Cogitare Enfermagem

ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH MENTAL SUFFERING IN PEOPLE WITH DIABETES MELLITUS DURING THE COVID-19 PANDEMIC

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ABSTRACT

Objective: to analyze the factors associated with mental distress in people with diabetes *mellitus* during the COVID-19 pandemic. Method: cross-sectional study, conducted in two Brazilian virtual communities of the Facebook platform, in the period from August 2020 to January 2021. The sample totaled 111 people with diabetes. The evaluation of health conditions was performed using an electronic form, and the Self Report Questionnaire-20 was used to identify mental suffering. Descriptive and inferential analyses were expressed by frequencies and simple and multiple logistic regression. Results: mental suffering is associated with being female, having a previous history of mental disorders (depression and anxiety), having been diagnosed with diabetes for more than six years, and the presence of ophthalmologic complications, which increase the chances of emotional instability. Conclusion: the study offers subsidies to the direction of support strategies that minimize the psychosocial impacts of the pandemic on people with diabetes.

DESCRIPTORS: Diabetes Mellitus; Pandemics; COVID-19; Risk Factors; Mental Health.

HOW TO REFERENCE THIS ARTICLE:
Filho AAIC, Ribeiro LM dos S, Alencar D de C, Oliveira NA de, Rabi JÁ, Ibiapina AR de S. Factors associated with mental suffering in people with Diabetes Mellitus during the covid-19 pandemic. Cogitare Enferm. [Internet]. 2022 [accessed "insert day, monh and year"]; 27. Available from:dx.doi.org/10.5380/ce.v27i0.87126

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INTRODUCTION

The end of 2019 marked the emergence of the new coronavirus disease, whose pandemic (decreed in March/2020) has disrupted social, cultural, economic, political, and health contexts around the world. First identified in the city of Wuhan (China) and referred to by the World Health Organization (WHO) as Coronavirus Disease 2019, COVID-19 has become a problem of great magnitude in view of its potential for global dissemination and the need for care restructuring in different contexts and levels of health care[1-2].

Despite the reduction in epidemiological indicators based on the implementation of strategies for population immunization[3-4], global numbers still totaled, by October 29, 2021, about 245,373,039 confirmed cases and 4,979,421 deaths. In this period, the highest prevalence of the disease was reported in the Americas, especially, in the United States and Brazil, which concentrate the highest number of notifications[5]. Besides the physical impacts generated by COVID-19, the impacts on the mental health of the population must be highlighted, with an increase in the prevalence of common mental disorders (CMD)[6-8].

Common mental disorders refer to health situations that do not meet sufficient formal criteria for depression and/or anxiety diagnoses according to the DSM-V (Diagnostic and Statistical Manual of Mental Disorders - 5th edition) and ICD-11 (International Classification of Diseases - 11th revision) classifications. However, symptoms such as insomnia, fatigue, somatic complaints, forgetfulness, irritability, and difficulty in concentrating, among others, cause a significant functional disability, bringing psychosocial losses to the individual, as well as high social and economic costs[9-10].

The frequency of CMD symptoms may be higher in subjects with comorbidities, including DM, which reveals the need to design interdisciplinary management strategies to restore mental health. In this sense, it is important that the psychological intervention be based on the biological, emotional, social, and cultural resources of the subject during the entire process that includes the diagnosis, treatment, and possible difficulties that may arise because of the disease[11].

The association between diabetes *mellitus* (DM) and mental health problems may be exacerbated in a stressful environment, and mental distress may increase depressive symptoms and cause adverse outcomes in the metabolic control of diabetes[12-13]. The emergence of a potentially fatal pandemic represents a new reason for uncertainty and anxiety in this group of patients.

In the perspective that the spread of a viral disease little known by the scientific community is associated with the recommendation of social distancing and the characterization of DM as a risk factor for severe complications in patients who become infected with the SARS-CoV-2 virus, a permissive environment for the development of investigations is formed. The identification of factors associated with mental suffering experienced by this population can contribute to the formation of subsidies favorable to the reorganization of public policies and integral lines of care associated with the network of care for chronic non-communicable diseases (NCDs)[13].

