social environment in which the elderly individuals live. The health service should consider the need for a user-center approach that promotes autonomy, opportunity and time, providing moments for thinking about their experience as someone with diabetes and encouraging them toward participating of the diagnosis and treatment⁽¹⁶⁾. The referred practices are close to the everyday practice of the Family Health Strategy, which has as one of its most important purposes to

come closer to service users and their context. At this location, health actions can be performed with a view to promoting self-care and minimizing the risks that could result in complications due to diabetes, also working to improve the quality of life of these individuals⁽¹⁵⁾.

These health actions should aim at promoting blood glucose management, preventing complications caused by the chronicity of the disease and promote quality of life at a reasonable cost. The development of educational activities implies training, knowledge, adequate teaching methodologies, communication and listening skills, as well as understanding and negotiation among the professionals that comprise the health team⁽¹⁵⁾. The present study results show there is little participation of other professionals from the health team in educational activities and for actions controlling the disease, using an approach that is mostly centered on the physician figure. As member of the health team, nurses should be prepared to plan, program and develop educational actions for this part of the population, as they have better knowledge and proximity regarding the social surroundings and lives of the users, thus valuing and placing them as proactive agents to improve their own health conditions. In addition, family support should also be considered in health care practice, especially in terms of adequately adjusting to nutritional changes that may take place due to the disease⁽¹⁵⁾.

A study performed with different groups of health service users stressed the importance that providing care to the emotional responses resulting from the onset of the disease has on the effectiveness of the actions developed by the health team. As it is a chronic disease, patients experience a strong shock when they receive the diagnosis, and become unsure about how to live with diabetes. As in the present study, the referred study also identified that the main changes that occurred because of the disease concerned eating and exercise habits, and that walking was the most common exercise modality adopted⁽¹⁷⁾.

Twelve (27.9%) participants were retired, and their having a chronic disease apparently was not a limiting factor for developing their regular activities at work. This condition could, inclusively, be a favorable moment for walking and changing their life style, taking on healthier habits that would result in appropriate disease management.

The poor participation of these elderly individuals in community groups revealed a need for stronger emphasis regarding the benefits that those activities may provide, as a group can act over the biosocial dimensions related to the health-disease binomial and to healthy aging, helping understand and experience this process, breaking with the social representation of the disease as a fatality and establishing a bond around what could consist of a health promotion task⁽¹⁸⁾.

As for attending a follow-up program at private health services and at the FHC together, it was observed that this context appears to be related with the fact that the drug

therapy is free and because they live close to the public health service, suggesting that this fact is circumstantial because of the low purchasing power of this population and difficult accessibility to health services that are distant from their homes.

The average BMI values found in the group of elderly participants in the present study refers to the overweight category as per the World Health Organization in 1998, and thus they require care from multidisciplinary teams regarding their eating habits and lifestyles, in addition to looking into the metabolic alterations that this age group may present. The values of LDL cholesterol levels were above normal rates, with an average 117.9 mg/dl against the recommended 100 mg/dl⁽¹⁹⁾.

It was identified that a considerable portion of the group of elderly individuals seeks emergency services. This fact is concerning because diabetes is a chronic disease that requires continuous and long-term follow up. The search for emergency services appears to be more related with the occurrence of acute events due to inadequate blood glucose management and insulin use. A limiting factor for this analysis consisted of the lack of information about how often users attended health services; a fact that would allow for better analyzing and discussing this aspect. The higher attendance to the secondary specialized outpatient clinic and to the emergency services is likely due to their easy accessibility and proximity to the FHC or due to the lack of service at the center. It should also be emphasized that maintaining Health Information System records is important as they permit the evaluation of different levels of health care (primary, secondary and tertiary) and their repercussion on diabetes control. This makes it possible to make a better plan for health care delivery, also providing better health care solvability.

Most participants exercise without any orientation or supervision, and the most common activity is walking. This fact stands out as, in the area where this health team works, there is a Community Integration Program (Programa de Integração Comunitária - PIC) that offers oriented and supervised physical activities, and only one (2.3%) of the study participants attends the referred program. This fact shows there is a need for further investigations with the purpose to understand why there is such little participation in the proposed activities, and to identify the possible interfering factors.

Individuals with diabetes obtain health benefits from exercising even if they start practicing late in life, as it helps to lose body weight, reduce the risk for developing Cardiovascular Diseases, increase motor function capacity, in addition to providing nutritional benefits and improve their sleep pattern. There are also reports of improvements to blood glucose and glycosylated hemoglobin (HbA1c) levels⁽²⁰⁾. On the other hand, HbA1c is a very important parameter for controlling complications that result from diabetes. A study performed in the United Kingdom showed that their levels are closely related with the development of dia-

betic retinopathy, an event that results in great limitation in performing activities of daily living and causes a considerable reduction in the quality of life of individuals with diabetes⁽²¹⁾. In the present study, it was found that deficient diabetes management is more suggestive for the development of retinopathy, and that time living with diabetes and HbA1c levels are preponderant factors for reducing the risk of developing the disease, especially in patients that are not insulin-dependents. Levels greater than 6.9% for HbA1c and over four years living with diabetes consist of risks for the occurrence of this and other diabetes-associated complication, thus implying the need for providing more attention to the studied population in terms of the referred factors⁽²¹⁾.

FINAL CONSIDERATIONS

The present study evidenced that the population, comprised by individuals with diabetes and retirees, presented a rather old average age; a factor that may have affected the poor adherence to community groups and to exercising, which are essential components of the therapeutic plan. It is concerning that many participants reported they exercise without the orientation or supervision of a health professional.

Exercising helps to reduce general clinical variables, especially blood glucose levels and BMI, besides composing the therapeutic plan and provide greater social living. In addition, another concerning factor is not following an adequate diet, which may make diabetes control and monitoring more difficult.

