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ORIGINAL ARTICLE

EMOTIONAL SUFFERING RELATED TO TYPE 2 DIABETES MELLITUS: ANALYSIS IN PRIMARY HEALTH CARE[1]

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ABSTRACT

Objective: To analyze the emotional suffering related to type 2 Diabetes Mellitus in people assisted in primary health care. **Method:** Cross-sectional, quantitative study conducted in two basic health units in Ceará. The Brazilian version of the Problem Areas in Diabetes Scale was used for data collection and assessment of emotional distress. Data were collected from a primary source through home visits. Descriptive and analytical statistics were performed. The ethical principles of research with human beings were respected. **Results:** One hundred and thirteen (113) people with type 2 Diabetes Mellitus participated in the research. Elderly, mixed race/black women, with incomplete elementary education, sedentary, non-smokers and non-alcoholics predominated. Most participants had a high degree of emotional distress. The concern with future complications and the fear of living with the disease were considered relevant problems by the participants. There was a statistically significant association between the variables sex and place of residence with a high degree of mental suffering. **Conclusion:** Primary care professionals need to plan nursing care aimed at emotional suffering related to type 2 Diabetes Mellitus, especially among female people who live in rural areas.

Keywords: Diabetes Mellitus. Psychological stress. Primary health care. Nursing.

INTRODUCTION

Diabetes Mellitus (DM) is a chronic pathology defined by uncontrolled blood glucose levels. According to the International Diabetes Federation, it is estimated that the world population affected by DM is 415 million adults, and 318 million have impaired glucose tolerance, implying a high risk for developing DM[(1)]. Of these people, 75% live in developing countries, where the problem has the highest rates of growth[(2)].

Diabetes Mellitus is classified into type 1 and 2, maintaining a relationship with the different pathophysiological mechanisms. Type 1 is determined by the destruction of pancreatic beta cells, characterized as an autoimmune disease, while type 2 is a complex and multifactorial condition that occurs despite the availability of insulin, characterized by the resistance of its use by tissues[(2)].

The treatment of DM aims to maintain stable glycemic levels in order to control the disease and prevent complications. Especially in type 2 DM, this goal is achieved with constant control of blood glucose values and lifestyle changes, such as healthy eating, physical exercise and use of medications, when necessary[(2-3)]. However, these elements can negatively affect the quality of life of people with DM, causing emotional distress[(3-4)].

In the context of type 2 DM, the emotional aspect is associated with lifestyle changes and mood swings, negative feelings, such as discouragement, sadness and guilt[(5)]. Besides continuous treatment, the person with DM needs

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to consider emotional aspects related to self-esteem, stress, psychological attitudes and empowerment for self-care[6]. Failure to give attention to emotional aspects can result in non-adherence to treatment and generate complications.

Thus, nurses in primary health care have a fundamental role in implementing individualized strategies for people with DM, seeking to expand the knowledge about the disease, favor the adoption of positive attitudes, and reduce the suffering of living with DM[3]. To this end, it is necessary that health professionals know the factors that are most associated with emotional suffering and cause an impact on the quality of life of people with DM, so that specific interventions may be proposed.

Although other studies have investigated the difficulties in adhering to appropriate therapy and the impact of educational strategies on the quality of life of people with DM[3,4,7], few have specifically addressed the emotional effects of type 2 DM[8-9]. Furthermore, there are no studies evaluating the emotional suffering caused by type 2 DM in populations living far from urban centers using validated instruments. Thus, the objective was to analyze the emotional suffering related to type 2 DM in people assisted in Primary Health Care.

METHOD

Descriptive, cross-sectional study with a quantitative approach carried out from August to October 2017 in the municipality of Ibaretama-CE, Brazil, which is considered a small municipality located far from urban centers. There were six Basic Health Units (BHUs) distributed in urban and rural areas in this municipality at the time of this study. The two BHUs with the largest population served were selected for the study, one in the urban area and the other in the rural area.

The study population consisted of people diagnosed with type 2 DM, registered in the selected BHU. As inclusion criteria, the participant should be aged 18 years or older, should have a confirmed diagnosis of type 2 DM, and be followed up by the selected BHUs. Patients who were not found at the registered addresses and those who had communication or understanding problems that could prevent the application of the data collection form were excluded.