Considering that the person with DM faces organic, emotional, and social limitations arising from the disease, and that added to this is the greater possibility of worsening the COVID-19 picture due to this condition, the convergence of these factors makes the mental health of this subject exposed to damage, such as depression and anxiety, changes in family structure and quality of life. Given this, this study aimed to analyze the factors associated with mental distress in people with diabetes *mellitus* during the pandemic of COVID-19.

METHOD

This is a cross-sectional study, developed in the two most relevant Virtual Communities (VC) (with the highest number of members and posts) of the Facebook® platform. The VCs selected were: "Diabetes - Diabetics" (64,100 members), created on 03/20/2012 with only one administrator, and "Diabetes Controlled" (26,650 participants), structured on 12/17/2017 with three administrators and a moderator. The choice to develop the study in a virtual environment occurred due to social restriction measures, recommended by government and health authorities to control the spread of COVID-19.

For sample design, the non-probabilistic technique by convenience was used. Thus, 111 people with DM, of both genders, aged between 18 and 60 years old, and registered as members of open and public communities participated in this research. Exclusion was conditioned to participants from commercial or institutional VCs and those without recent posts. For recruitment, public messages posted in the communication forums were forwarded, in which the objectives, justification, and collection procedures were presented.

Data collection was performed in the period from August 2020 to January 2021 by means of an electronic form (Google forms), in which sociodemographic variables were considered: age, gender, city, state, education, marital status, whether lives alone in the residence, occupation, and economic class according to family income; and the following health conditions: presence of mental disorder; previous psychiatric treatment; time of treatment and DM diagnosis, number of consultations, physical activity, use of medications (oral hypoglycemic agents, insulin), presence of diabetic complications (cardiovascular, ophthalmological, neurological, renal, dyslipidemia), place and health professional performing the follow-up.

For psychiatric evaluation, we used the symptom questionnaire called Self Report Questionnaire-20 (SRQ-20)[14], validated for the Brazilian context in 1986[15] and composed of 20 structured items for screening non-psychotic mental disorders. The WHO recommends its use in developing countries, especially for community studies, as it has evidence of reliability, low cost, and ease of use[16].

The data were entered into a double-entry spreadsheet, in Microsoft Excel® software, and later exported to the IBM Statistical Package for the Social Sciences, version 24.0, to perform descriptive and inferential analyses.

The prevalence of mental distress was expressed by descriptive measures of mean, standard deviation, median, minimum, and maximum. In inferential statistics, bivariate and multivariate hypothesis tests were applied. The bivariate test of association between qualitative variables used was simple logistic regression (unadjusted Odds), whose objective was to select the possible factors that could explain the prevalence found.

In addition, the variables were subjected to the multivariate model by means of multiple logistic regression (adjusted Odds). All analyses were performed considering a significance level of 0.05 for rejection of the null hypothesis. The study complied with the precepts and recommendations of the National Health Council and was approved by the Research Ethics Committee of the Federal University of Piauí, under opinion number 4,178,828.

RESULTS

Of the 111 people with DM participating in the study, there were greater indicators of psychic instabilities among women, 35 (31.5%). Next came married participants, 25

(22.5%), with high school education, 15 (13.5%), formal employment status, 21 (18.9%), and income of up to two minimum wages, 14 (12.6%).

A significant association was verified between gender and mental suffering (p = 0.019), showing that women, when compared to men, have 3.023 times more chances of mental suffering. The sociodemographic characterization and its relationship with mental suffering are presented in Table 1.

