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RESEARCH

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Dimensions of the quality of life negatively affected in people living with Diabetes *Mellitus*

Dimensões da qualidade de vida afetadas negativamente em pessoas vivendo com Diabetes *Mellitus*

Dimensiones de la calidad de vida afectada negativamente en las personas que viven con el Diabetes *Mellitus*

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ABSTRACT

Objective: To evaluate the quality of life related to health of people with type 2 diabetes mellitus served by Primary Health. **Methods:** Descriptive transversal study performed with 50 diabetic patients. Data were collected through the application of a form for socioeconomic and clinical information and the Medical Outcomes Study 36-item Short Form Health Survey (SF-36). Data were expressed as absolute and relative frequencies and central tendency and dispersion steps. **Results:** The highest average of the SF-36 scores were found in the areas “Functional Capacity, Vitality and Social Aspects”, while the lowest were concentrated in areas “General State of Health and Physical Appearance.” **Conclusion:** The functionality of daily activities and perception of health were the main factors committed by the type 2 diabetes mellitus.

Descriptors: Quality of life, Chronic disease, Diabetes Mellitus, Nursing.

RESUMO

Objetivo: Avaliar a qualidade de vida relacionada à saúde de pessoas com diabetes *mellitus* tipo 2 atendidas pela Atenção Primária à Saúde. **Método:** Estudo descritivo, transversal realizado com 50 pacientes diabéticos. Os dados foram coletados por meio da aplicação de um formulário para informações socioeconômicas e clínicas e do *Medical Outcomes Study 36-item Short Form Health Survey* (SF-36). Os dados foram expressos como frequências absolutas e relativas e medidas de tendência central e dispersão. **Resultados:** As maiores médias dos escores do SF-36 foram verificadas nos domínios “Capacidade Funcional, Vitalidade e Aspectos Sociais”, enquanto

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as menores concentraram-se nos domínios “Estado Geral da Saúde e Aspecto Físico”. **Conclusão:** A funcionalidade das atividades diárias e a percepção sobre a saúde foram os principais aspectos comprometidos pelo diabetes *mellitus* tipo 2.

Descritores: Qualidade de vida, Doença crônica, Diabetes Mellitus, Enfermagem.

RESUMEN

Objetivo: Evaluar la calidad de vida relacionada con la salud de las personas con diabetes mellitus tipo 2 servido por el Primaria de la Salud. **Métodos:** Estudio descriptivo transversal realizado con 50 pacientes diabéticos. Los datos fueron recolectados a través de la aplicación de un formulario de información socioeconómica y clínica y el estudio de resultados médicos de 36 preguntas Short Form Health Survey (SF-36). Los datos se expresaron como frecuencias absolutas y relativas y tendencia central y medidas de dispersión. **Resultados:** El promedio más alto de las puntuaciones del SF-36 fueron encontrados en las áreas de “capacidad funcional, vitalidad y aspectos sociales”, mientras que las más bajas se concentraron en las zonas “estado general de salud y la apariencia física”. **Conclusión:** La funcionalidad de las actividades diarias y la percepción de la salud fueron los principales factores cometidos por la diabetes mellitus tipo 2.

Descriptores: Calidad de vida, Enfermedad crónica, Diabetes Mellitus, Enfermería.

INTRODUCTION

The Diabetes *Mellitus* (DM) issue behaves like a major epidemic that affected 415 million people in 2015, with estimates reaching 642 million in 2040.¹ In Brazil, 14.3 million, 9.4% of the total population, has diabetes, which represented 9.4% of the national population that year. DM significantly increases morbidity and mortality rates and is one of the main causes of mortality, renal insufficiency, lower limb amputation, blindness and cardiovascular disease.²

This disease accounts for about 85-90% of cases of diabetes and affects mainly the adult population over 40 years, although the prevalence has recently increased at an earlier age.^{1,2} As diabetes requires lifestyle changes related to treatment needs and daily self-care practices, the way in which the individual assimilates these behaviors, associated with the morbidities and comorbidities of this pathology, may negatively influence family life, emotional aspects, physical health, vitality, mental health, among other aspects. This impact may reflect how the patient will live with the disease, affecting their life quality.³

Health Related Quality of Life (HRQoL) has been used in the area aiming to differentiate from Quality of Life in the generic sense. It is considered synonymous with the term “perceived health state”, which contains three major domains: physical, psychological and social.⁴ This theme emerges in the research scenario as a new possibility of directing health practices mainly in basic care, a gateway for actions and services. Therefore, the study of HRQoL also enables the creation of strategies and effective intervention programs to promote the integrality of care for patients with type 2 DM.⁴