According to data provided by the BHU teams, 164 people with type 2 DM were followed up (101 in the urban area and 63 in the rural area). Individuals who met the inclusion criteria were enrolled in the study. A convenience sample was selected, as no sample calculation was performed, consisting of 113 people with type 2 DM, representing 68.9% of the population.

Data collection was carried out at the patients' homes, through home visits, with the support of Community Health Agents, using the addresses registered at the BHU. Data were collected by a student of the last semester of the Nursing undergraduate course from a primary source, using a form and the Brazilian version of the Problem Areas in Diabetes Scale (B-PAID).

The data collection form prepared by the researchers covered sociodemographic (age, sex, place of residence, race, marital status, education) and lifestyle (smoking, sedentarism and physical activity) variables, and also the time of diagnosis of type 2 DM.

The Brazilian version of the Problems Areas in Diabetes Scale (B-PAID) was adapted to Portuguese, obtaining good internal consistency (Cronbach's alpha = 0.93). This scale assesses four areas: emotional, treatment, food and social support[10]. It is applied to measure quality of life[9,11] or, specifically, emotional suffering[10,11]. The latter approach was used in this study.

The B-PAID consists of 20 questions presented in a 5-point Likert scale ranging from: "nota problem" = 0, "a small problem" = 1, "a moderate problem" = 2, "almost a serious problem"= 3,"a serious problem"= 4. The maximum value obtained is 100 points, since the value of each item must be multiplied by 1.25. Values equal to or greater than 40 points indicate a high degree of emotional distress[3].

Data were compiled and analyzed using the SPSS software version 20. In the descriptive statistical analysis, relative and absolute frequencies (categorical variables), means, standard deviations and medians were calculated. The Kolmogorov-Smirnov test was applied to verify the dispersion of continuous variables. To verify the association between the

variables, the Mann-Whitney U and Pearson's chi-square tests were used. For the latter, the strength of association was analyzed using the odds ratio.

The study followed the norms that regulate research involving human beings, according to Resolution 466/2012 of the National Health Council. Participants signed the Informed Consent Form, which was approved by the Ethics and Research Committee according to Opinion 2,209,870.

RESULTS

One hundred and thirteen (113) people with type 2 DM participated in the study. They were predominantly female (68.1%), brown/black (72.6%), who lived with partners (62.8%), in the urban area (69.9%), with incomplete elementary schooling (40.7%) or illiterate (38.9%). As for life habits, 10.6% were smokers, 8.0% were alcoholics and 19.5% regularly practiced physical activity. It was not investigated whether people were ex-smokers or had used alcohol in the past. Most participants had a high degree of emotional distress, according to the B-PAID values (54%), as shown in Table 1.

Table 1. Distribution of participants according to sociodemographic data, lifestyle and high degree of emotional distress (n = 113). Ibaretama/CE, 2017.

Variables	n	%
Sex		
Male	36	31.9
Female	77	68.1
Race		
White	31	27.4
Brown/Black	82	72.6
Marital status (partner)		
With	71	62.8
Without	42	37.2
Place of residence (area)		
Rural	34	30.1
Urban	79	69.9
Education		
Illiterate	44	38.9
Incomplete elementary school	46	40.7
Complete elementary school	8	7.1
Complete high school	15	13.3
Smoker		
Yes	12	10.6
No	101	89.4
Drinks alcohol beverages		
Yes	9	8.0
No	104	92.0
Practice of physical activity		
Yes	22	19.5
No	91	80.5
High degree of emotional distress		
Yes (B-PAID≥40)	61	54.0
No (B-PAID <40)	52	46.0

Source: Prepared by the authors, 2017. n = Number of individuals; % = Percentage; SD = Standard deviation.

Table 2 shows the results of the continuous variables. The participants had an average age of 60.54 (± 14.9) years, with a time of diagnosis of DM of 8.04 (± 4.68) years. The average value of the B-PAID Scale was 46.95. The items that obtained the highest values in the emotional area were: Concern about future complications (3.06) and Fear of living with DM (2.95). The items that stood out were: in the area of problems related to treatment, the item Lack of goals (1.96); in the area related to food, the item Feeling constantly concerned about food and eating (2.19); and in the area related to social support, the item Feeling alone due to DM (1.84).

Table 2. Distribution of measures of central tendency and dispersion of age, time since diagnosis of DM, and variables of the B-PAID scale. Ibaretama/CE, 2017.