Table 1 - Association between the sociodemographic profile and the presence of mental distress in people with diabetes mellitus. Picos, PI, Brazil, 2021

Variables	SRQ-20			
	Without suffering	With suffering		
	n(%)	n(%)	P-value[1]	OR(CI-95%)[2]
Gender			0.019	
Male	26(23.4)	7(6.3)		
Female	43(38.7)	35(31.5)		3.023(1.173-7.789)
Age Group			0.603	
20|-39 years old	31(27.9)	21(18.9)		
40|-|59 years old	38(34.2)	21(18.9)		
Education			0.978	
Elementary School	11(9.9)	7(6.3)		
High School	23(20.7)	15(13.5)		
Higher Education	16(14.4)	10(9.0)		
Post-Graduation	19(17.1)	10(9.0)		
Marital Status			0.309	
Single	25(22.5)	14(12.6)		
Married / Stable Union	33(29.7)	25(22.5)		
Divorced / Widower	11(9.9)	3(2.7)		
Do you live alone in your residence?			0.448	
Yes	8(7.2)	7(6.3)		
No	61(55.0)	35(31.5)		
Occupation			0.824	
Formal employment (with employment relationship)	36(32.4)	21(18.9)		
Informal employment (without employment relationship)	33(29.7)	21(18.9)		
Economic class by family income			0.446	
Less than 1 minimum wage	6(5.4)	2(1.8)		
1 minimum wage	11(9.9)	6(5.4)		
Up to 2 minimum wages	16(14.4)	14(12.6)		

From 2 to 4 minimum wages	19(17.1)	13(11.7)
From 4 to 10 minimum wages	12(10.8)	7(6.3)
More than 10 minimum wages	5(4.5)	0(0.0)

Legend: [1]Fisher's Exact Test; [2]Odds ratio - 95%CI. Minimum wage in Brazil: R$:1,100.00.
Source: Authors (2021).

Table 2 presents the health conditions associated with symptoms of mental distress. Of the participants, 23 (20.7%) indicated that at some point in their lives they had been diagnosed with a mental disorder (p = 0.038), with a 4.243 times greater odds ratio for unstable situations compared to individuals with no prior history. In addition, 18 (78.2%) indicated that they had undergone treatment for mental disorder (p = 0.231).

The diagnosis of diabetes more than six years ago prevailed in the sample 75 (67.5%) (p = 0.002) and increased up to 4.180 times the chances for mental suffering. As for therapeutic methods, 90 (81.1%) were on a diet (p = 0.598), followed using oral medication 76 (68.4%) (p = 0.601), and insulin 48 (43.2%) (p = 0.212). Physical activity was an expressive practice in the sample 63 (56.7%), but with no association with the presence of mental distress (p = 0.021).

The most prevalent DM complications involved cardiovascular impairments 15 (13.5%), (p = 0.013), ophthalmological 33 (29.7%), (p = 0.005), neurological seven (6.3%), (p = 0.058), renal 10 (9%), (p = 0.028) and dyslipidemias 13 (11.7%), (p = 0.961). The study showed that ophthalmologic patients had a higher risk for mental suffering, since the presence of this complication increases up to 4.005 times the chances for mental health problems. In addition, 78 (70.2%) people indicated they were treated in a private clinic (p = 0.913), and 81 (72.9%) were treated by an endocrinologist (p = 0.668).

Table 2 - Association between health conditions and symptoms of mental distress of people with diabetes *mellitus* in the Covid-19 pandemic period. Picos, PI, Brazil, 2021

Variables	SRQ-20			
	Without suffering	With suffering		
	n(%)	n(%)	P-value[1]	OR(CI-95%)[2]
Health Conditions				
Diagnosis of mental disorder			0.038	
Yes	10(9.0)	13(11.7)		4.243(1.441-12.761)
No	59(53.2)	29(26.1)		
Treatment for mental disorder			0.231	
Yes	9(39.1)	9(39.1)		
No	1(4.3)	4(17.4)		
Time of DM diagnosis			0.002	

