






OUTCOME INDICATORS OF MULTI-PROFESSIONAL DIABETES CARE IN A REFERENCE SERVICE

Tatiana Rebouças Moreira¹ 
Lucilane Maria Sales da Silva¹ 
Raimundo Augusto Martins Torres¹ 
Maria Rocineide Ferreira da Silva¹ 
Adriana Catarina de Souza Oliveira² 

¹Universidade Estadual do Ceará, Programa de Pós-graduação Cuidados Clínicos em Enfermagem e Saúde. Fortaleza, Ceará, Brasil.

²Universidade Universidad Católica San Antonio. Murcia, Murcia, Espanha.

ABSTRACT

Objective: to identify outcome indicators of the multi-professional Diabetes *Mellitus* care of a reference outpatient service.

Method: a descriptive study of evaluative nature, according to the health evaluation framework, carried out by documentary analysis of 173 medical charts, from August to October 2018. The variables were analyzed in the Statistical Package for the Social Science (SPSS), version 22.0, by descriptive statistics, as well as the association of variables, with the Chi-square, Mann-Whitney, and Wilcoxon tests being used, considering p-values ≤ 0.05 as statistically significant.

Results: predominance of older adult women, with a mean diagnosis time of 11.9 years. The tracking of complications due to Diabetes *Mellitus* occurred in 90.2% of the users, with a prevalence of 68.2%, of which 34.7% were diagnosed in the service. Absenteeism was 21.4%. The systolic and diastolic arterial pressure and total cholesterol parameters were in line with the proposed goals, while glycated hemoglobin (A1c), fasting glycaemia, HDL-c, LDL-c, triglyceride fractions, and BMI did not reach the target range. There was a significant reduction in final A1c, comparing to initial A1c, as well as an increase in the proportions of users who reached the goals in glycemetic control.

Conclusion: a significant improvement in glycemetic control, despite the fact that the parameters did not fully meet the goals, ratifying the importance of an effective assistance model for successful care strategies of Diabetes *Mellitus*.

DESCRIPTORS: Diabetes Mellitus. Health evaluation. Evaluation of outcomes. Health indicators. Patient assistance team.

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INDICADORES DE RESULTADO DA ATENÇÃO MULTIPROFISSIONAL EM DIABETES EM SERVIÇO DE REFERÊNCIA

RESUMO

Objetivo: identificar indicadores de resultado da atenção multiprofissional em Diabetes *Mellitus* de serviço ambulatorial de referência.

Método: estudo descritivo, de caráter avaliativo, segundo referencial de avaliação em saúde, conduzido pela análise documental de 173 prontuários, de agosto a outubro de 2018. As variáveis foram analisadas no *Statistical Package for the Social Science (SPSS)*, versão 22.0, pela estatística descritiva, bem como associação de variáveis, tendo sido utilizados os testes de qui-quadrado, *Mann-Whitney* e *Wilcoxon*, sendo considerados estatisticamente significativos os valores de $p \leq 0,05$.

Resultados: predomínio de mulheres idosas, com tempo médio de diagnóstico de 11,9 anos. O rastreamento de complicações do Diabetes *Mellitus* ocorreu em 90,2% dos usuários, cuja prevalência foi de 68,2%, das quais 34,7% foram diagnosticadas no serviço. O absentismo foi de 21,4%. Os parâmetros de pressão arterial sistólica e diastólica e colesterol total estiveram em conformidade com as metas propostas, ao passo que hemoglobina glicada (A1c), glicemia de jejum, frações HDL-c, LDL-c, triglicerídeos e IMC não atingiram a faixa-alvo. Houve redução significativa da A1c final, em comparação com a A1c inicial, bem como aumento da proporção de usuários que alcançaram as metas de controle glicêmico.

Conclusão: melhora significativa do controle glicêmico, a despeito de os parâmetros não atingirem as metas em totalidade, ratificando a importância de modelo de assistência efetivo para estratégias exitosas de atenção ao Diabetes *Mellitus*.