Variables	Mean	SD	Median	p-value*
Age	60.54	14.92	62.00	0.412
Time of diagnosis of Type 2 DM	8.04	4.68	8.00	0.189
B-PAID Scale value	46.9	20.44	40.00	0.001
1. Lack of goals	1.96	1.10	2.00	0.000
2. Feeling discouraged with treatment	1.89	1.19	2.00	0.001
3. Feeling scared about living with DM	2.95	0.76	3.00	0.000
4. Uncomfortable social situations	1.73	1.20	1.00	0.000
5. Feelings of deprivation regarding food and meals	2.01	1.03	2.00	0.000
6. Feeling depressed about living with DM	2.20	1.25	2.00	0.000
7. Not knowing if mood or feelings are related to DM	1.53	1.10	1.00	0.000
8. Feeling overwhelmed by DM	1.88	1.14	2.00	0.000
9. Worrying about low blood glucose	1.81	1.27	2.00	0.009
10. Feeling angry when thinking about living with DM	1.78	1.18	2.00	0.000
11. Feeling constantly concerned about food and eating	2.19	1.18	2.00	0.001
12. Worrying about the future possible complications	3.06	1.07	3.00	0.000
13. Feelings of guilt when getting off track with DM management	2.08	1.09	2.00	0.000
14. Not 'accepting' DM	1.85	1.22	1.00	0.000
15. Feeling unsatisfied with the DM physician	1.14	1.42	0.00	0.000
16. Feeling that DM is taking up energy	1.65	1.23	1.00	0.000
17. Feeling alone due to DM	1.84	1.18	1.00	0.000
18. Feeling that friends and family are not supportive	1.44	1.33	1.00	0.000
19. Dealing with complications	0.96	1.32	0.00	0.000
20. Feeling 'burned out' by the constant effort needed to manage DM	1.61	1.05	1.00	0.000

Source: Prepared by the authors, 2017. SD = Standard deviation. * Kolmogorov-Smirnov test.

There was a statistically significant correlation between the variables sex and place of residence with the items of the B-PAID scale and its total value. The sex variable correlated with four items and the total value of the scale, while the place of residence correlated with all the items, as shown in Table 3.

Table 3. Distribution of measures of central tendency and dispersion of age, time of diagnosis of DM, and variables of the B-PAID Scale. Ibaretama/CE, 2017.

Variables	Sex	Place of residence
B-PAID Scale Value	0.034*	0.000*
1. Lack of goals	0.188	0.001*
2. Feeling discouraged with treatment	0.479	0.000*
3. Feeling scared about living with DM	0.287	0.000*
4. Uncomfortable social situations	0.011*	0.000*
5. Feelings of deprivation regarding food and meals	0.358	0.000*
6. Feeling depressed about living with DM	0.008*	0.000*
7. Not knowing if mood or feelings are related to DM	0.153	0.000*
8. Feeling overwhelmed by DM	0.277	0.000*
9. Worrying about low blood glucose	0.331	0.000*
10. Feeling angry when thinking about living with DM	0.068	0.000*
11. Feeling constantly concerned about food and eating	0.006*	0.000*
12. Worrying about the future possible complications	0.318	0.027*
13. Feelings of guilt when getting off track with DM management	0.387	0.000*
14. Not 'accepting' DM	0.013*	0.000*
15. Feeling unsatisfied with the DM physician	0.057	0.000*
16. Feeling that DM is taking up energy	0.193	0.000*
17. Feeling alone due to DM	0.176	0.000*
18. Feeling that friends and family are not supportive	0.651	0.000*
19. Dealing with complications	0.124	0.000*
20. Feeling 'burned out' by the constant effort needed to manage DM	0.194	0.000*

Source: Prepared by the authors, 2017. SD = Standard deviation. * Kolmogorov-Smirnov test.

There was statistically significant correlation, according to the chi-square test, between the variables high degree of emotional distress and place of residence ($p < 0.000$), with a odds ratio indicating that living in rural areas increases the chances of a high degree of emotional distress (OR = 2.106 - CI: 1.558-2.847).

DISCUSSION

The sociodemographic profile presented by the participants was similar to that identified in a national epidemiological study, which

characterized people with self-reported DM[13]. Women, elderly people, of black or brown race, and with low education predominated.

