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IMPORTANCE OF LIFESTYLE IN TYPE 2 DIABETES MELLITUS CONTROL

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ABSTRACT

Objective: To know the perception of patients with Type 2 Diabetes Mellitus on the influence of lifestyle in disease control.
Method: Exploratory and descriptive study, qualitative approach based on the Theory of Social Representations. Was carried out on 23 adult individuals with Type 2 Diabetes Mellitus, enrolled in a Family Health Unit - Brazil. The data collected through a semi structured interview and processed and analyzed using the Collective Subject Discourse technique.
Results: The first question identified three Central Ideas: The person should take care of himself and lead a quiet life; Preserve your well-being with God; For good health, a person can't abuse in anything. In the second, five Central Ideas were identified: The most difficult is to follow a healthy diet; Practicing regular physical activity is difficult; Taking the medication is something complicated; Is difficult is to have adequate rest: Nothing is difficult.
Final considerations: The participants partially understand the importance of lifestyle in disease control, which hinders adherence and self-care difficult. Health professionals should promote more effective communication strategies, and encouraging the participation of diabetic patients in the management of living conditions that have an impact on the control of the disease and, consequently, on the prevention of complications.

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INTRODUCTION

The world population of people with Diabetes Mellitus (DM) in 2015 has been estimated at 415 million and can reach 642 million in 2040. Observing the world outlook of the ten countries with the greatest number of people with DM in 2015, Brazil appeared in fourth place with 14.3 million people with diabetes in the age group of 20 to 79 years, and could reach 23.3 million in 2040 (International Diabetes Federation, 2015). According to the Surveillance System for Chronic Diseases by Telephone Inquiry (VIGITEL) in 2016, the number of Brazilian people diagnosed with type 2 DM increased 61.8%, from 5.5% in 2006 to 8.9% in 2016 (Brazil, 2017). Type 2 DM in addition to pharmacological treatment, usually linked to oral hypoglycemic associated with insulin, requires a non-medicinal approach that includes the adoption of healthy life habits considered essential for its effectiveness. The key elements are: maintaining proper nutrition, regular physical activity, avoiding smoking, excessive alcohol and setting weight control goals. To improve adherence to non-medicated treatment, it is recommended to offer an educational program on diabetes, addressing important issues related to lifestyle, emphasizing the diet plan and the benefits of physical activity (Brazil, 2013). There is evidence that lifestyle-related behavioral changes with emphasis on diet and physical activity are associated with decreased prevalence of type 2 DM. Primary prevention programs for diabetes should encourage adoption of an adequate diet and practice regular physical activity. The proposed actions aim to combat overweight in

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individuals with higher risk of developing the disease, particularly in those with impaired glucose tolerance (Sociedade Brasileira de Diabetes, 2016). Modifiable factors related to body weight, diet and physical activity are more likely to impact glycemic control than genetic predisposition (Walker *et al.,* 2015). The adequate type 2 DM treatment should promote the reduction of the risks of complications resulting from aggravation of type 2 DM, such as cardiovascular diseases, retinopathy, nephropathy, neuropathies, among others. Thus, allying the two therapeutic strategies, drug and non-drug, proposing changes in habits and adoption of a healthy lifestyle, may bring more success to the treatment of these patients and prevent the development of complications (Silva *et al.*, 2015). Considering that most of the studies found in the researched literature addresses the importance of guiding patients with type 2 DM regarding the adoption of a healthy lifestyle related to the habits dissociated from each other, it is necessary to investigate the perspective of the individual regarding influence of a healthy lifestyle that fully embraces all health promoting habits. Thus, this study aimed to know the perception of patients with Type 2 Diabetes Mellitus on the influence of lifestyle on disease control and to identify the difficulties in adopting the habits that could help to prevent complications arising from it.