DESCRITORES: Diabetes Mellitus. Avaliação em saúde. Avaliação de resultados. Indicadores de saúde. Equipe de assistência ao paciente.

INDICADORES DE RESULTADO DE LA ATENCIÓN MULTIPROFESIONAL EN DIABETES EN SERVICIO DE REFERENCIA

RESUMEN

Objetivo: identificar indicadores de resultado de la atención multiprofesional en Diabetes *Mellitus* en servicio ambulatorio de referencia.

Método: estudio descriptivo, de carácter evaluativo, según el referencial de evaluación en materia de salud, llevado a cabo mediante análisis documental de 173 fichas, de agosto a octubre de 2018. Las variables fueron analizadas en el *Statistical Package for the Social Science (SPSS)*, versión 22.0, por medio de estadística descriptiva, y de asociación de variables, habiéndose utilizado las pruebas de Chi cuadrado, *Mann-Whitney* y *Wilcoxon*, en las cuales se consideró como estadísticamente significativos los valores de $p \leq 0,05$.

Resultados: predominio de mujeres ancianas, con tiempo medio de diagnóstico de 11,9 años. El cribado de complicaciones de la Diabetes Mellitus se produjo en el 90,2% de los usuarios, cuya prevalencia fue del 68,2%, de los cuales el 34,7% fueron diagnosticados en el servicio. El absentismo fue del 21,4%. Los parámetros de presión arterial sistólica y diastólica y colesterol total estuvieron de acuerdo con los objetivos propuestos, mientras que la hemoglobina glucosilada (A1c), glucosa en ayunas, HDL-c, fracciones de LDL-c, triglicéridos e IMC no alcanzaron el rango objetivo. Hubo una reducción significativa en la A1c final, en comparación con la A1c inicial, así como un aumento en la proporción de usuarios que lograron los objetivos de control glucémico.

Conclusión: mejora significativa del control glicémico, aunque los parámetros no alcancen las metas en su totalidad, hecho que confirma la importancia de contar con un modelo de atención eficaz para garantizar estrategias exitosas en la atención de la Diabetes Mellitus.

DESCRITORES: Diabetes Mellitus. Evaluación de salud. Evaluación de resultados. Indicadores de salud. Equipo de asistencia al paciente.

INTRODUCTION

Diabetes *Mellitus* (DM) is a 21st century public health problem, becoming a disease with high incidence and prevalence at a global level. In addition to the 425 million adults who are estimated to have diabetes in the world scene, there are 352 million adults with diminished glucose tolerance, which puts them at elevated risk of developing the disease in the future.¹⁻²

Brazil occupies the fourth position on the world ranking, with regard to the number of adults who live with DM, with 12.5 million individuals. Every year, the number of people with the disease increases, resulting in life changes arising from the treatment and/or other complications deriving from the disease.²

In addition, the costs associated with DM include the increase in the use of health services, loss of functional productivity, and disability. As a result, DM imposes an onerous economic burden and generates an impact on the lives of individuals and families, as well as on the health systems, being a significant obstacle to economic sustainable development.³

In 2017, the health expenses related to DM exceeded \$727 billion in the world and \$24 billion in Brazil, corresponding to 12% of the expenses intended for health care, with projections of \$48 billion in 2045.²

In this scenario, Brazil invests progressively in models of DM care which aim to motivate and qualify individuals to assume the control of their own condition. In these approaches, health professionals, among them physicians, nurses, nutritionists, physiotherapists, and psychologists, promote health complementary actions, aiming at the effective control of the disease.⁴

DM therapy is broad, involving changes in lifestyle, adherence to healthy nutrition, regular practice of physical exercise, systematic glycaemia monitoring, ceasing inadequate life habits like smoking and alcoholism, acknowledgment and proper handling of acute complications, such as hypo- and hyper-glycaemia, deserving, for that, support from a multi-professional health team to cover the nuances involved in the treatment.⁵