The greater longevity of women and the greater search for health services favor the predominance of females diagnosed with DM, as they are subjected to risk factors for longer times and are more likely to be diagnosed[14]. As for race, a study conducted with the elderly that sought an association between race and obesity in people with DM in Brazil found that type 2 DM predominates among black and brown women, and among white and brown men[15].

Low level of education of the participants may have had a detrimental effect on their treatment and understanding of DM, because lower the education implies less knowledge to adopt effective self-care measures[13]. A high level of education is related to better treatment results, with less impact of DM on people's quality of life[11] and, consequently, less emotional distress.

Micro and macrovascular complications related to DM are associated with a longer duration of the disease[6], and the same pattern seems to be observed in emotional suffering. A study that applied the B-PAID in a sample of 59 people with DM identified that the shorter the duration of the disease, the less the emotional suffering[16]. Although no statistical correlation was identified between these variables in the present study, it is noteworthy that the sample had an average of 8.04 (± 4.68) years of DM and 54% had a high degree of emotional distress (B-PAID ≥ 40).

As for life habits, smoking and alcohol consumption were little mentioned by the participants of the present study. Abandoning smoking habits and alcoholic consumption is part of the strategies for achieving glycemic control and preventing complications. National research identified association of self-reported DM in ex-smokers and in those who reported alcohol abuse[13].

There was little mention of physical activity as well, which is essential to prevent complications and control DM, by maintaining stable glycemic levels and promoting weight reduction, in addition to positively impacting the quality of life of people with DM[17]. However, a study that investigated psycho-emotional aspects in people with DM identified negative feelings of discouragement associated with the difficulty in adopting regular physical activity[4].

According to the B-PAID Scale, the items with the highest averages were related to the emotional area and indicated the participants' concern about future complications of DM and the fear of living with the disease (3.06 and 2.95, respectively). Similar data were identified in other investigations, with a similar population and application of the same scale[4,11,16].

The literature shows that people with DM report fear of the disease and of possible complications but are unable of keepingtrack of diabetes care as they would like[4]. This fear should represent a motivation for adopting self-care measures in the treatment and diet, but this was not the case in the present study, especially when the following items were scored: Lack of goals in the treatment of DM and Feeling constantly concerned about food and eating, which were considered moderate problems, according to their average values (1.95 and 2.19, respectively). The items belong to the B-PAID areas related to treatment and feeding.

The lack of goals indicates that some participants do not establish guidelines for controlling the disease, and this can cause complications earlier than expected, in addition to a negative impact on the quality of life and increased emotional suffering[9]. In this context, family and friends are important for positive coping with the disease.

An international multicenter study that sought to implement a strategy for the prevention and control of DM indicated that the support of social networks, formed by family members and health professionals, has a positive effect[17]. The role of a multidisciplinary team that provides technical and emotional support to reduce the negative impact of DM stands out[9]. In the present study, feeling alone due to DM was the item with the highest score, with regard to the area of social support, demonstrating an aspect that should be better addressed by primary health care professionals in the investigated municipality.

The variables sex and place of residence showed a statistically significant association with B-PAID and respective items in the present study. Female participants and rural residents also showed higher values of emotional distress

in a cross-sectional investigation carried out in Lebanon[7].

When considering the items on the B-PAID Scale of uncomfortable social situations, feeling constantly concerned about food and eating, feeling depressed about living with DM, and not accepting DM were associated with sex. No studies were identified that associated B-PAID items with sociodemographic variables. A study that investigated the psychosocial aspects of living with DM identified that feelings of sadness and revolt are usual reactions to the treatment of the disease, especially due to the obligation to follow a dietary pattern, which interferes with social activities[4].

The average obtained in the B-PAID and in the 20 items showed a statistically significant association with the place of residence, with participants in the rural area having 2.1-foldgreater chances of presenting a high degree of emotional distress when compared to participants in the urban area. No studies were found that compared these variables.

People residing in rural areas have limited access to health services, especially specialized care[18]. Due to the large extension of the area covered by the BHU selected in the rural area, the bond between professional and DM patients is likely impaired, leading to greater emotional suffering due to DM.

The average found in the B-PAID was 46.9 points and most of the sample (54%) had a high degree of emotional distress. Studies with B-PAID carried out in Brazil[3,8] and abroad[7] identified lower values than the present ones in this scale.