Up to 5 years old	15(13.5)	21(18.9)		4.180(1.595-10.951)
≥ 6 years old	54(48.6)	21(18.9)		
Number of appointments per year			0.676	
1 appointment	16(14.4)	12(10.8)		
2-3 appointments	32(28.8)	16(14.4)		
≥ 4 appointments	21(18.9)	14(12.6)		
Type of DM treatment [Diet]			0.598	
Yes	57(51.4)	33(29.7)		
No	12(10.8)	9(8.1)		
Type of DM treatment [Oral Medication]			0.601	
Yes	46(41.4)	30(27.0)		
No	23(20.7)	12(10.8)		
Type of DM treatment [Insulin] Yes			0.212	
Yes	33(29.7)	15(13.5)		
No	36(32.4)	27(24.3)		
Physical activity			0.021	
Yes	45(40.5)	18(16.2)		0.443(0.179-1.097)
No	24(21.6)	24(21.6)		
Complications of diabetes *mellitus* [Cardiovascular]			0.013	
Yes	5(4.5)	10(9.0)		1.785(0.453-6.814)
No	64(57.7)	32(28.8)		
Complications of Diabetes *Mellitus* [Ophthalmologic]			0.005	
Yes	14(12.6)	19(17.1)		4.005(1.379-11.632)
No	55(49.5)	23(20.7)		
Complications of Diabetes *Mellitus* [Neurological]			0.058	
Yes	2(1.8)	5(4.5)		
No	67(60.4)	37(33.3)		
Complications of Diabetes *Mellitus* [Renal]			0.028	
Yes	3(2.7)	7(6.3)		2.117(0.418-10.722)
No	66(59.5)	35(31.5)		
Complications of Diabetes *Mellitus* [Dyslipidemia]			0.961	
Yes	8(7.2)	5(4.5)		
No	61(55.0)	37(33.3)		

Place of Treatment			0.913
Family Health Strategy	15(13.5)	9(8.1)	
Private Practice	49(44.1)	29(26.1)	
None	5(4.5)	4(3.6)	
Professional Accompaniment			0.668
Nurse	4(3.6)	1(0.9)	
Clinical Doctor	16(14.4)	9(8.1)	
Endocrinologist	49(44.1)	32(28.8)	

Legend: [1] Fisher's Exact Test; [2] Odds ratio- 95%CI.
Source: Authors (2021).

DISCUSSION

This study analyzed the factors associated with mental suffering in a sample with DM and with access to the Internet, showing a predominance of mental suffering in females, as in another study that also found more suffering in women[17]. This result may be related to the greater adherence to treatment and disease prevention by women, who seek health services more often than men[18]. However, it is relevant to consider that men also experience mental suffering in the current pandemic scenario, and even if the literature shows a low demand for health services, studies developed with Brazilian men revealed a mobilization of the male public for self-care, especially in the development and use of emotional self-care strategies during the pandemic[8,19].

The association between gender and mental suffering shows that the pandemic of COVID-19 intensified the susceptibility of women to symptoms of anxiety and depression, especially when they have diabetes, since this condition increases the predisposition to emotional instabilities. Other determinants, such as hormone levels and the sociocultural context, also contribute to greater impacts on mental health[20].

Regarding age, the age group 30 to 59 concentrated the highest levels of mental suffering, totaling 37.8%, showing greater involvement in the adult population. In turn, low levels of education may hinder the access to health information, which tends to compromise the understanding of the orientations about DM prevention and/or treatment, implying a lower control of the disease and a higher risk of complications, as well as a higher incidence of psychopathological comorbidities. Another important factor to be considered is self-care focused on physical exercises, which became weakened and/or neglected during social isolation, thus favoring the development of psychological alterations[21].

The pandemic of COVID-19 and the measures for prevention and epidemiological control had a direct impact on the loss of income[22]. In this study, people with income of up to two minimum wages reported greater mental suffering, which may be related to anxiety, uncertainty, and fear of financial instability during the pandemic. A study conducted in 17 Brazilian states showed that 67.5% of participants associated the employment relationship with anxiety indicators[23].

Of the group studied, only 13.5% of people lived alone in their homes, of which 6.3% reported mental suffering. The fact of living alone and having no company during the pandemic period can generate insecurity and anxiety, since the pandemic is considered a stressful agent, given the social repercussions[24].

According to the Brazilian Diabetes Society, people with chronic diseases, such as diabetes, can respond intensely to stress during pandemic outbreaks, experiencing severely

feelings of anxiety, worry, eating and sleep alterations, loss of interest in performing activities that previously generated pleasure, and a feeling of uselessness[24-25]. Of the population studied, 20.7% indicated that they were diagnosed with a mental disorder and 78.2% said they had been treated for the disorder.