This need for adaptation of the person bearing diabetes added to his or her own chronic condition can work negatively influencing the life quality. Research on this topic has shown that patients with DM have lower levels of quality of life than

other people who did not manifest the disease, then being a multi-causal relationship.⁵

There is still a lack of empirical literature regarding the evaluation of the quality of life in diabetics in Brazil, especially in the Northeast region. Hence, assessing the quality of life is essential for the formulation and implementation of care strategies for people with DM. It is necessary to identify the factors that interfere in the quality of life, so that the interventions are effective and specific, being able to either minimize or prevent the aggravation of this condition.⁶

The study’s goal was to assess the quality of life related to the health of people bearing type 2 diabetes *mellitus* that were assisted by the Primary Health Care service.

METHODS

It is a descriptive and cross-sectional study, which was carried out at a Basic Health Unit (BHU) of the Family Health Strategy (FHS) in the Eastern area of *Teresina* city, capital of the *Piauí* State.

The population of the study was established by random sampling, composed of 50 people bearing type 2 DM that were assisted by the BHU over the period of data collection.

As criteria for inclusion was established: age greater than 40 years old, for convenience, non-pregnant and attending the BHU chosen. The population range was purposely chosen, since it is considered a priority by the high prevalence of type 2 DM. As exclusion criteria: people with mental disorders that made it impossible to collect the data and who did not participate in all stages of the research related to the interview and measurement of clinical variables.

Data were collected from July to August 2015, through an individual interview, using a form containing socioeconomic and clinical variables (height, weight, body mass index and systolic and diastolic blood pressure). Information on HRQoL was obtained by means of a generic evaluation instrument in the form of a form, the Medical Outcomes Study 36-item Short Form Health Survey (SF-36), validated in Brazil.⁷

This instrument of quality of life evaluation is composed of 11 questions and 36 items, subdivided into eight categories. The application of this instrument of quality of life evaluation provides the achievement of average scores for each domain evaluated, with a standard variation of 0 to 100, so that the closer to 100 the value is, the better the domain evaluated. This form still presents a comparative question between current health conditions and a year ago, which does not go into the calculation of the domains.⁸

The informal oral pre-test was performed in order to verify the applicability of the instruments used to achieve the established objectives. In order to obtain blood pressure levels, the recommendations of the Brazilian Society of Hypertension were followed.⁹ The measurement took place in a calm environment, with rest of the participants in a minimum of five minutes, making sure that they were emptying the bladder and that there was no previous consumption of stimulant drugs and/or food and no physical activity until 30 minutes before the measurement.

Data collection was performed by the researcher in charge, in a specific place for this purpose in the health unit itself, by guaranteeing the confidentiality and anonymity of the participants. The interviews had an average duration of 15 minutes.

The data was entered into a database (EXCEL 8.0 software) and then processed. The data were expressed as absolute and relative frequencies and measures of central tendency and dispersion using software R version 3.2.1. The study complied with all national and international standards governing human research, and was approved by the Research Ethics Committee from the *Faculdade Integral Diferencial (FACID)* under the *Certificado de Apresentação para Apreciação Ética (CAAE)* [Certificate of Presentation for Ethical Appreciation] No. 41186814.1.0000.5211.

RESULTS

Fifty people with DM2 assisted in a FHU were evaluated. The individuals were characterized according to demographic and socioeconomic variables (**Table 1**).

Table 1 - Characterization of type 2 DM bearing individuals that were assisted by a Family Health Unit according to demographic and socioeconomic characteristics. *Teresina* city, *Piauí* State, 2015.

Variable	Classification	n	%
Gender	Male	22	44
	Female	28	56
Age (years old)	43-55	16	32
	59-68	21	42
	69 or more	13	26
	Single	12	24
Marital Status	Married	31	62
	Common-law marriage	4	8
	Divorced	2	4
	Widowed	1	2
Skin Color	White	8	16
	Black	7	14
	Brown	31	62
	Yellow	4	8
Schooling	Illiterate	5	10
	Incomplete elementary school	9	18
	Complete elementary school	13	26
	Incomplete high school	5	10
	Complete high school	9	18
	Incomplete College	3	6
Income	Complete College	6	12
	1 minimum wage	24	48
	2 minimum wages	16	32
	3 minimum wages	10	20

Source: Data gathered by the authors.

The majority of the study population was female, between 59 and 68 years old, married, brown skin color, with full elementary education, and income of a minimum wage. Considering the marital status situation, the majority was married (62%).

