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## CHARACTERISTICS OF ASSISTANCE TO PATIENTS WITH TYPE 2 DIABETES MELLITUS SERVED IN FAMILY HEALTH STRATEGIES IN DIAMANTINA, MINAS GERAIS, BRAZIL

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### ABSTRACT

Diabetes mellitus is a chronic non-communicable disease that has been growing and gaining concern in recent decades. The objective was to describe the conditions for monitoring users with type 2 diabetes *mellitus* in ten Family Health Strategies (FHS), in the city of Diamantina, Minas Gerais, Brazil. It was a descriptive cross-sectional study carried out with 611 patients with type 2 diabetes *mellitus*, with secondary data from medical records, which were collected through a semi-structured questionnaire containing socioeconomic variables and monitoring of the disease. The results indicated that most were 60 years of age or older and were female. We found that 5.4% patients were smokers, 6.8% were alcoholics, having an association with adults and 10.2% practiced some type of physical activity, 88.74% had 5 years or more of treatment in the FHS and 70.31% of patients had 5 years or more of diabetes diagnosis. Regarding consultations for monitoring the disease, 58.24% had two or more consultations in Primary Care and 5.06% had a record of risk stratification, in addition to low adherence to the reference and counter-reference system. As for antidiabetic drugs, most used oral drugs and the most common comorbidity associated with diabetes was arterial hypertension. We concluded that the attention to male patients needs to be expanded, as the attention to people with diabetes in Primary Care needs to be more qualified for the secondary and tertiary prevention of the disease.

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## INTRODUCTION

Chronic non-communicable diseases (NCDs) are major global problems, as they have been growing in recent decades due to the epidemiological transition and the new life habits of the world population (WHO, 2021). Among them, one of the major concerns of health systems is diabetes *mellitus*, a metabolic disorder characterized by hyperglycemia caused by a defect in the production of insulin or in its action (IDF, 2017). It is one of the biggest public health problems in Brazil, as it is responsible for large financial investments, both for the health system and for the patient (Stopa et al., 2014). According to the International Diabetes Federation (IDF, 2017), 425 million

people in the world live with the disease and it is estimated that this number will have grown to 629 million by 2045. In 2017, Brazil was in the 4<sup>th</sup> position among the countries with the largest number of individuals with diabetes, with 12.5 million people and in 2045 this number will represent 20.3 million (SBD, 2019). Type 2 diabetes is the most prevalent, according to the Brazilian Diabetes Society (SBD, 2019), which is equivalent to 90 to 95% of diabetes cases. Usually, type 2 diabetes is asymptomatic and has a multifactorial etiology, affecting adults and the elderly more. However, due to the environmental factors that contribute to its growth, such as a sedentary lifestyle, poor diet and obesity, it has also reached the adolescent public. Such factors, if changed, can contribute to the control of the disease.

By diagnosing type 2 diabetes early, one can prevent it from reaching its chronic complications, such as cardiovascular disease. Therefore, there is the importance of prevention that is given in Primary Health Care (PHC), which is considered the gateway to Brazil's National Health System (SUS) (Telesaúde, 2020). Health promotion practices and educational activities are also of great relevance, as they have an impact on good disease control (Stopa *et al.*, 2014; Moraes *et al.*, 2009). The principles of the Primary Care Network for a patient with NCD are: to offer a welcoming service that is humanized in all points of action, to respect their sociodemographic diversity, to give autonomy over their treatment with self-care strategies, always based on their health needs, to provide access to health services and resources for adequate diagnosis and therapy (MS, 2014). Heimann *et al.* (2011) say that, a PHC that promotes several integrated health actions has an impact on health status indicators and positive results in relation to the decrease in drug treatment. Such actions must be directed to invest in multidisciplinary and interdisciplinary teams and networks with the establishment of reference and counter-reference. Actions for health promotion and prevention in PHC may have difficulties such as lack of financial resources, lack of motivation for professionals, and the change of administrative managers. This leads to obstacles in the development of integrated policies, having to rethink the relationship between PHC and other sectors involved in public and social policies. An extremely valuable action in primary health care is the adequate filling of patient registration sources, which when done correctly allows the monitoring of care and control of risk factors for the disease (Cortez *et al.*, 2015). Instruments that should also be present for the proper functioning of the patients' treatment with diabetes are those recommended by the Ministry of Health manuals and protocols, as one of the current barriers in the assistance developed by the managers of the Family Health Strategies (FHS) is the nondevelopment of clinical practices according to such protocols (Salci; Meireles and Silva, 2017). Considering the importance of the assistance provided to these patients and the need to improve care for them, this study aimed to describe the characteristics of health care for users with type 2 diabetes mellitus treated in Primary Care in Diamantina, Minas Gerais, Brazil.