A study conducted in England indicates that people who develop diabetes are more likely to feel lonely and isolated[26]. Therefore, health care and attention in the pandemic period should prioritize, besides the maintenance of clinical conditions, the promotion of mental health and the valorization of family support, with strategies favorable to self-care and the development of effective measures to face the pandemic situation.

The practice of physical exercises was significant in the sample, and it can bring several benefits to the health of people with diabetes. Besides acting in glycemic control, such practice helps to lose weight and fat, improves aerobic resistance, provides well-being, and improves quality of life[27].

It is also noteworthy that people reporting more difficult glycemic control during the period of social withdrawal needed to use more insulin. Half of these participants reported weight gain and less physical exercise[13].

Balanced diet and physical activity are pillars of diabetes self-care and can reduce the risk of unfavorable outcomes in those with cardiometabolic morbidities[28]. The adoption of a regular exercise plan may not be feasible due to social distance, restrictions on outdoor activities, and concerns about the high risk of spreading disease in sports centers[29].

It is important to emphasize that psycho-emotional alterations can worsen and constitute risk factors for complications, such as retinopathy, nephropathy, ischemic heart disease, neuropathies, cerebrovascular and peripheral vascular disease, besides acute myocardial infarction, peripheral arteriopathy, stroke, and microangiopathy[28]. In the group studied, 33.3% reported having no complications from DM; however, the second highest percentage (29.7%) was related to ophthalmologic complications.

DM requires qualified care, adequate treatment to prevent complications and promote quality of life. This assistance is the responsibility of health professionals, especially nurses, who have greater proximity and care with the user at different levels of care. Among the participants in this study, 21.6% were treated in the Family Health Strategy, and 4.5% were accompanied by nurses. It is noteworthy that this professional category presents skills for managing and monitoring the physical and psychological, intellectual, and emotional repercussions[29], reducing mental suffering in diabetics and maintaining control of the signs and symptoms of this disease, during and after the pandemic.

It is worth pointing out that, during the social isolation and distancing measures imposed by the pandemic moment, the use of online tools as a care strategy stands out, among them virtual communities, which are spaces for clarifying doubts, directing care, and offering social support[30], being an efficient alternative for intervening in mental health[6].

Finally, it is specified that the limitations of the study were due to the cross-sectional design, which makes it impossible to analyze causal relations and comparisons about the psychic impact before and during the pandemic; the non-probabilistic sample type, which does not allow the generalization of its results; and the data collection, which was limited to those who had access to the internet and were recruited through the Facebook platform. Thus, the development of longitudinal studies is suggested, for the follow-up of the evolution of the mental health of people with diabetes, to evaluate the behavior and stability of the predictive model.

Despite such limitations, this study provides an overview of the mental health of people with DM during a pandemic, which reveals the need to formulate programmatic and strategic public actions to strengthen and protect the mental health of this population, both during the pandemic and in the post-pandemic period.

CONCLUSION

During the COVID-19 pandemic, people with diabetes *mellitus* reported mental distress, where gender and self-reported health conditions were sociodemographic and clinical predictors for emotional instabilities.

The highest indicators of suffering were expressed in the female gender, in married participants, with high school education, formal employment relationship, and income of up to two minimum wages. Moreover, the previous history of mental disorder and psychiatric treatment, diagnosis of diabetes for more than six years, and the presence of ophthalmologic complications increased the chances for psychic instabilities, constituting important predictors for mental health compromises.

This study contributes to offer subsidies to the direction of actions in the field of health promotion that favor the identification of the most vulnerable groups and, therefore, enable the creation of strategies and integral lines of care. In this process, support strategies can be directed, such as promoting care mechanisms among peers, their socio-affective networks, and community support, to minimize the psychosocial impacts of the current pandemic moment, as well as to promote the well-being and mental health of the person with diabetes.

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Received: 10/12/2021
Approved: 28/04/2022

Associate editor: Luciana Nogueira

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ISSN 2176-9133