



Adherence to Drug Treatment of People with Diabetes Mellitus

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Abstract

Background: Drug treatment of diabetes mellitus is complex and, therefore, the evaluation of adherence behavior is fundamental to plan and/or evaluate educational actions for these patients. This study aimed to evaluate adherence to the prescribed drug treatment (insulin and/or oral antidiabetic drugs) of 11 adults with diabetes mellitus, who participated in an educational program about the disease.

Materials and Methods: Cross-sectional and descriptive study, with quantitative approach. Adherence to drug treatment was obtained through the “Measurement of Adherence to Drug Treatment in Diabetes Mellitus” scale.

Results: There was a higher frequency of females, in the sixth decade of life, with low educational level, average diagnosis time less than 10 years, most of them using oral antidiabetic drugs, and without previous participation in disease orientation groups. In the analysis of adherence to oral anti diabetic drugs, a mean score of 5.5 (standard deviation - SD=0.6) was obtained, and for insulin therapy, the average was 5.4 (SD=0.1), indicating a high adherence to the prescribed drug treatment.

Conclusion: The sample studied had a socio demographic and clinical profile similar to that of other Brazilian population samples that have the disease. Adherence to drug treatment was high for both therapeutic modalities, suggesting that the participation of the study group in the proposed educational program was beneficial to maintain satisfactory adherence. However, adherence behaviors are not stable, which suggests the need for greater investments in this theme, through regular reinforcements during the development of educational programs for people with diabetes mellitus.

Keywords: Diabetes Mellitus; Treatment adherence; Health education; Antidiabetic Drugs

Introduction

In Brazil and worldwide, Diabetes Mellitus (DM) is one of the most worrying chronic diseases, both due to its high prevalence and the possibility of disabling and costly complications, constituting one of the main causes of morbidity and mortality [1,2]. A population-based study aimed at estimating the self-reported prevalence of DM in the Brazilian adult population identified a prevalence of 7.5% [1].

Drug treatment of DM is considered complex because it may involve different pharmacological classes of Oral Antidiabetic Drugs (OADs), with multiple dosages, and association with insulin, making adherence a challenge for the person, his family and health professionals [2,3].

Adherence is defined as the “extent to which a person’s behavior coincides with medical advice regarding, for example, medication use, diet follow-up, lifestyle changes, or the adoption of protective behaviors health” [4]. Although a classic definition in the literature, there is no consensus to define treatment adherence, especially regarding drug therapy. This reflects directly on the ways of evaluating this concept, that is, the different definitions lead to the development of different measuring instruments, which contributes to the variation of the magnitude of adherence between studies [5].

It is also important to consider that adherence is multidimensional, thus becoming a very peculiar phenomenon, with the interaction of socioeconomic factors; treatment-related factors;

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patient-related factors; factors related to the disease and factors related to the multi professional health team. Regarding the factors related to the patient, there are their beliefs, perceptions, knowledge about their disease, attitudes, expectations and motivation regarding treatment [6,7].

Non-adherence to treatment is recognized as one of the main causes of uncontrolled DM and its complications and, as a consequence, there are economic, social and individual costs [6]. Particularly for DM, the asymptomatic nature of the disease may lead patients to think that medication is not necessary [7].

Estimates of adherence to DM drug treatment vary widely, either by the factors mentioned above or by the methods employed to measure it, and there is evidence that the more complex the therapeutic regimen, the lower the adherence [5,7-9]. The literature shows that adherence to insulin use is lower than adherence to OAD use, with rates between 36% and 80% and from 46.4% to 86%, respectively [9-12]. It also suggests that adherence behaviors may be unrelated, that is, people may adhere to one aspect of treatment but not another [9].

In the Brazilian population, one of the most used instruments to evaluate drug adherence in chronic diseases is the "Measure of Adherence with Treatments" (MAT) [3,7,13], which is based on Haynes's definition of membership in 1979 [14]. However, as this instrument was not developed exceptionally for people with DM, it did not differently adhere to adherence to OADs and insulin, making comparison between studies difficult. Recently, two forms of presentation of this instrument were proposed and validated for Brazilian Portuguese, one specific for assessing adherence to OADs, and the other specific for adherence to insulin, which was used in the present study [15].