Despite the measures and efforts towards the control, treatment, and prevention of complications related to the disease, the most of the users with DM does not reach the control goals for this disease proposed by the societies related to it.⁶ This fact supports the need to evaluate care, focusing on the structure, process, and result components, with regard to DM care, generating indicators that enable redirecting health actions.⁷⁻⁸

For the evaluation of the health services, structure is understood as the relatively stable characteristics of the care providers, instruments, and resources that are within range, such as physical and organizational places, and human and financial resources that contribute to care. The process refers to the activities developed by professionals and patients. The results cover the final care product, considering the health indicators, the satisfaction of patterns, and expectations.⁹ Thus, this research sought to identify the result indicators of the multi-professional diabetes care of a reference outpatient service.

The data coming from this study may direct interventions, allowing for the discussion with regard to the role of the service in DM care, aiming at effective health promotion.

METHOD

This is a descriptive study of an evaluative and quantitative nature, with a cross-sectional design, based on a classical framework for health evaluation.⁹ It was carried out in an outpatient service located in a reference University Hospital of Fortaleza, Ceará, Brazil, specifically in the Endocrinology and Diabetes service, specialized assistance unit, which includes the multi-professional DM care service, integrated into the Unified Health System (*Sistema Único de Saúde*, SUS).

The sample consisted of the medical records of 173 users under regular monitoring in the unit. Data collection took place from August to October 2018 and considered the records for the years 2017 and 2018, in which the evaluation checklist was used for the construction of the indicators. Clinical and laboratory variables were considered, and they were confronted with the control goals proposed by the guidelines of the Brazilian Diabetes Society.¹ The tracking and the evolutions to complications related to DM were evaluated, as well as these diagnoses in the service, hospitalizations, and absenteeism, among others. Finally, DM care result indicators were elaborated, based on the mentioned parameters.

The study variables were grouped and the database was analyzed in the *Statistical Package for the Social Science* (SPSS) statistical program, version 22.0, by using descriptive statistics, as well as the association of the variables, in which the Chi-square, *Mann-Whitney*, and *Wilcoxon* tests were used, considering a p-value ≤ 0.05 as statistically significant.

Regarding the ethical aspects, the study followed the precepts of Resolution 466/2012 of the National Health Council, meeting the formal requirements related to research studies involving human beings, approved by the research ethics committees of the related institutions.

RESULTS

Regarding the sociodemographic and clinical characterization (Table 1), 106 (61.3%) were women, mostly of advanced age, with a mean age of 62.4 years old (± 12.15), 118 (68.2%) reported being brown-skinned, 97 (56.1%) were married, 137 (79.72%) were from the capital, and 62 (35.5%) had incomplete elementary school. As for religion, 126 (72.8%) were Catholic. In relation to income, 74 (42.7%) were retired and 97 (56.0%) had a family income between one and two minimum wages.

The patients had a mean DM diagnosis time of 11.9 (± 7.71) years. In addition to DM, the majority, 149 (86.1%) patients, presented Systemic Arterial Hypertension (SAH) and dyslipidemia, 141 (81.5%), as associated comorbidities. In addition, 80 (46.2%) patients were obese, with a mean BMI of 33.7 kg/m². Regarding the complications related to DM, the most prevalent was sensory-motor neuropathy, with 70 (40.5%) affected users.

Table 1 – Sociodemographic and clinical characterization of patients followed-up in the Endocrinology and Diabetes service. Fortaleza, CE, Brazil, 2018. (n=173)

Variables*	n (%)	95% CI†
Gender		
Female	106 (61.3)	53.9 – 68.3
Male	53 (30.5)	30.6 – 44.9
Origin		
Capital	137 (78.7)	72.7 – 84.7
Inland	65 (37.6)	15.3 – 27.3
Skin color		
Brown	118 (68.2)	61.0 – 74.8
White	37 (21.4)	15.8 - 27.9
Black	14 (8.1)	4.7 – 12.9
Asian	3 (1.7)	0.5 – 4.6
Indigenous	1 (0.6)	0.1 – 2.7

Table 1 – Cont.