were excluded because they did not contain the information of what type of diabetes they had, leaving 613 individuals with type 2 diabetes, where 2 had no birth date record, ending a sample of 611 patients. The period delimited for considering the information in the medical records was from August 2015 to August 2016, and the beginning of the collection was from August to December 2016. It was considered to have assessed nutritional status, the situation of registering weight and height with or without calculating the Body Mass Index (BMI); and for classification of nutritional status, according to the BMI, the criteria of the World Health Organization (OMS, 2000) and the Pan American Health Organization (OPAS, 2018) were used for adult and elderly individuals respectively. Descriptive analysis of the population was carried out with absolute, relative and percentage values using the *Statistical Package for the Social Sciences (SPSS)* software - version 19.0 for *Windows*. Patients were organized into two groups according to age, categorizing them into adults (less than 60 years old) and elderly (60 years old or more). The age group was adopted as dependent and the social economic and health care variables were independent variables. For this analysis, the Chi-square test was used, with the Chance Ratio and its respective confidence interval at the level of 5% or  $p < 0.05$  being calculated. The study was conducted in accordance with the rules of Resolution No. 466/2012. The research was submitted to the Research Ethics Committee of the Federal University of Vales do Jequitinhonha e Mucuri and is registered and approved under opinion number 1,623,263.

## RESULTS

Regarding the assistance process and time of diagnosis, it was found that 70.5% (431) of the patients had a type 2 DM diagnosis time equal to or greater than 5 years and 29.5% (180) with a shorter than 5 years diagnosis time. We found that 88.5% (541) had treatment time in the FHS for 5 years or more and 11.5% (70) for less than 5 years. For 58.3% (356) of the records, patients had more than 2 consultations in the last year to monitor the disease, 27.5% (168) did not have any

**Table 1. Demographic and cultural characteristics of patients with type 2 diabetes mellitus in Family Health Strategies in Diamantina, MG, 2016**

Features	Elderly		Adult		OR	95% CI	p
	N	%	N	%			
Sex							
Feminine	267	43,7	162	26,5	0,791	(0,548 - 1,141)	0,209
Male	123	20,1	59	9,7			
Marital Status							
Married/Stable Union	206	43,3	116	24,4	0,938	(0,623 - 1,394)	0,731
Single/Divorced/Widowed	101	21,2	53	11,1			
Education							
Illiterate to Elementary School	81	52,3	37	23,9	2,57	(1,21 - 5,47)	0,012
High School to Higher Education	17	10,9	20	12,9			

OR = odds ratio. 95% CI = 95% confidence interval. p = Chi-square test.

## METHODS

This is a cross-sectional study, with analysis of secondary data derived from medical records of patients with type 2 diabetes mellitus, seen in ten units of the Family Health Strategy (FHS), in the urban area of the city of Diamantina, Minas Gerais, Brazil. According to data from the Primary Care Information System (SIAB, 2011), accessed in July 2015, the population with diabetes registered in family health units in the city of Diamantina is made of 1113 individuals. Scheduled visits were made at the FHS units to read medical records and collect data. A semi-structured questionnaire was used to obtain socioeconomic information, such as city of residence, sex, age, education, marital status, lifestyle habits such as smoking, drinking, nutritional status, family income; and variables related to the monitoring of the disease, such as the number of consultations carried out at the BHU, beginning of the monitoring of the disease, use of medications, tests performed and their frequency. Inclusion criteria were to be registered in some FHS in the city and to have a medical diagnosis of type 2 diabetes. 689 patients filled out, but 76