The study's limitations were the difficulty of accessing patients' homes or even the fact that they were not at home when the home visits were made. Also, the characteristics of the cross-sectional design chosen in this study prevent the identification of a causal relationship between the findings.

CONCLUSION

Elderly people, of female sex, brown/black race, with incomplete elementary education, sedentary, non-smokers and non-alcoholics predominated in the sample. Most participants had a high degree of emotional distress.

The items with the highest scores were related to the emotional area of the B-PAID Scale, in which the concern about future complications and the fear of living with the disease were considered relevant problems. There was a statistically significant association between the variables sex and place of residence with the B-PAID value and respective items. Place of residence was also associated with a high degree of emotional distress related to type 2 DM.

It is hoped that the results of the present study will support the planning of nursing care for people with type 2 DM, especially those living in rural areas. This study also aimed to raise the awareness of health professionals about the importance of addressing emotional suffering related to DM so as to improve the quality of life, therapeutic adherence and self-care of people with type 2 DM.

SOFRIMENTO EMOCIONAL RELACIONADO AO DIABETES MELLITUS TIPO 2: ANÁLISE NA ATENÇÃO PRIMÁRIA À SAÚDE

RESUMO

Objetivo: Analisar o sofrimento emocional relacionado ao Diabetes Mellitus tipo 2, em pessoas atendidas na atenção primária à saúde. **Método:** Estudo transversal, quantitativo, realizado em duas unidades básicas de saúde cearenses. Para coleta de dados, utilizou-se da Escala *Brazilian version of the Problem Areas in Diabetes* para avaliar o sofrimento emocional. Os dados foram coletados com fonte primária, por visitas domiciliares. Realizou-se estatística descritiva e analítica. Os princípios éticos de pesquisa com seres humanos foram respeitados. **Resultados:** Participaram da pesquisa 113 pessoas com Diabetes Mellitus tipo 2. Predominaram idosas, pardas/ negras, com nível de escolaridade de ensino fundamental incompleto, sedentárias, não tabagistas e não etilistas. Em maioria, os participantes apresentaram alto grau de sofrimento emocional. A preocupação com complicações futuras e o medo de conviver com a doença foram considerados problemas relevantes pelos participantes. Houve associação estatisticamente significante das variáveis sexo e local de residência com alto grau de sofrimento mental. **Conclusão:** Os profissionais da atenção primária precisam planejar a assistência de enfermagem voltada para o sofrimento emocional relacionado ao Diabetes Mellitus tipo 2, especialmente entre pessoas do sexo feminino e que residem em áreas rurais.

Palavras-chave: Diabetes Mellitus. Estresse Psicológico. Atenção primária à saúde. Enfermagem.

SUFRIMIENTO EMOCIONAL RELACIONADO CON LA DIABETES MELLITUS TIPO 2: ANÁLISIS EN LA ATENCIÓN PRIMARIA DE SALUD

RESUMEN

Objetivo: Analizar el sufrimiento emocional relacionado con la Diabetes Mellitus tipo 2, en personas atendidas en la atención primaria a la salud. **Método:** Estudio transversal, cuantitativo, realizado en dos unidades básicas de salud de Ceará/Brasil. Para la recolección de datos, se utilizó la Escala *Brazilian version of the Problem Areas in Diabetes* para evaluar el sufrimiento emocional. Los datos fueron recolectados con fuente primaria, por visitas domiciliarias. Se realizó estadística descriptiva y analítica. Los principios éticos de la investigación con seres humanos fueron respetados. **Resultados:** Participaron de la investigación 113 personas con Diabetes Mellitus tipo 2. Predominaron ancianas, pardas/ negras, con nivel de escolaridad de enseñanza primaria incompleta, sedentarias, no tabaquistas y no alcohólicas. En la mayor parte, los participantes presentaron alto grado de sufrimiento emocional. La preocupación con complicaciones futuras y el miedo de convivir con la enfermedad fueron considerados problemas relevantes por los participantes. Hubo asociación estadísticamente significante de las variables sexo y local de residencia con el alto grado de sufrimiento mental. **Conclusión:** los profesionales de la atención primaria necesitan planificar la asistencia de enfermería dirigida para el sufrimiento emocional relacionado a la Diabetes Mellitus tipo 2, especialmente entre personas del sexo femenino y que residen en áreas rurales.

Palabras clave: Diabetes Mellitus. Estrés Psicológico. Atención primaria a la salud. Enfermería.

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