Variables*	n (%)	95% CI†
Marital status		
Married	97 (56.1)	48.6 – 63.3
Stable union	5 (2.9)	1.1 – 6.2
Single	32 (18.5)	13.3 – 24.8
Separated/Divorced	25 (14.5)	9.8 – 20.3
Widow/Widower	14 (8.1)	4.7 – 12.9
Schooling		
No schooling	16 (9.2)	5.6 – 14.2
Literate	22 (12.7)	8.4 – 18.3
Incomplete ES	62 (35.8)	29.0 – 43.2
Complete ES	27 (15.6)	10.8 – 21.6
Incomplete HS	6 (3.5)	1.5 – 7.0
Complete HS	30 (17.3)	12.3 – 23.5
Incomplete HE	2 (1.2)	0.2 – 3.7
Complete HE	8 (4.6)	2.2 – 8.5
Religion		
Catholic	126 (72.8)	65.9 – 79.0
Evangelical	40 (23.1)	17.3 – 29.8
Others	7 (4.1)	1.8 – 7.8
Family Income (in minimum wages)		
≤ 1	56 (32.4)	25.7 – 29.6
1 ≤ 2	97 (56.0)	48.6 – 63.6
≥ 3	20 (11.6)	7.5 -17.0
Comorbidities		
SAH	149 (86.1)	80.4 – 90.7
Dyslipidemia	141 (81.5)	75.2 – 86.4
Obesity	80 (46.2)	38.9 – 53.7
Liver diseases	13 (7.5)	4.3 – 12.2
Hypothyroidism	13 (7.5)	4.3 – 12.2
DM-related complications	118 (68.2)	61.0 – 74.8
Microvascular		
Sensory-motor neuropathy	70 (40.5)	33.4 – 47.9
Diabetic kidney disease	29 (16.8)	11.8 – 22.9
Diabetic Retinopathy	31 (17.9)	12.8 – 24.1
Macrovascular		
Cardiovascular Disease	32 (18.5)	13.3 – 24.8
Ischemic Cardiopathy	37 (21.4)	15.8 – 27.9
Acute myocardial infarction	17 (9.8)	6.1 – 14.9
Encephalic stroke	12 (6.9)	3.8 – 11.4
Amputations	17 (9.8)	6.1 – 14.9
Diabetic foot	17 (9.8)	6.1 – 14.9
Active Ulcers	9 (5.2)	2.6 – 9.3

*The categories are not mutually exclusive. †CI = Confidence Interval.

When treating complications related to DM, 156 (90.2%) patients were tracked for their presence. In addition to that, out of 118 (68.2%) patients diagnosed with some complication, 60 (34.7%) obtained this result from the screening performed in the service. During the evaluated period, 13 (7.5%) patients presented records of hospitalizations related to DM. These findings are described in Table 2.

Table 2 – Indicators of diabetes care result in users on outpatient follow-up. Fortaleza, CE, Brazil, 2018. (n=173)

Variables*	Yes n (%)	No n (%)	CI† (95%)
Absenteeism	37 (21.4)	136 (78.6)	15.8 – 27.9 72.1 – 84.2
Multi-professional follow-up	170 (98.3)	3 (1.7)	95.4 – 99.5 0.5 – 4.6
Complication tracking	156 (90.2)	17 (9.8)	85.1 – 93.9 6.1 – 14.9
Complications diagnosed in the service	60 (34.7)	113 (65.3)	27.9 – 42.0 58.0 – 72.1
DM-related hospitalizations	13 (7.5)	160 (92.5)	4.3 – 12.2 87.8 – 95.7

*The categories are not mutually exclusive. †CI = Confidence Interval.