The distribution of study participants according to the year of diagnosis of type 2 DM is shown in **Table 2**. A large part of the population investigated presented a diagnosis of type 2 DM considered recent, up to 5 years.

Table 2 - Characterization of type 2 DM bearing individuals that were assisted by a Family Health Unit according to the diagnosis year. *Teresina* city, *Piauí* State, 2015.

Diagnosis year	n
1983 to 1996	7
2000 to 2009	17
2010 to 2015	26

Source: Data gathered by the authors.

With regards to physical activity, only 32% of the study population practiced some type of physical activity, of which 18% practiced 3 times a week and 14%, 4 times a week or more. Physical education follow-up by the physical educator was reported by only 6% of the study participants (**Table 3**).

Table 3 - Characterization of type 2 DM bearing individuals that were assisted by a Family Health Unit according to the physical activity practice. *Teresina* city, *Piauí* State, 2015.

Variable	n	%
Physical activity practice		
Yes	16	32
No	34	68
Weekly practice frequency		
1 time	0	0
2 times	0	0
3 times	9	18
4 times or more	7	14
Not applicable	34	68
Physical educator follow-up		
Yes	3	6
No	13	26
Not applicable	34	68

Source: Data gathered by the authors.

In relation to the standardized SF-36 dimensions analyzed, the mean values obtained ranged from 51.26 to 72.10. The highest mean scores were found in the areas of Functional Capability, Vitality and Social Aspects, while the lowest mean scores were obtained in the domains of General Health Status and Physical Appearance (**Table 4**).

It was observed that the lower mean scores of the SF-36 were obtained in the domains of General Health Status and Physical Appearance.

Table 4 - Measures of central tendency and dispersion of the categories of evaluation of the quality of life related to the health of people bearing type 2 diabetes mellitus that were assisted by a Family Health Unit. *Teresina* city, *Piauí* State, 2015.

Category	n	Minimum	Maximum	Average (SD)
Functional capability	50	10	100	72.10 (27.03)
Physical appearance	50	0	100	53.50 (27.20)
Pain	50	20	100	64.38 (30.39)
General health status	50	15	92	51.26 (18.86)
Vitality	50	25	100	65.50 (20.08)
Social aspect	50	12.5	100	65.50 (21.95)
Emotional aspect	50	0	100	64.00 (32.88)
Mental health	50	16	100	64.32 (25.93)

SD – Standard Deviation.
Source: Data gathered by the authors.

Herein, the highest average scores of the SF-36 were verified in the domains of Functional Capability, Vitality and Social Aspects.

The second question of the instrument does not enter into the calculation of the domains, and the part is analyzed. In this item is made a comparison of the current health conditions and a year ago. It was found that 30% of individuals reported “almost the same thing”, 27% reported “a little worse”, 24% reported a “slightly better” option and 19% chose the “much worse” option.

DISCUSSION

This study contributed to the identification of factors that impair quality of life in individuals with type 2 DM. These factors may influence the effective practice of self-care, necessary to better coexist with the disease and to reduce complications.

Diabetes mellitus is considered a major public health problem today, with type 2 diabetes *mellitus* prevalent among older individuals. Most of the participants in this research had only complete elementary education, a fact that may be directly related to the failure to perform the treatment adequately, due to a lack of knowledge about the disease.

The socioeconomic profile is a determining factor. Knowing the socioeconomic and epidemiological profile of the prevalent diseases is an important mechanism for the provision of services and resources, both in terms of personnel, equipment, medicines and other indispensable inputs for preventive, diagnostic, therapeutic and preventive actions.¹⁰ This knowledge is necessary so that the interventions seek to respect the economic, social and cultural singularities and particularities of each person, in order to establish a professional bond between the individual and the multi-professional team, so that the goals of treatment are easily achieved, culminating in the improvement of the quality of life.

Marital status interferes with adherence to treatment, family dynamics and psychosocial profile influence on glycemic variations, and the family environment is a stimulus to self-care. In couples where one has diabetes, especially if the carrier is the man, treatment and maintenance are more frequent, and the wife is responsible for food and medication. Thus, it is common to see widows with lower adherence to treatment than widows.¹¹

Significant changes in coping strategies can occur as the years go by after diagnosis of the disease. In this sense, the duration of diabetes mellitus differentiates the ways in which the diabetic patient manages his problems and diversifies coping strategies in the management of the disease. The authors also confirmed in a study that, with the passing of the years when the disease is installed in the subjects, the level of stress experienced by them is considerably reduced.¹²

The general principle of DM treatment is based on re-education of the patient to modify his/her lifestyle and incorporate healthy practices into the daily routine, such as regular physical activity, reorganization of eating habits and cessation of smoking. If necessary, changes in medication use should be made.¹³ Despite the recommendation, only 32% of the study population reported practicing physical activity and only 6% performed this practice with physical education professional accompaniment.