Although there may be methodological and conceptual differences in the assessment of medication adherence in people with DM, there is a consensus in the literature that educational interventions are critical to promoting and/or maintaining satisfactory adherence [16-18]. In the context of chronic diseases such as DM, the nurse, being an integral member of the multidisciplinary team, is in a privileged situation to perform the role of health educator, and the assessment of adherence behavior is to plan and or evaluate educational actions for people with DM [19]. Moreover, there are few data on adherence to drug treatment in population samples of people with DM in the state of Minas Gerais, Brazil, which justifies the present study. This research aims to evaluate the adherence to drug treatment (insulin and/or oral antidiabetic drugs) of adults with diabetes mellitus, participants of an educational program about the disease.

Materials and Methods

Study design and ethical aspects

This is a cross-sectional and descriptive study with a quantitative approach, developed at the Center for Health and Physical Education Studies (CESEF) of the University Center of the Guaxupé Educational Foundation (UNIFEG), from June to September 2019, and composes the matrix project entitled "Evaluation of an educational program for people with diabetes mellitus, with a focus on physical activity and self-care", approved by the UNIFEG Research Ethics Committee, Opinion No. 2.029.352, of May 3, 2017.

Population and sample

The base population consisted of adults with a medical diagnosis

of DM, regardless of the time of illness, not hospitalized and in outpatient follow-up. The invitation to study was carried out at public health services and by the local media. For sample selection, the following inclusion/exclusion criteria were considered:

- Inclusion criteria: Persons of both sexes, at least 18 years old, sedentary or inactive, without advanced complications, whose drug treatment included the use of OADs and/or insulin, and who were able to maintain dialogue.

- Exclusion criteria: People with DM who had at least one of the following conditions were excluded: under hemodialysis treatment, amaurosis, presence of stroke/heart failure sequelae, previous amputations at any level of the lower limb, injury or ulcer process active in lower limbs, presence of any other disabling complication; use of wheelchair and/or stretcher; inability of verbal communication; and participants in a physical training program at another institution.

Thus, 33 adults with type 2 DM (T2DM), who met the inclusion criteria, voluntarily attended the study site; however, 18 participated in the interventions (educational program with exercise sessions) of the matrix project, and of these, 11 agreed to participate in the present investigation. After being informed about the objectives and procedures of this study, data were collected in a private room, as an individual interview, with an average time of 15 min.

Study variables and data collection

Sociodemographic and clinical variables were obtained only for sample characterization and through a structured instrument, based on the literature and the professional experience of the researchers [20,21]. To assess medication treatment adherence, the two versions of the Diabetes Mellitus Drug Treatment Adherence Measure (MAT) scale were used. Using one to assess adherence to Oral Antidiabetics (MAT OADs), and the other to assess adherence to insulin therapy (MAT Insulin), both validated for Brazilian culture [15]. Each version of the instrument contains 7 multiple-choice items, with scores ranging from 1 to 6 and the closer to 6, the greater the adherence.

Statistical analysis

The collected data were double-typed in the MS-Excel application and then processed electronically for validation. Subsequently, the data sheet was exported to the Statistical Package for Social Science (SPSS) software, version 17.0. Data analysis was performed using descriptive statistics, with measures of central tendency and variability.

Results and Discussion

There was a higher frequency of females, in the sixth decade of life, with low education level, diagnosis time less than 10 years, and no previous participation in disease orientation groups. Of the 11 participants, 10 were on treatment with OADs and one used OAD associated with insulin. Overall, these results are similar to those of other studies conducted on Brazilian population samples of people with DM [21-24].

The higher frequency of women is in line with the literature, and this finding is possibly due to a higher demand and/or use of health services by the female population [20,25-27]. In the last decade, Brazilian studies on the prevalence of DM have shown differences regarding the association between the disease and gender. In two studies no statistically significant differences were found, and in the most recent research, there was a higher prevalence in women (8.2%)

than in men (6.6%) (P-value =0.001) [1,28,29].