Laboratory and metabolic evaluation were performed through the fasting glycaemia, glycated hemoglobin (A1c), Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP), Body Mass Index (BMI), Total Cholesterol (TC), HDL-c and LDL-c fractions, and triglycerides variables, as shown in Table 3.

Table 3 – Laboratory and metabolic evaluation of patients followed-up in the Endocrinology and Diabetes service, Fortaleza, CE, Brazil, 2018. (n=173)

Variables*	Mean	Standard Deviation	Median	Percentile 25	Percentile 75
Fasting glycaemia (mg/dL)	186.7	75.4	174.0	126.0	224.0
Final A1c (%)	8.0	1.55	7.9	4.3	13.2
SBP (mmHg)	126.7	21.6	120.0	110.0	140.0
DBP (mmHg)	75.8	12.4	80.0	70.0	80.0
TC (mg/dL)	169.2	49.3	163.0	135.0	195.0
HDL-c (mg/dL)	43.7	11.3	41.0	36.0	52.0
LDL-c (mg/dL)	75.8	35.3	86.1	45.6	99.6
Triglycerides (mg/dL)	195.3	148.5	173.0	98.5	235.0
BMI (Kg/m ²)	29.9	4.9	29.6	26.6	32.5

*The categories are not mutually exclusive.

The laboratory and metabolic parameters were confronted with the control goals proposed by the Brazilian Diabetes Society guidelines (2018): fasting glycaemia (<100 mg/dl), glycated hemoglobin-A1c (<7% for adults under 60 and <8% for people aged 60 and over), Systolic Blood Pressure-SBP (<130 mmHg), Diastolic Blood Pressure-DBP (<80 mmHg), Body Mass Index-BMI (<25 kg/m²), Total Cholesterol-TC (<190 mg/dl), HDL-c (>60 mg/dl) and LDL-c (<70 mg/dl) fractions, and triglycerides (<150 mg/dl).

The SBD, DBP, TC mean parameters were in accordance with the goals proposed by the SBD, while A1c, fasting glycaemia, HDL-c and LDL-c fractions, triglycerides, and BMI did not reach the proposed target range.

Regarding the glycemic control of the patients followed-up from the records of glyated hemoglobin values, the mean of initial A1c was 8.91% (± 1.87) / (CI: 5.10 – 13.5%), while the mean of final A1c was 8.06% (± 1.55) / (CI: 4.30 – 13.2%), which represents a mean percentage reduction of 0.85%.

The *Wilcoxon* test detected a statistically significant difference in the reduction of final A1c (MN 7.9%), comparing to initial A1c (MN 8.9%), ($p = 0.001$). Moreover, in the bivariate analysis, the *Mann-Whitney* test revealed a significant difference in the final glyated hemoglobin values between the patients who attended the regular follow-up at the service (MN=8.06) and those who had absenteeism records (MN=11.0), in the evaluated period ($p < 0.01$), according to Table 4.

Table 4 – Comparison of the initial and final glyated hemoglobin values in patients followed-up in the Endocrinology and Diabetes service and the relationship with absenteeism. Fortaleza, CE, Brazil, 2018. (n=173)

	Absenteeism*		p [†]	Total
	Yes	No		
N (%)	37 (21.4)	136 (78.6)		173(100)
CI (95%)	15.8 – 27.9	72.1 – 84.2		100
Initial A1c	8.13	8.85	0.441	8.9
Final A1c	11.0	8.06	< 0.01	7.9
p [†]				0.001

*The categories are not mutually exclusive. [†]Wilcoxon test: $p < 0,05$; [‡]Mann-Whitney test: $p < 0.05$.

In the analysis of the proportions of attainment of the A1c goals by age group, the chi-square test revealed statistical significance, both in relation to the proportion of users under 60 who had altered initial A1c and evolved to normal A1c ($p < 0.01$), and in the general proportion of users who had altered initial A1c and evolved to normal A1c ($p < 0.01$), according to Table 5.