consultations or there was no record of the number of consultations, and 14.2% (87) had 1 consultation in the last year. Another finding was that 12.3% (75) had systematic guidance for foot care. For social and demographic characteristics, there was a predominance of elderly patients (63.8%) to the detriment of young and middle-aged adults, married patients or in a common-law marriage (52.7%) and with lower education (76.1%). Considering the characteristics of sex and marital status by age group, there was no association with these categories. However, regarding education, there was an association of lower education with older patients (Table 1). It is noteworthy that, in 2 medical records, there was no recording of the patient's date of birth, in 137 records (22.3%) there was no mention of marital status, and in 458 records (74.7%) the schooling of the patient was not recorded. Regarding life habits, it was found that 61% of patients with diabetes had information in their medical records about current smoking and 34.04% about previous smoking. Regarding alcoholism, 59.4% had information in the medical records and 42.6% had information about physical activity. With regard to these characteristics of life habits, only alcoholism was found to be

associated with younger people, according to the medical records (Table 2). Table 3 presents the information on registration of anthropometric and BMI data, as well as stratifications of risk according to metabolic control proposed by the Ministry of Health, in the Primary Care (Brasil, 2013). Only 30% of the records had information about weight and height. Regarding the classification of BMI, it was found to be higher prevalence of overweight among adults and it was noticed that only 5.1% (31) contained the risk stratification and of these 74.2% (23) contained the rating value.

Regarding the modalities of drug therapies, information was verified for 96.7% of the medical records. It was also found that 96.2% had information on drug therapy for comorbidity and that 94.4% had records of having received guidance on medications. In relation to age groups, there was an association with the elderly and the use of insulin therapy and medications for other comorbidities. Regarding the laboratory tests performed and recorded in the medical records, it was observed that the most used was fasting glycemia with 39.3% (240) of records, followed by glycated hemoglobin with 32.1% (196),

**Table 2. Life habits of patients with type 2 diabetes mellitus treated in the Family Health Strategies of Diamantina, MG, 2016**

Habits	Elderly		Adult		OR	95% CI	p
	N	%	N	%			
Current Smoking							
Yes	20	5,4	13	3,48	0,850	0,409 - 1,769	0,664
No	219	58,7	121	32,4			
Previous Smoking							
Yes	17	8,17	5	2,4	2,196	0,777 - 6,212	0,130
No	113	54,3	73	35,1			
Alcoholism							
Yes	17	4,7	21	5,8	0,409	0,207 - 0,806	0,008
No	216	59,5	109	30,0			
Physical Activity (PA)							
No	118	45,4	80	30,8	0,755	0,416 - 1,373	0,357
Yes	41	15,8	21	8,0			
Oriented Physical Activity							
No	136	53,3	92	36,1	0,739	(0,318 - 1,71)	0,481
Yes	18	7,05	9	3,5			

OR = odds ratio. 95% CI = 95% confidence interval. p = Chi-square test.

**Table 3. Nutritional status and risk stratification according to metabolic control of patients with type 2 diabetes mellitus followed up in the Family Health Strategies of Diamantina, MG, 2016**

Parameters evaluated	Elderly		Adult		OR	95% CI	p
	N	%	N	%			
Weight/Height Record							
No	275	45,0	153	25,0	1,063	(0,742 - 1,52)	0,740
Yes	115	18,8	68	11,1			
Body Mass Index							
Overweight/Obesity	49	31,8	57	37,0	0,256	(0,11 - 0,55)	0,000
Eutrophy	37	24,0	11	7,14			
Risk stratification*							
No	370	60,5	210	34,4	0,969	(0,455 - 2,06)	0,935
Yes	20	3,3	11	1,8			
Value Rating*							
High Risk/Moderate	11	47,8	8	34,8	0,458	(0,04 - 5,25)	0,524
Low Risk	3	13,0	1	4,34			

\*Risk stratification according to Primary Care Book No. 36, Ministry of Health.

OR = odds ratio. 95% CI = 95% confidence interval. p = Chi-square test.