There are several strategies that the Health Ministry has implemented in states and municipalities in order to prevent Chronic Noncommunicable Diseases (CNCDs). One of them is the National Policy for Health Promotion, which defines the promotion of physical activity as one of its priorities and finances projects that contemplate it, such as the creation of the Family Health Support Centers (FHSC). FHSC, in turn, comprises professionals from a variety of fields, including the physical educator, who must work in partnership with the FHS professionals. Furthermore, the Health Academies Program was established, which aims to implement poles with infrastructure, equipment and professionals to guide physical activity practices.¹⁴

A study¹⁴ carried out with patients enrolled in the Diabetes Care Program of a basic unit in the interior of *São Paulo* city, found that only 17.2% of the medical prescriptions were in accordance with the recommendations of the Brazilian Diabetes Society, including information about diet, exercise and use of medications. Moreover, 53.1% of users of this same basic health unit reported never attending lectures or lectures related to their pathology.

The actions of the nurse and the health team in relation to people with DM and those with risk factors for developing the disease become of great relevance in the promotion of health and in the empowerment of individuals, so that they choose choices healthy and have a better adherence to treatment and prevention of complications. This role can be decisive in that it stimulates individuals with DM to seek improvement in health status, contributing to better metabolic control and rehabilitation.⁸

In the current model of care, the FHS responds to issues of prevention of infectious diseases and many aspects of children's and women's health. When it comes to CNCDs,

especially DM and Systemic Arterial Hypertension (SAH), there is inadequate attention and the consequences of this inadequacy go well beyond the R\$ 12 billion per year spent by high complexity.^{15,16}

Nursing consultation is an important strategy in the prevention and control of CNCDs, since it allows the establishment of an interpersonal bond, which may make it easier to adhere to the actions necessary for the adequate follow-up of the proposed treatment. Another effective method is to conduct a home visit, since knowing the context in which the family lives and the resources available to the community is a preventive action, as well as promoting better targeting of actions aimed at those with the disease.¹⁷

The Physical Aspect domain evaluates the impairment in the functionality of individuals' daily activities and the General Health Status assesses the individual's perception of their health.¹⁸

The Functional Capability domain measures the individual's difficulty in carrying out their daily activities, Vitality evaluates the willingness to exercise their activities and the Social Aspects domain evaluates the losses in social relationships. A study conducted in *Belo Horizonte* city, *Minas Gerais* city, using the SF-36 in people with chronic conditions, observed that the most affected dimensions were Vitality, Functional Capability and Pain.¹⁹

In a study carried out with diabetics of a Family Health Unit, aiming to evaluate the quality of life, the highest scores were obtained in the dimensions of mental health (72.0) and social aspects (71.1), with the lowest mean scores being visualized (34.8), Emotional Aspects (44.0) and General Health Status (49.8).²⁰

This study has limitations, such as the difficulty of understanding some SF-36 questions by some participants, which resulted in a longer time spent on the application of this instrument. It is also worth mentioning the limited availability of time for certain participants to respond to the questions, requiring the development of strategies that stimulate and favor participation. The limitations do not invalidate the findings of the study, considering the lack of research in the state of Piauí that assess the quality of life of people with chronic conditions, especially type 2 DM.

FINAL CONSIDERATIONS

Type 2 DM negatively affects the health-related quality of life of people living with the disease, especially in the dimensions related to Physical Appearance and General Health Status. For adequate prevention of diseases and promotion of health and quality of life, it is fundamental the accomplishment of an effective monitoring of people with type 2 DM by the professional nurse and the multi-professional team. In this regard, it becomes important to identify the various aspects of the life of these individuals that require interventions of attention and care, so that they do not harm their quality of life.

The use of instruments validated as SF-36 allows a better visualization of the health situation. Herein, it was identified that knowledge of the dimensions that obtained lower scores on the quality of life of people bearing type 2 DM will allow

the planning of specific actions directed at these groups in order to promote better adherence to practices that positively influence their life quality.

It is also important to carry out further studies on the subject, since there are still insufficient publications on the evaluation of the quality of life in diabetics in Brazil, especially in the Northeast region, even in view of its importance in directing specific strategies of care to either minimize or prevent their aggravation.

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