MATERIALS AND METHODS

Exploratory and descriptive study, developed in a qualitative approach, based on the assumptions of the "Theory of Social Representation" based on Moscovici (2012). Data were collected in August 2016. Twenty-three patients with type 2 DM were interviewed at a Family Health Unit in the city of Cachoeira, located in the Recôncavo Baiano - Brazil. We included individuals of both sexes, who were over 18 years of age and who accepted to participate in the study, in its entirety, by signing the Free and Informed Consent Term. We used a form with sociodemographic data and a semi-structured script for the interviews with two guiding questions, the first one being: *"For you, what should be the lifestyle or way of life for people to be healthier? Talk a little about it ...*" and the second, *"In your opinion, what are the life habits that people with diabetes have the greatest difficulty to change? Why?"* These questions were pretested and applied before starting the meeting for which type 2 DM patients were invited to participate. On the occasion, the proposal of an educational intervention that was conducted in eight weekly meetings was presented, using as strategy the Spirituality and Health Workshops adapted from the model proposed by Abdala *et al.* (2015). After answering the sociodemographic form, the participants were interviewed and the discursive content was recorded in audio and later transcribed in full, to enable the data analysis. The technique of Collective Subject Discourse (CSD) analysis was used, which allows systematic and standardized procedures to aggregate statements of a collectivity without reducing them to quantities (Lefèvre and Lefèvre, 2014, Figueiredo *et al.,* 2013). The treatment of the data, using the CSD technique when applying the TRS as a basis for analysis of the implicit content of the interviews, promotes the possibility of explaining phenomena from a "common sense" perspective in a given reality, while preserving the individuality of the participant. Lefèvre et al. (2009) define that the CSD technique consists of analyzing the statements collected in the research, extracting the Central Ideas (CIs) with their respective Key Expressions (KEs) of each discursive content.

These KEs are chosen because they contain similar representations for the construction of one or several discourses, which must contain the essence of the discursive content. Each CSD is written in the first person singular, but it is worth noting that this discourse is the result of the reconstitution of a "collective empirical being" (Lefèvre *et al.,* 2009). Because of the research involving human beings, the present study complied with all the recommendations set forth in the Declaration of Helsinki (World Medical Association, 2013) and Resolution 466/12 of the Ministry of Health (Brazil, 2012). It was approved by the Research Ethics Committee of the Adventist University Center of São Paulo (CEP / UNASP), opinion number: 1,542,117 - CAAE: 51672215.2.0000.5377.

RESULTS AND DISCUSSION

The study population comprised 23 individuals with type 2 DM of both sexes, being 74% female and 26% male. As for age, there was a predominance of the age group above 60 years, with 52%. Regarding the referred skin color, 8.7% declared themselves white, 34.8% black and 56.5% brown. With regard to schooling, 21.8% were uninstructed and 39.1% had incomplete/complete elementary education, the same percentage for those with incomplete/complete secondary education. As to religion, in this study, 21.7% declared themselves Catholics and 78.3% evangelicals. Regular medical follow-up for disease control was reported by 82.6% of the participants, while 4.4% reported not performing and 13% at times. On the use of medications, 73.9% reported using only oral hypoglycemic agents, 4.4% used insulin alone and 21.7% used the combination of hypoglycemic agents and insulin.

Perception of Type 2 Diabetes Mellitus carriers on lifestyle

Question 1: For you, what should be the lifestyle or way of life for people to be healthier? Talk about it.

The analysis of the first question identified the discursive content of three Cis, related to participants' perception of what a health promoting lifestyle should be and that may help prevent the complications of type 2 DM (Table 1).

In response to the first question, it is emphasized that 65% of the participants were represented in the Central Idea A - *"The person should take care of himself and lead a quiet life",* emphasizing the importance of self-care and tranquility in dealing with aspects which involve type 2 DM, highlighting the factors that influence a healthy lifestyle. Self-care implies recognizing the individual's central role in relation to one's health, developing a sense of self-responsibility and turning the health professional into a "supportive" partner of the user, rather than an "imposer or prescriber" who tells the which he should or should not do (Brazil, 2013). Corroborating with the discourse of the subjects interviewed, Soares *et al.* (2014) reported that self-care is a healthy lifestyle when people adopt adequate nutrition, exercise regularly, and manage stressful situations well. The self-management of type 2 DM, when supported by the health professional, in an integral and effective way, leads to satisfactory results in the coexistence with the disease. Therefore, professionals who assist patients with type 2 DM, should abandon the prescriptive practice, based on the transmission of information that seeks behavior change. Often there is no educational practice that aims at autonomy and encourages adherence to self-care to avoid complications (Beltrame *et al.,* 2012).

Table 1. Representation of Central Ideas (CIs) Key Expressions (KEs) and Collective Subject Discourse (CSD) of the first question