**Table 4. Characteristics regarding the drug treatment of patients with type 2 diabetes mellitus treated in the Family Health Strategies of Diamantina, MG, 2016**

Treatment	Elderly		Adult		OR	95% CI	P
	N	%	N	%			
Insulin therapy							
No	278	45,6	176	28,9	0,640	(0,43 - 0,95)	0,030
Yes	110	18,0	45	7,4			
Oral antidiabetics							
No	34	5,7	16	2,7	1,242	(0,66 - 2,30)	0,493
Yes	344	57,8	201	33,8			
Drug Therapy for DM							
Monotherapy	161	27,2	89	15,0	1,550	(0,50 - 4,75)	0,440
Polytherapy	207	35,0	121	20,5			
None	7	1,18	6	1,0			
Other Medicines							
Yes	364	61,9	183	31,1	3,836	(1,96 - 7,49)	0,000
No	14	2,4	27	4,6			
Drug Orientation							
No	28	4,9	19	3,3	0,812	(0,44 - 1,50)	0,514
Yes	341	59,0	189	32,7			

OR = odds ratio. CI95% = 95% confidence interval. p = Chi-square test.

OR = odds ratio. 95% CI = 95% confidence interval. p = Chi-square test.

Table 4 shows information on the characteristics of drug treatment for patients with diabetes. In both age groups, there was a predominance of oral antidiabetics (91.6%) in relation to insulin therapy (25.4%).

capillary blood glucose with 3.3% (20) and postprandial blood glucose with 3.3% (20) (Table 5). There was no association between conducting and recording laboratory control tests with any age group.

**Table 5. Related laboratory tests in patients with type 2 diabetes mellitus performed in the last year in the Family Health Strategies of Diamantina, MG, 2016**

	Elderly		Adult		OR	95% CI	P
	N	%	N	%			
Exam records							
Glycated hemoglobin							
No	271	44,4	144	23,6	1,218	(0,85 – 1,72)	0,271
Yes	119	19,4	77	12,6			
Fasting blood glucose							
No	245	40,0	126	20,6	1,274	(0,91 – 1,78)	0,158
Yes	145	23,7	95	15,5			
Capillary blood glucose							
No	378	61,8	213	34,8	1,183	(0,47 – 2,94)	0,717
Yes	12	1,96	8	1,3			
Postprandial Glucose							
No	380	62,2	211	34,5	1,801	(0,73 – 4,39)	0,191
Yes	10	1,63	10	1,63			

OR = odds ratio. 95% CI = 95% confidence interval. p = Chi-square test.

**Table 6. Reference and counter-reference record carried out in the last year for patients with type 2 diabetes mellitus treated in the Family Health Strategies of Diamantina, MG, 2016.**

Referral within the Health Care Network	Elderly		Adult		OR	95% CI	P
	N	%	N	%			
Reference Registration							
No	182	29,8	100	16,4	1,05	(0,76 – 1,47)	0,736
Yes	208	34,0	121	19,8			
Referenced professionals							
Nutritionist (yes)	94	62,3	57	37,7	0,92	(0,57 – 1,50)	0,763
Ophthalmologist (yes)	62	59,0	43	41,0	0,76	(0,46 – 1,25)	0,284
Endocrinologist (yes)	17	48,6	18	51,4	0,50	(0,24 – 1,03)	0,058
Cardiologist (yes)	53	79,1	14	20,9	2,72	(1,42 – 5,19)	0,002
Referrals to Teams							
Multiprofessional team	31	10,8	15	5,2	1,25	(0,64 – 2,44)	0,507
Miscellaneous Professionals	150	52,3	91	31,7			
Services and Groups							
HYPERDIA	7	2,4	2	0,7	2,09	(0,42 – 10,2)	0,353
Miscellaneous Professionals	174	60,6	104	36,2			
Nnon-medical professionals							
Non-Doctors	104	36,2	65	22,6	0,85	(0,52 – 1,39)	0,521
Only Doctors	77	26,8	41	14,3			
Counter reference							
No	288	47,1	166	27,2	0,93	(0,64 – 1,36)	0,731
Yes	102	16,7	55	9,0			
Origin Counter-reference							
CISAJE	67	44,6	40	26,7			0,704
UFVJM	18	12,0	11	7,3			
Private Clinics	3	2,0	2	1,3			
NASF	2	1,3	0	0,0			
CISAJE/Hospitals	2	1,3	0	0,0			
CISAJE/UFVJM	4	2,6	1	0,6			

OR = odds ratio. 95%CI = 95% confidence interval. p = Chi-square test.