Table 5 – Evolution of the initial and final glyated hemoglobin values, according to age group, in patients followed-up in the Endocrinology and Diabetes service. Fortaleza, CE, Brazil, 2018. (n=173)

Age group (years old)*		Final A1c		Total n (%)	p [†]
		Normal	Altered		
< 60	Normal n (%)	7 (11.3)	0(0)	7 (11.3)	p<0.01
	Initial A1c Altered n (%)	26(41.9)	29 (46.8)	55(88.7)	
	Total n (%)	33(53.2)	29 (46.8)	62(100)	
≥ 60	Normal n (%)	35 (31.5)	9 (8.1)	44 (39.6)	0.14
	Initial A1c Altered n (%)	24 (21.6)	43 (38.7)	67 (60.4)	
	Total n (%)	59 (53.2)	52 (48.6)	111 (100)	
Total	Normal n (%)	42(24.3)	9(5.2)	51(29.5)	p<0.01
	Initial A1c Altered n (%)	50 (28.9)	72(41.6)	122(70.5)	
	Total n (%)	92(53.2)	81(46.8)	173 (100)	

*The categories are not mutually exclusive. [†]Chi-squared test: $p < 0.05$

DISCUSSION

Health evaluation is a complex process that contemplates multiple dimensions and organizational realities, involving structural and process issues related to the health services, professionals, and users. The evaluative product will be able to provide answers and solutions to the existing or emerging problems, indicating the effectiveness of the program, as well as providing subsidies for recruiting information that will allow for the improvement of health actions, coverage, and access, among other aspects that can be measured in this field.¹⁰

In this study, there was predominance of older adult women, retired, with low schooling and a family income varying between one and two minimum wages. This user profile was similar to that of a research carried out in an outpatient assistance unit for users with DM in Ceará, Brazil.¹¹ In addition, more participation of women in health services is frequent, and this pattern can be related to the preponderant tendency to self-care, as well as to a greater perception of the health status, which motivates them to a greater search for care.¹²

The identification of the users' profile can help in the conduction of the DM care process, allowing for the development of strategies, such as carrying out tracking and early diagnosing campaigns, to recruit users who, despite the need, do not seek the health services.

As for the clinical aspects, the users of this study presented a mean time of DM diagnosis of 11.9 (± 7.71) years, with SAH and dyslipidemia as the main associated comorbidities. In line with these findings, a survey conducted in Maringá, Paraná, Brazil, which aimed to analyze the behavior and comorbidities associated with the DM microvascular complications, has evidenced SAH and hypercholesterolemia as the most prevalently associated comorbidities, reaching 66.4% and 37.7% of the population, respectively.¹³ These findings reinforce the importance of paying attention to the control of these comorbidities in DM users, seeking to minimize their influence on clinical complications.

With regard to the DM-related complications, this research pointed out that most of the users in follow-up presented some microvascular complication related to DM, with sensory-motor neuropathy being the most prevalent.

A study conducted in an outpatient care center for users with DM, in Fortaleza, Ceará, Brazil, found a frequency of microvascular complications of 50.7%, with retinopathy being the most frequent (61.7%). Regarding the time with the disease, there was a statistical association between time of DM diagnosis over 10 years and the presence of the retinopathy complication.¹¹

A cross-sectional research study, carried out by phone inquiry with 318 diabetic users in Paraná, Brazil, which aimed to estimate the prevalence of diabetes microvascular complications, showed a 53.8% predominance of self-reported complications related to the DM, with the retinopathy being the most frequent one, followed by the sensory-motor neuropathy. Age group and time of diagnosis were variables significantly associated with the presence of complications.¹⁴

As for the result indicators of this survey, there were records of multi-professional monitoring for the vast majority of the assisted users (98.3%). The mean interval between consultations was 4.7 months, with 21.4% of the patients presenting absenteeism records during the evaluated period, which can interfere with the spacing in the intervals between the consultations. Furthermore, there was a significant difference in the glycemic control of the users who underwent regular follow-up at the service and of those who had absenteeism records, which suggests negative implications of absenteeism over DM control.