Advanced age (60 years or older) favors the emergence of physical limitations, which may be typical of the aging process. However, when such limitations compromise cognition, dexterity, or visual and/or auditory functions, they may hinder adherence to drug therapy [30-32]. However, a cross-sectional and descriptive study, conducted in São Paulo with 46 diabetic adults, to determine adherence to drug therapy and to verify the association of adherence to factors related to the individual, the professional-patient relationship, the therapeutic scheme and the disease, using the original version of the MAT showed that the prevalence of adherence was higher among the elderly (82.4%) [7]. Another national study, which aimed to analyze factors associated with low adherence to pharmacological treatment of chronic diseases, through data from the National Survey on Access, use and Promotion of Rational Use of Medicines (PNAUM) in Brazil and the brief medication questionnaire, revealed that the prevalence of low adherence was 30.8% and was associated with young adults, among other factors [33].

Low education may also be a limiting factor for medication adherence, as it makes it difficult for people to understand the indication/desired therapeutic effect, mechanism of action, dosage, and time, among others. Another cross-sectional and descriptive study, carried out in the interior of the State of São Paulo, Brazil, in a sample of 31 people with low education and T2DM, whose objective was to identify the information they had about OADs, showed that 32.2% of respondents did not know the name of the medication used; 51.6% took the medication at an inappropriate time and most had only a notion of the mechanism of action [30].

Long-term treatments due to disease chronicity and time to diagnosis tend to reduce adherence [34]. Corroborating this statement, the same cross-sectional study previously mentioned revealed that the prevalence of adherence to drug treatment in patients with up to five years of diagnosis was 80% and for those over five years was 77.4% [7]. In contrast, a cross-sectional study that aimed to evaluate adherence to drug treatment through the original version of the MAT among 162 people with T2DM in outpatient follow-up, and to verify its relationship with clinical variables, treatment and metabolic control, did not identify correlation between adherence and the time since diagnosis (p=0.32), whose average was 14.8 years (SD=7.8) [14].

It should be noted that although it was not the objective of the present study to establish relationships between sociodemographic and clinical variables with adherence to drug treatment, it is important to consider such variables when adherence is evaluated. The divergences found in the literature indicate the need for further studies on this subject.

In the analysis of adherence to OADs, an average score of 5.5 (SD=0.6) was obtained, and for insulin therapy, the average was 5.4 (SD=0.1), indicating a high adherence to prescribed drug treatment. This result is similar to other cross-sectional studies conducted among Brazilian adults with DM who used the same instrument (MAT), but in its original version [7,14,35]. Another cross-sectional study carried out in a sample of 143 people with T2DM, from the primary (n=45), secondary (n=48) and tertiary (n=50) units of Ribeirão Preto, State of São Paulo, Brazil, aiming to evaluate medication adherence and self-care activities using both versions of the MAT (one for OADs and one for insulin) revealed high adherence in both therapeutic modalities, regardless of the level of health care [36].

A quasi-experimental national study involving 82 people with T2DM to assess the effect of educational interventions on disease knowledge, adherence to drug treatment and glycemic control, using both versions of the MAT, found high adherence to both therapeutic modalities at baseline, with adherence to OADs showing statistically significant improvement after interventions (p=0.0318) [37].

Contrary to the present investigation, a study that analyzed the factors associated with non-adherence to continuous drug therapy in 1180 individuals with a minimum age of 40 years in the State of Paraná, Brazil, through the Morisky test, identified a prevalence of non-adherence of 63.5% [38].

According to the literature data, it is reiterated that the different instruments of adherence measurement and the sociodemographic characteristics of the different population samples contribute to the divergences regarding adherence rates and their related factors. In the present study, high adherence to drug treatment was expected and could be a bias, since the sample consisted of people who participated in an educational program about DM, and could obtain information about the disease and its treatment, as well as professional accompaniment.

It is also possible that the participants felt more motivated and strengthened for self-care, resulting in high medication adherence. Although this is one of the limitations of this study, the findings are relevant to the clinical practice of nurses, as they reinforce the evidence that educational interventions promote adherence to treatment, which is a positive finding. Other limitations are the cross-sectional design, which does not allow the generalization of the results, and the small sample size, which may have influenced the low variability of the data.

Conclusion

The sample had a sociodemographic and clinical profile similar to other Brazilian population samples that have the disease. Adherence to drug treatment was high for both therapeutic modalities, suggesting that the participation of the study group in the proposed educational program was beneficial to maintain satisfactory adherence. However, adherence behaviors are not stable, which suggests the need for greater investments in this theme, through regular reinforcements, during the development of educational programs for people with diabetes mellitus.

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