According to Table 6, which shows about the reference and counter-reference record of the medical records analyzed, 53.9% (329) had a reference record and 25.7% (157) of counter-reference, being more prevalent in the elderly. The professional to whom there was more reference was the nutritionist, noting that there was a relationship between reference to the cardiologist and the elderly. It should be noted that references and services were aimed more at individualized professionals to those who could be collectively monitored, with 84% (241) and 96.9% (278) respectively. As for chronic comorbidities associated with DM, in Table 7, we see that hypertension had a higher percentage of registered questionnaires, with 83.5% (510) of patients, in relation to other chronic complications of diabetes. Most variables are associated with the elderly. The neuro-sensitivity test was little applied, only to 16.4% (100).

## DISCUSSION

In the present study, the data point to a predominance of the elderly, as was also observed in the study by Winkelmann and Fontela<sup>[14]</sup> which contained 44.3% of individuals over 60 years old, as they are considered one of the age groups most predisposed to having type 2 diabetes due to the metabolic changes that occur, lifestyle habits that

become unhealthy and the fact of age being a striking feature among chronic diseases (Schmidt et al., 2014). There was also a predominance of the female audience, as observed in the study by Rodrigues et al. (2011) with 67.1% of the sample composed of women, a fact that can be explained by the event of women seeking more medical assistance and existing more health programs with them as a target audience. Then, the importance of attention to male patients is emphasized, which needs to be expanded, and thus cover the entire population with DM. As for education, most of the sample did not contain such information, which made it impossible to compare whether there is a relationship between this variable and the good follow-up of diabetes treatment, according to Cortez et al. (2015), because the patient with diabetes and low education needs more attention to facilitate understanding about care for the disease. According to Iser et al. (2015), who studied the prevalence of self-reported diabetes in Brazil, DM is usually more prevalent among people with less education. In the present study, the low level of education associated with the elderly, which is expected, since each generation the level of education in the population increases, so that young adults have a higher level of education in relation to the elderly. It is known that it is not enough for the person with DM to have a good education to have a good treatment. The patients must be well instructed by the health professionals who surround them about

**Table 7. Register of comorbidities associated with Diabetes Mellitus and application of a neurosensitivity test in patients with type 2 diabetes mellitus, treated in the Family Health Strategies of Diamantina, MG, 2016**

Complications	Elderly		Adult		OR	95% CI	P
	N	%	N	%			
Acute Myocardial Infarction							
Yes	9	1,5	5	0,8	1,020	(0,33 – 3,08)	0,971
No	381	62,3	216	35,4			
Brain Stroke							
Yes	40	6,5	10	1,6	2,411	(1,18 – 4,92)	0,013
No	350	57,3	211	34,5			
Diabetic Foot					1,439	(0,62 – 3,32)	0,392
Yes	20	3,2	8	1,3			
No	370	60,6	213	34,9			
Amputations							
Yes	4	0,6	2	0,3	1,135	(0,20 – 6,24)	0,884
No	386	63,2	219	35,8			
Kidney Disease							
Yes	33	5,4	13	2,1	1,479	(0,76 – 2,87)	0,246
No	357	58,4	208	34,0			
Neuropathies							
Yes	10	1,6	1	0,16	5,789	(0,73 – 45,5)	0,059
No	380	62,2	220	36,0			
Arterial Hipertension							
Yes	348	57,0	162	26,5	3,018	(1,94 – 4,67)	0,000
No	42	6,9	59	9,7			
Heart Disease							
Yes	70	11,4	18	2,9	2,467	(1,42 – 4,26)	0,001
No	320	52,4	203	33,2			
Foot Neuro Sensitivity Test							
Yes	75	12,3	25	4,1	1,867	(1,14 – 3,03)	0,011
No	315	51,5	196	32,1			

OR = odds ratio. 95%CI = 95% confidence interval. p = Chi-square test.

the disease and its peculiarities, seeking to resolve their doubts and thus making the treatment more efficient (Costa et al., 2011). When assessing lifestyle habits, most medical records did not contain such information. Those that contained, for the most part, were not smokers. Alcoholism was associated with adult patients, who did not practice physical activity, and can be considered sedentary, being sedentarism one of the factors that contributes to the increase in the prevalence of diabetes, which was also found in the study by Bercke et al. (2017), where the authors sought to assess the nutritional status of patients with diabetes treated in Primary Care in Alfenas, MG, Brazil. The study by Bernardes et al. (2009) points out that changes in lifestyle, as well as a balanced diet and the practice of regular physical exercises have shown excellent results both in the prevention and in the treatment for type 2 DM. Assessment of nutritional status is an important tool for monitoring patients with diabetes, as it can help determine the best therapeutic approach to be implemented (Bercke et al., 2017). A lower proportion of medical records was found that contained weight and height information. After calculating and classifying the BMI, there was a predominance of overweight in adults over the elderly, possibly due to the less healthy lifestyle habits of the younger population, as Fernandes et al. (2016) observe. On the other hand, the result was different from that of Martins and Marinho (2003), who found a relationship between overweight and the elderly, associating the event due to metabolic changes that occur in this age group.