In this research, processes involving assistance flows from multiple professional categories related to the care of users with DM were evaluated. The multi-professional follow-up, with distinct although interconnected approaches, favors the broadening and the search for integrality of care of the assisted user, seeking to reach dimensions that can positively interfere with quality of life, despite

the disease. As an important point, inter-professional work is highlighted, in which the assignments of each category are distinct, but interactive and complementary, with integrated and collaborative work, focusing on the health needs of the clients, as well as on the provision of individualized care.¹⁵

Regarding the tracking of complications, most of the users (90.2%) had undergone it in the service. Most of the patients presented a complication related to DM, and 34.7% of the users obtained their diagnosis from the tracking performed at the service. During the period evaluated, there was a limited record of hospitalizations related to DM. Both the tracking of complications and their diagnosis in the service were significantly higher in users over 60 years of age.

Thus, the importance of tracking complications is highlighted in the search for a better quality of life for the DM patient. This process, however, does not yet occur in a uniform manner, following the example of a study carried out in primary health care units in Spain, which revealed that the indicators related to the tracking of complications were incipient and did not meet the recommendations proposed by the related guidelines.¹⁶

Also regarding the tracking of complications, a study conducted in Switzerland, which evaluated process and result indicators in 12 months of DM assistance (kidney function, feet evaluation and eye deep test, A1c, lipid profile, and blood pressure), found efficacy in the care routine process, except for the tracking of complications by kidney function, and feet and eye deep exams. The study highlights the importance of systematic reports with process and result indicators, with a view to improving DM care.¹⁷

The patients' absenteeism significantly contributes to the decline of many aspects inherent to health care, including the worsening of clinical outcomes, impairments related to diagnosis and treatment, inadequate follow-up of users, decline in adherence, interruption in continuity of care and in the patient-provider relationship. It also interferes negatively in the organizational sphere, with a decline in the productivity of the professionals, inefficient use of resources, increase in the team's workload and in costs.

A retrospective analysis carried out in the United States, whose objective was to identify potential predictors of patient absenteeism in an endocrinology service, revealed a 30% higher rate in the records of user absenteeism to the consultations, and this indicator was significantly related to worse metabolic control.¹⁸ This relationship corroborates data obtained from the present research, and may negatively influence the assistance processes concerning DM care to the assisted user.

As for the clinical indicators of the results of this study, the mean parameters of SBP, DBP, TC were in line with the goals proposed by the SBD, while A1c, fasting glycaemia, HDL-c, LDL-c fractions, triglycerides, and BMI did not reach the proposed target range.

Therefore, it signals the importance of the glycated hemoglobin (A1c) parameter as a clinical indicator widely used and validated for the evaluation of glycemic control, with the DM users having to take this exam twice to four times a year, depending on the goals achieved with the treatment in force or the alteration and prescription of new therapeutic schemes.¹

Although the mean A1c did not reach the control goals proposed by the SBD, there was a statistically significant improvement in final A1c (MN 7.9%), compared to the A1c (MN 8.9%). In addition to that, in the evaluation of initial A1c, 29.5% of the users presented A1c within the control goals, while in the evaluation of final A1c, 53.2% did so, which also represents a statistically significant difference.

In line with these results, the importance of A1c reduction is highlighted, by means of the United Kingdom Prospective Diabetes Study,¹⁹ whose multicentric study conducted with 5,100 patients with type-2 diabetes evidenced that, regardless of the initial and final glycated hemoglobin values, for every 1% reduction, the risk of microvascular complications is diminished by 37%; the risk of acute heart attack, by 14%; DM-related deaths by 21%; and DM-related amputations by 43%.