The new health model for chronic diseases comprises a structure that should include a partnership between patients, relatives, health teams, institutions and the community, thus helping to prevent and limit the worsening of chronic diseases. It is expected that, by performing better diabetes monitoring, primary health care services offer better clinical practice, thus providing better quality of life for his population.

Hence, it is concluded that in addition to looking at the technical aspects of diabetes, such as maintaining blood glucose and HbA1c levels within normal standards and monitoring the complications caused by the disease, health team action should also address the emotional aspects associated with the disease. Health professionals should have a better understanding about the repercussion of a chronic disease for patients and their families in order to create an individual and effective health care plan and minimize the sequelae that may result. In addition to making an individualized health care plan that is focused on the patient's life context, family members should be taken into consideration, as they are a key element for treatment adherence and effective disease management. The only way to performing adequate control and improve the quality of life of individuals with type 2 diabetes is if it is done together and cooperatively (patients, relatives and multidisciplinary team).

REFERENCES

- Laurindo MC, Recco DC, Roberti DB, Rodrigues CDS. Conhecimento das pessoas diabéticas acerca dos cuidados com os pés. *Arq Ciênc Saúde*. 2005;12(2):80-4.
- Farinasso ALC. Perfil dos idosos em uma área de abrangência da Estratégia de Saúde da Família [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2005.
- Protti ST. A saúde do idoso sob a ótica da equipe do Programa de Saúde da Família. [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2003.
- Organização Mundial da Saúde (OMS). Cuidados inovadores para condições crônicas: componentes estruturais de ação. Brasília; 2003.
- Barbosa GR. Atividade física e doença arterial coronariana: revisando a literatura. [dissertação]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2006.
- American Diabetes Association (ADA). Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2008;31 Suppl 1:S55-60.
- Mancini MC, Medeiros MMA. Diabetes mellitus. *Rev Bras Med*. 2003;60(n.esp):41-54.
- Brasil. Ministério da Saúde. Fatores biológicos ou genéticos [texto na Internet]. Brasília; 2006. [citado 2006 nov. 11]. Disponível em: http://portal.saude.gov.br/portal/saude/visualizar_texto.cfm?idtxt=23264
- Brasil. Ministério da Saúde. Redes Estaduais de Atenção à Saúde do Idoso. Guia Operacional e Portarias Relacionadas [texto na Internet]. Brasília; 2002. [citado 2006 nov. 11]. Disponível em: http://portal.saude.gov.br/portal/arquivos/pdf/redes_estaduais_idoso.pdf
- Brasil. Ministério da Saúde. Saúde lança campanha de prevenção à hipertensão e outras doenças crônicas [texto na Internet]. Brasília; 2006. [citado 2006 nov. 11]. Disponível em: http://portal.saude.gov.br/portal/aplicacoes/noticias/noticias_detalhe.cfm?co_seq_noticia=20912.
- Torquato MTCG, Montenegro RM, Viana LAL, Souza RAHG, Lanna JCB, Durin CB, ET al. Prevalência do diabetes mellitus: diminuição da tolerância à glicose e fatores de risco cardiovascular em uma população urbana adulta de Ribeirão Preto. *Diabetes Clin*. 2001; 5(3):183-9.
- Sociedade Brasileira de Diabetes. Consenso Brasileiro Sobre Diabetes. Diagnóstico e classificação do diabetes e tratamento do Diabetes tipo 2 [texto na Internet]. [citado 2009 jan. 29]. Disponível em: www.diabetes.org.br/educacao/docs/consenso_atual_2002.pdf
- Ribeirão Preto. Prefeitura Municipal. Secretaria Municipal da Saúde. Prestação de contas: exercício 2007 – consolidado [texto na Internet]. Ribeirão Preto; 2008. [citado 2009 jan. 29]. Disponível em: www.ribeiraopreto.sp.gov.br
- Sociedade Brasileira de Cardiologia. V Diretrizes Brasileiras de Hipertensão Arterial. Diagnóstico e classificação. São Paulo: SBC; 2006.
- Otero LM, Zanetti ML, Ogrizio MD. Knowledge of diabetic patients about their disease before and after implementing a diabetes education program. *Rev Lat Am Enferm*. 2008; 16(2):231-7.
- Tavares DMS, Rodrigues RAP. Educação conscientizadora do idoso diabético: uma proposta de intervenção do enfermeiro. *Rev Esc Enferm USP*. 2002;36(1):88-96.
- Furler J, Walker C, Blackberry I, Dunning T, Sulaiman N, Dunbar J, et al. The emotional context of self-management in chronic illness: a qualitative study of the role of health professional support in the self-management of type 2 diabetes. *BMC Health Serv Res*. 2008;8:214.
- Lima-Costa MF, Barreto S, Giatti L, Uchoa E. Desigualdade social entre idosos brasileiros: Um estudo baseado na Pesquisa Nacional por Amostra de Domicílios. *Cad Saúde Pública*. 2003;19(3):745-57.
- Zanetti ML. O cuidado com a pessoa diabética no Centro Educativo de Enfermagem para Adultos e Idosos [tese]. Ribeirão Preto: Escola de Enfermagem de Ribeirão Preto, Universidade de São Paulo; 2002.
- Caromano FA, Ide MR, Kerbauy RR. Manutenção na prática de exercícios por idosos. *Rev Depart Psicol UFF*. 2006;18(2):177-92.
- Saum SL, Thomas E, Lewis AM, Croft PR. The effect of diabetic control on the incidence of, and changes in, retinopathy in type 2 non-insulin dependent diabetic patients. *Br J General Pract*. 2002;52(2):214-6.