Regarding the characteristics for monitoring diabetes, according to Cortez et al. (2015), the duration of illness and treatment are associated with the appearance of chronic complications. The results of this study reveal that 70.5% of the patients had five years or more of illness and 88.5% 5 years or more of treatment in the FHS, which is justified when looking at the records of comorbidities and complications associated with the disease in the Table 7. Regarding the number of consultations carried out, it was not possible to compare with what is recommended by the health protocols and manuals, since to analyze whether the number of consultations was sufficient to monitor the disease, the Ministry of Health in its Primary (Brasil, 2013) says that it is necessary to first perform the patient's risk stratification. In the present study, 94.9% of the patients did not have such stratification. The same happened with the tests that should be carried out, such as glycated hemoglobin and fasting glycemia,

which are necessary to check if the control of the disease is actually taking place. In addition, according to the Brazilian Diabetes Society (SBD, 2019), the number of consultations must be in accordance with the results of the tests related to the disease, especially that of glycated hemoglobin. We realized from our results that few analyzes were performed or recorded, even fasting blood glucose, which was the most performed test, but still with low adherence to records. What should also be emphasized is that in the capillary blood glucose test, which can be performed daily and would be a great way to monitor the glycemic level of the patient with diabetes, there was also a low frequency of records (3.3%). According to Salci; Meirelles and Silva (2017), the consultations of patients with diabetes are mostly for changing prescriptions, which required a short time for the health professional and, therefore, physical examinations such as anthropometric assessment or analysis of the sensitivity of the feet were not performed. The authors also argued that health professionals knew and owned Ministry of Health manuals and protocols for chronic diseases such as diabetes, but that they often did not follow them. Such protocols bring actions that must be performed, such as BMI, a clinical examination of the feet that has a good cost-effect ratio (Tavares et al., 2014), and that in our study only 12.3% had systematic guidance for foot care and 16.4% of the patients had registered a sensitivity test. Facts also found by Silva et al., (2011), where such educational actions have not been carried out in full. The treatment of patients with type 2 DM does not involve only drug therapy, knowing that if adequate nutrition, physical activity and healthy lifestyle habits are maintained, the use of oral antidiabetics or insulin may be postponed (Brasil, 2013). The present study found a predominance of oral antidiabetic use (91.6%) and 25.4% used insulin. This was also verified in a study carried out at Hospital das Clínicas in São Paulo, by Nascimento et al. (2014), where they faced the practice of polypharmacy, which according to them, acts as another stressor. A large part of the sample (94.4%) contained records of guidelines for the use of medications. Similar results were observed by Rodrigues et al. (2011) who studied the prevalence of risk factors and complications of type 2 DM in users of a family health unit. With regard to the Polytherapy observed in most of the elderly, it is argued that advancing age imposes more risks of the emergence of other diseases, thus being a risk factor itself for the illness of the elderly.

Diabetes patients should receive assistance at all levels, which characterizes comprehensive care, one of the principles of SUS, and this is achieved through the possibility of making references and counter-referrals through the health care network (Dias et al., 2012). According to Dias et al., (2012), reference and counter-reference systems work by having a hierarchy. When the primary care professional realizes that primary care alone will not be enough for the patient, then reference is made, a way to take him to other levels of service with greater complexity. For the Ministry of Health, reference and counter-reference are part of an effective system and function as key elements for reorganizing the FHS's work practices (Brasil, 1997). Serra and Rodrigues (2010) consider that for the proper functioning of the reference and counter-reference system, it is necessary to consider aspects such as regulation of services; clinical management processes; conditions of access to services; human resources; information systems and logistical support. Following the Protocol for referring primary care to specialized care (Brasil, 2016), for reference, professionals working in primary care must answer key questions such as, whether the patient has a clinical indication to be referred to the specialized service and which patients have clinical conditions or reasons for reference that should have priority to access. Therefore, partnerships are needed with the points of care involved, establishing which patients need to be evaluated by the specialized service, that is, all clinical resources in primary care have been exhausted and those that can continue to be served in primary care.