Central Idea (A) 65%	Collective Subject Discourse
The person should take care of himself and lead a quiet life(15 KEs)	Healthy Lifestyle is to be always taking care of your own health, and doing things normally. Sleeping early, getting up early, drinking plenty of water, practicing exercise, walking, practicing sports, having fun. Have a healthy diet, eat at the right time, and not eat the things that are bad, right? Take a little sun, though I do not like it very much, but it's the need, right? It is to lead a quiet life, without worry, because when one becomes worried does not sleep right? If you sleep badly, wake up badly, then you have a lot of trouble. So, in order to be in good health one has to take care of himself, to follow the doctor's advice, to take his medication exactly and to spend the day there.
Central Idea (B) 52%	**Collective Subject Discourse**
Preserve your body, your mind and your well-being with God (12 KEs)	Healthy lifestyle is one where you preserve your body, your mind and your well-being with God. For me, I think that for a healthy life we should enjoy the nature that God has given us, which is a natural remedy. It is to love yourself and to lead your life like this in a good way, and do not get "impaled", right? To feel a better life, you should have a happy relationship with people, live contented, because it all contributes to good health. Ithinkthat's, right?
Central Idea (C) 30%	**Collective Subject Discourse**
For good health, a person can't abuse in anything (7 KEs)	As the diabetic already has that controlled diet, he can'tabuse in anything, do you understand? He already has the right things to eat. I have heard that anyone who has a diabetes problem needs to know what fruits will eat, can'teat them all because they are not all that good. Do not eat certain types of food that is harmful to health. You have to eat healthy foods, do not overdo the fat, or salt, if you eat at the right times. The diabetic person has to be informed. Always eat vegetables, plus leaf and eat only what is needed and what the doctor ordered. I don't eat anything Ican't, understand? I think the healthy lifestyle is that.

Source: Prepared by the authors, Cachoeira, BA. 2017.

The interaction between the professional and the individual being cared for establishes a bond of trust and cooperation that favors adherence and effective participation of the patient in the planning of their treatment. In order for this interaction to take place, it is necessary for the multidisciplinary team to become aware of the socioeconomic context which the individual is inserted, and then adapt their orientations to the conditions of life and health of each one (Zanela and Pinto, 2017). It is also worth mentioning a study with 10, 285 patients with type 2 DM, who investigated the relationship between glycemic control and stress and concluded frequent irregularities in patients with unhealthy lifestyle habits, suggesting more specific recommendations on diet, smoking cessation, exercise, as co-adjuvants in the control of stress(Lang *et al*., 2015). The Central Idea B - *"Preserving your body, your mind and your well-being with God"* represented 52% of the universe searched. In addition to cultivating a good interpersonal relationship, which is decisive for a healthy lifestyle, they considered the balance between the physical, emotional and spiritual dimensions as important aspects of health. The inclusion of the spiritual dimension as a component that influences the way of living of type 2 DM patients to have full health was analyzed in a study by Luengo and Mendonça (2014). The authors emphasize that faith becomes an important instrument for coping with the treatment of the disease. In addition to impacting physical health, spirituality was also considered as a preventive factor in the development of diseases and possible reduction in mortality due to various diseases. Perhaps, because the connection with a higher and powerful being, propitiated by involvement with a religion, can be a source of relief, and yet, that religiosity tends to increase during negative events, such as illness. In relation to the mental well-being, the religiosity also has remarkable performance. In a systematic review about the influence of religiosity on the adoption of a healthy lifestyle, Santos *et al*. (2013) emphasized that religiosity in the sociocultural context constitutes an important mediating factor for the adoption of healthy habits.

Cres *et al.* (2015) identified, in a study with young adults, that there was a statistically significant association between religiosity and lifestyle.

The authors emphasized the importance of educational actions, applying the dimensions of spirituality to the promotion of health in a perspective of integrality.

The Central Idea C - "For good health, a person cannot abuse in anything″ emphasized the importance of balance, especially with regard to food. Although, in a smaller percentage (30%), participants stressed the importance of receiving adequate information about what should be ingested and in what quantity. In this CSD the type 2 DM patient recognized the importance of a healthy lifestyle, but claimed that they found it difficult to adhere mainly to habits related to eating and practicing physical activity. The study by Tavares *et al.* (2016) confirms that there are dietary habits and 47% of the subjects reported adequate diet, however, the adoption of this habit did not reflect the results of the laboratory tests performed. The authors argued that such data could suggest a misconception of respondents as to what a healthy diet would really be.

In this sense, a study carried out in southern Brazil emphasized that primary care users perceived difficulties in having a healthy diet and that nutritional information policy needs to be improved, including the implementation of new actions that can be easily performed in health services, health and promote more effective changes (Lindemann *et al.,* 2016). According to Gomides *et al.* (2013), treatments that involve changes in lifestyle, especially the adoption of healthy eating and regular physical activity, are considered as the most difficult to achieve.

Question 2: In your opinion, what are the life habits that people with diabetes have the greatest difficulty to change? Why?

In the analysis of the second question it was possible to identify five CIs related to the participants' perceptions regarding the motives that interfere in the adoption of a healthier lifestyle (Table 2).