In consonance with the findings of this research, a survey conducted in the United Kingdom in order to evaluate the impact of diabetes specialized care in terms of glycemic control, lipid profile, and blood pressure, revealed that specialized care, when compared to the basic clinical practices, did not have a significant difference in the outcomes and improvements of the lipid or pressure profile, despite the better performance in attaining glycemic control, suggesting the benefits of the specialized approach in DM management.²⁰

Also regarding glycemic control, a documentary study carried out with 547 medical records in a hypertension and diabetes care center in Viçosa, Minas Gerais, Brazil, revealed that DM control, evaluated from fasting and post-prandial glycaemia, in the referred field, was inadequate in more than half of the assisted users when compared to the control goals.¹²

A research study conducted in four health centers in Kuwait, aiming at measuring the performance in the care provided to type-2 DM patients by means of a set of DM quality indicators between 2010 and 2012 (evaluation of glycemic control, lipid profile, blood pressure, renal function and smoking), verified an improvement in 2012, both in the frequency of tests taken, and in the clinical results of the evaluated parameters, except for smoking, compared to 2010. The results suggested progress in DM care between 2010 and 2012, pointing out the indicators of DM quality as an auxiliary resource in the performance of the care provided, as well as in the formulation of policies related to the disease.²¹

A European study, which aimed to evaluate the quality of care provided by health teams to diabetic patients, revealed that, concerning the A1c and blood pressure levels, most of the users reached the proposed control goals, with 60% and 76%, respectively. The indicators were deficient with regard to the tracking of diabetes-related complications, with the evaluation of the feet and of the renal function performed in 26% and 20% of the users, respectively, in the year 2016. The study highlighted the importance of effective interventions to improve the care provided to users with DM.²²

In this sense, the relevance is ratified of diabetes specialized multi-professional care, as a facilitator factor for effective assistance that seeks improvement in the health actions offered to this population, aiming at better control of the disease, prevention or delay of related complications, as well as greater quality of life.

CONCLUSION

In this research, the result indicators revealed mean parameters of SBP, DBP, TC, in accordance with the goals proposed by the Brazilian of Diabetes Society, while A1c, fasting glycaemia, HDL-c fractions, LDL-c, triglycerides, and BMI did not reach the proposed target range. Although the mean A1c value did not reach the objectives, there was a significant reduction in final A1c compared to initial A1c, as well as an increase in the proportion of users who reached the glycemic goals at the end of the period evaluated.

In addition, multi-professional follow-up was offered to most of the users. Absenteeism was a factor related to the decline in DM control. These findings suggest the benefit of continued multi-professional care for better diabetes control, fostering the reflection on the significance of effective care models that seek effective care strategies.

As a methodological limitation, the use of the technique of documentary analysis of medical records is signaled, which, due to the dependence of the records on the documents, it can generate restrictions by deficiency of information, by incomplete filling out, as well as by unreadability of writing. There was no collection of information directly with the subjects involved, which made it difficult to complete the systematization and evaluation of care. In this sense, continuity of the research is suggested, with the use of more robust methodological designs that can meet the expectations of the research initiated.

The fruits of this research are potential and can subsidize advances and adjustments in favor of quality of care in DM. There is no intention to overlap other research studies previously conducted but to complement the findings and provide follow-up to the initial surveys, aiming at the expectations proposed.

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NOTES

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CONTRIBUTION OF AUTHORITY

Study desing: Moreira TR, Silva LMS.

Data collect: Moreira TR, Silva LMS.

Data analysis and interpretation: Moreira TR, Silva LMS.

Discussion of the results: Moreira TR, Silva LMS, Torres, RAM, Silva MRF, Oliveira ACS.

Writing and/or critical review of content: Moreira TR, Silva LMS, Torres, RAM, Silva MRF, Oliveira ACS.

Review and final approval of the final version: Moreira TR, Silva LMS, Torres RAM, Silva MRF, Oliveira ACS.

APPROVAL OF ETHICS COMMITTEE IN RESEARCH

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CONFLICT OF INTERESTS

There is no conflict of interests.

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CORRESPONDING AUTHOR

Tatiana Rebouças Moreira
tatirmoreira@hotmail.com