In their study in Rio de Janeiro, Serra and Rodrigues (2010) found results similar to ours, where reference is made, but a small amount of counter-reference, which becomes a problem for referring patients to a secondary level of care. In addition, the authors report a higher percentage of references to cardiology, as observed in the medical records studied, in which the elderly were more referred to a cardiologist than adults. For the person with diabetes, nutritional monitoring is also relevant, as it guides dietary treatment and food and nutrition education, which can improve their quality of life (Vignoli and Mezzomo, 2015). It was found in the results, that only a small portion of the sample, 24.7% (n = 151), was sent to the nutritionist. Barbosa et al. (2015) found in a research that 42.8% of people with diabetes had nutritional monitoring, which was an unsatisfactory data for the author, since an adequate diet can delay the onset of chronic complications of the disease. In the treatment of DM, an approach by a complete multidisciplinary team is a fundamental element not only for the patient, but for the family members who will support him/her in daily life (Torres, 2008). However, we found that individuals with diabetes in the primary care network in Diamantina are referred more to specialists, in individualized and fragmented care, than to follow-up by a multidisciplinary team, highlighting a deficiency in the reference and counter-reference support system in the city. According to Costa et al. (2011), a problem that directly interferes with adherence to the treatment of DM is the "poor training and integration of health professionals" who insist on traditional approaches instead of looking for new approaches to stimulate the patient and raise awareness about the importance of health promotion. Costa et al. (2011) still adds that, in the planning of health actions of comprehensive care to these patients, the behavioral and emotional factors of the patient must be taken into account.

A prevalent comorbidity in people with type 2 diabetes mellitus is hypertension, which was present in about 83.5% of patients' medical records, which has also been reported in other studies (Rodrigues et al., 2011, Bercke et al., 2017). Regarding chronic complications, 4.5% had diabetic foot, 1.8% with records of neuropathies and 7.5% had kidney disease of diabetes. Despite the low percentage, it should serve as a warning to intensify educational and preventive actions for them (Malta et al., 2014, Medeiros et al., 2012). When you have good follow-up and monitoring of diabetes, you avoid or delay chronic complications from the condition, since the positive return of prevention that should be done in Primary Care, depends on the information received by patients, as it will allow them to develop self-care skills more efficiently (Moraes et al., 2009). Information also needs to be filled in correctly in the patients' medical records, as there is a high turnover of FHS professionals, which can sometimes make it

difficult to monitor patients with diabetes (Salci, Meireles and Silva, 2017, Almeida, 2015). This denotes the importance of care through coordinated actions between the various actors involved in comprehensive care for people with diabetes. It is necessary to establish a routine based on the protocols and manuals of the Ministry of Health, involving all professionals, including community health agents from the Family Health Teams, who have direct contact with patients. This training needs to be extended to the adequate and sufficient filling of medical records, providing a patient's health history, facilitating multidisciplinary and interdisciplinary care actions<sup>[9]</sup>. With the implementation of such actions, assistance in primary care may be more effective for patients with diabetes. In addition to emphasizing that there should be and increase actions aimed at young adults and men, as it would be a way of promoting and preventing the disease and adherence to treatment by this population.

## CONCLUSION

Most patients were sedentary, were overweight, prevalent in adults and most of them underwent drug treatment, especially with oral antidiabetics. Most of them had been diagnosed with diabetes and treated at the BHUs for five years or more, thus showing the importance of increasing educational activities for the disease and for certain audiences, such as adult men, who showed a relationship with alcoholism and excess of weight, thereby increasing the level of care coverage for people with diabetes. The study shows us the importance of the reference and counter-reference system, an instrument of great value for the patient and the importance of monitoring by a multidisciplinary team. Also relevant information is the failure to correctly fill in the medical records, because when analyzing the results, it was concluded that patients with diabetes did not have a good follow-up, due to the large percentage of variables without information. It is noteworthy that the monitoring of these patients and professional follow-up are extremely important for the prevention of aggravations of the condition.

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