The Central Idea A - *"The most difficult is to follow a healthy diet"* was mentioned by 35% of the participants, who attributed great difficulty to adopt an adequate diet for the condition of patients with type 2 DM.

Table 2. Representation of the Central Ideas (CIs) Key Expressions (KEs) and Collective Subject Discourse (CSD) of the second question

Central Idea (A) 35%	Collective Subject Discourse
	For me, I think it must be strictly following a diet, having a diet that is good. Do not eat what is prohibited: sugar, candy, pasta, guarana, these things, none of this is good because it will change the glucose. So, it is important to eat healthy foods, eat raw foods and avoid foods that contain sugar.
The most difficult is to follow a healthy diet (08 KEs)	Oh, I think that for those who cook for other people it is very difficult to diet. To tell you the truth, if I lived alone, I think I would do everything right. I would do it differently from the things I do, because I do some things for my husband and I can't even eat, but I eat a little. I think if I did it just for myself, I would feel so much better. For some people, the difficulty is that sometimes the money is lacking to buy things, and we do not have everything, but we have to maintain a good diet, that's what I think.
Central Idea (B) 22%	**Collective Subject Discourse**
Practicing regular physical activity is difficult (05 KEs)	Look, I find it difficult to do the exercise. The gym helps burn the glucose, although I fail ... I think it's physical activity. But it's a bit difficult for us to put into practice. You know, I've done a lot of walking, but these days I'm not doing it and to tell you the truth, I'm lazy to walk.
Central Idea (C) 13%	**Collective Subject Discourse**
Taking the medication "the right way" is something complicated"(03 KEs)	Ah, I think the difficulty is mainly in taking the remedy, control it right, as they teach. It's just that I take the blood pressure medicine, and I also take it to control diabetes. I take the right medicine, but there are also hours that I solve, ah, today I will not take no, because this medicine is direct. I think people, sometimes ... like this ... They should take a more leaf remedy (herbs), they should take these home remedies.
Central Idea (D) 4%	**Collective Subject Discourse**
Difficult is to have adequate rest (01 KEs)	For me, the difficult thing is to have a good sleep
Central Idea (E) 35%	**Collective Subject Discourse**
	It's hard not to. I have no difficulty, I follow easily. I find all habits important. If the doctor speaks like this: he needs to walk! We have to walk right, because we have to do that to have a healthy life.
Nothing is difficult (08 KEs)	I do walking, water aerobics, I take care of food, because the person must do the greatest strength to do it there, because it's better and we live longer.

Source: Prepared by the authors, Cachoeira, BA. 2017.

A similar situation was also found in the study of Farias *et al.* (2016), which 45.6% of the participants reported that they did not do the recommended diet. The authors also point out that, in order to have adherence to the food program, it is necessary to consider lifestyle, work routine, socioeconomic level, medication in use and eating habits prior to illness. The study by Vargas *et al.* (2015) also concluded that 39.9% of the participants had difficulties toad pan adequate diet and that the difficulty to control the binge eating is still the main challenge to be overcome. Nutritional therapy is essential when it is intended to prevent, treat or manage type 2 DM. The main objective related to the nutritional status is in relation to the individual's physical health and quality of life, as well as to the prevention and treatment of possible complications in the short and long term (Marques, 2017). Many type 2 DM patients resent having to follow a diet and claim difficulty in exercising self-control in order to adopt an adequate diet. Although they are aware that an inadequate food pattern can harm them, causing severe damage to health, they still persist in committing some food exaggerations (Cecílio *et al.,* 2016).

The Central Idea B - *"Practicing regular physical activity is difficult"* was presented as one of the biggest difficulties for 22% of the study participants. This finding was also evident in the study by Marques (2017), who observed that more than half of insulin-dependent diabetes patients did not engage in any type of *physical* activity, citing several reasons, including: previous surgery, difficulty in locomotion, habit and lack of time, among others. The study by Farias *et al.* (2016) also reported that 70% of diabetics did not perform regular physical activities.

In a study by Silva *et al.* (2015), which aimed to evaluate the understanding of patients with type 2 DM on pharmacological and non-pharmacological treatment, it was evidenced that 46.6% did not perform physical exercises, 22.3% practiced three times a week and only 17, 5% exercised five times a week. The use of physical activity is a key element in the prevention and control of type 2 diabetes. It also provides positive effects on lipidemia, blood pressure, cardiovascular events, weight control, mortality and quality of life (Asano *et al*., 2015).

Lack of adherence to non-pharmacological treatment, including physical exercise, may compromise the outcome of the proposed therapy and predispose the patient to varying symptomatologies and even more severe complications such as diabetic nephropathy, neuropathy, cardiovascular risks, blindness, diabetic foot, among others (Silva *et al*., 2015). In the study by Cecílio *et al*. (2016), the participants reported difficulty in performing systematic physical exercises due to lack of organization, routine and mood. The authors reported that although individuals were aware of the benefits of regular physical activity, they did not incorporate it as a goal for self-care.

The Central Idea C - "Taking the medication 'the right way' is something complicated" was mentioned by 13% of the individuals, representing the difficulty in adherence to drug treatment. The study by Ramos *et al.* (2015) pointed out that 67.3% of the patients were classified as non adherent to the drug treatment. Adherence to treatment is a personal behavior that should coincide with medical guidance regarding not only the use of medication, but also about dieting, lifestyle changes, or other protective health behaviors. Among people with type 2 DM, especially due to the asymptomatic nature, adherence to drug treatment tends to be low, leading to the belief that medication is not necessary; in addition, as the number of medications or doses increases, the adhesion tends to decrease (Boas *et al.,* 2014).

The Central Idea D - *"Difficult is to have adequate rest"* was represented by 4% of the individuals, that is, only one participant reported difficulty in having a satisfactory sleep.

The composition of an KEs discourse of only one individual may seem contradictory when it comes to the construction of a CSD, however, this representation is anchored in common sense that suggests the difficulty of adequate rest in the face of the complexity of the modern world. This result differs from what was pointed out in the study by Trevizan *et al.* (2016), performed with 42 insulin-dependent DM patients, in which 63.6% of the respondents reported episodes of insomnia at different frequencies.

According to Peñalver *et al*. (2016), evidence supports an association of 6-9 hours of sleep per night with a reduction in cardio metabolic risk factors, whereas sleep deprivation aggravates insulin resistance, hypertension, hyperglycemia, and dyslipidemia. It is also worth noting that insufficient sleep results in long-term metabolic disturbances, which may promote the progression of type 2 DM in newly diagnosed patients (Arora *et al.,* 2016).

According to Mcneil *et al*. (2013), individuals who usually doesn't sleep enough, tend to have a higher Body Mass Index (BMI) and percentage of fat and greater abdominal circumference when compared to individuals with adequate sleep. In addition, reduced or disturbed sleep is also associated with certain predictors of type 2 DM, such as: glucose intolerance, insulin resistance, decreased insulin response to glucose and less disposition. Therefore, in addition to other measures of health promotion, a good night sleep should be seen as a primary component for the prevention and treatment of type 2 DM.

The Central Idea E - *"Nothing is difficult"* was present in 35% of the speeches, that is, the individuals mentioned that they did not find any type of difficulty regarding the adoption of all the habits related to a healthy lifestyle. When health care is practiced in a collaborative way, the relationship between users and health professionals is transformed, making the patient the main producer of his health. The incorporation of this concept allows a therapeutic alliance among those involved, promoting a relationship of respect, trust and empathy, resulting in greater adherence to treatment and better results (Brazil, 2013). The study by Soares *et al.* (2014) emphasizes that subjectively, the significance that individuals assign to the disease and its treatment is highlighted, since the foundation of beliefs and values base their behaviors and attitudes and can influence the process of self-care, predicting the prognosis and the adherence to treatment.

Final considerations

Based on the narratives presented it is assumed that patients with type 2 DM, participants in this research, understand to some extent the importance of adherence to a healthy lifestyle for the control of the disease. Even stating adherence to some healthy habits, it was possible to identify in the speeches, the lack of perception regarding the need for co participation and commitment in the choice and implementation of non-drug treatment. Participants attributed importance to lifestyle for the control of type 2 DM. The habits cited varied, but the influence was a common fact mentioned by all. In addition to adequate nutrition and physical activity, other aspects such as self-care, balance and emotional well-being were also identified as influencers in adherence to a healthy lifestyle. Regarding the difficulty in adhering to a healthy lifestyle, there was an important representation about the difficulty in following an adequate diet and practicing physical activity regularly, since they are habits that require persistence and determination, besides configuring as more influential in the glycemic control.

There was also mention that there were no difficulties in following the medical recommendations and maintaining adequate rest. It is worth noting the low level of education of the participants, which, to a certain extent, interfered in the breadth of the content of the answers. Some even said that because they did not study, they had difficulty understanding the research questions and also expressing their opinions, even through the researchers' efforts to communicate them in a simple and understandable way.

Despite the pertinence of the adopted technique, it is imperative to broaden the research to investigate better communication strategies and consequently more comprehensive results.

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