


Sociodemographic profile, health conditions and social distancing of people with diabetes during the COVID-19 pandemic


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Objective: to analyze the sociodemographic profile, health conditions, and social distancing of people with diabetes during the COVID-19 pandemic. **Methodology:** cross-sectional, exploratory study, conducted with 111 participants from two Facebook® Virtual Communities focused on diabetes mellitus, from August 2020 to January 2021, using an electronic form, containing sociodemographic variables, health conditions and social distancing profile. For data analysis, the IBM SPSS® software, version 24.0 was used. **Results:** there was a prevalence of comorbidity in women (70.3%), in middle age (53.2%); diagnosis for more than six years (67.7%), with diet being the most used treatment (81.1%). Most were not diagnosed with a mental disorder (79.3%). Regarding social isolation, 45.0% of the participants adhered to it. **Conclusion:** although a small proportion of diabetics had a mental disorder, the pandemic negatively impacted their lives, as they are more likely to develop severe forms of SARS-CoV-2.

Descriptors: Diabetes Mellitus; COVID-19; Mental Health; Pandemics; Social Isolation; Social Networking.



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Perfil sociodemográfico, condições de saúde e distanciamento social de pessoas com diabetes durante a pandemia de COVID-19

Objetivo: analisar o perfil sociodemográfico, as condições de saúde e o distanciamento social de pessoas com diabetes durante a pandemia de COVID-19. **Metodologia:** estudo transversal, de caráter exploratório, realizado com 111 participantes de duas Comunidades Virtuais do Facebook® voltadas ao diabetes *mellitus*, no período de agosto de 2020 a janeiro de 2021, por meio de um formulário eletrônico, contendo variáveis sociodemográficas, condições de saúde e perfil de distanciamento social. Para análise dos dados utilizou-se o *software* IBM SPSS®, versão 24.0. **Resultados:** houve uma prevalência da comorbidade em mulheres (70,3%), na meia-idade (53,2%); diagnóstico há mais de seis anos (67,7%), sendo a dieta o tratamento mais utilizado (81,1%). A maioria não obteve diagnóstico de transtorno mental (79,3%). Sobre o isolamento social, houve aderência de 45,0% dos participantes. **Conclusão:** embora uma pequena proporção dos diabéticos tenha apresentado transtorno mental, a pandemia impactou negativamente suas vidas, por estarem mais susceptíveis a desenvolver formas graves do SARS-CoV-2.

Descritores: Diabetes Mellitus; COVID-19; Saúde Mental; Pandemias; Isolamento Social; Rede Social.

Perfil sociodemográfico, condiciones de salud y distancia social de las personas con diabetes durante la pandemia de COVID-19

Objetivo: analizar el perfil sociodemográfico, las condiciones de salud y la distancia social de las personas con diabetes durante la pandemia de COVID-19. **Metodología:** estudio exploratorio transversal, realizado con 111 participantes de dos Comunidades Virtuales de Facebook® enfocadas a la diabetes *mellitus*, de agosto de 2020 a enero de 2021, a través de un formulario electrónico, que contiene variables sociodemográficas, condiciones de salud y perfil de distanciamiento social. Para el análisis de los datos se utilizó el *software* IBM SPSS®, versión 24.0. **Resultados:** hubo prevalencia de comorbilidad en mujeres (70,3%), en edad media (53,2%); diagnóstico desde hace más de seis años (67,7%), siendo la dieta el tratamiento más utilizado (81,1%). La mayoría no fueron diagnosticados con trastorno mental (79,3%). En cuanto al aislamiento social, 45,0% de los participantes se adhirió al mismo. **Conclusión:** aunque una pequeña proporción de diabéticos tenía un trastorno mental, la pandemia afectó negativamente sus vidas, ya que es más probable que desarrollen formas graves de SARS-CoV-2.

Descriptorios: Diabetes Mellitus; COVID-19; Salud Mental; Pandemias; Aislamiento Social; Red Social.

Introduction

The year 2020 marked the rise of a pandemic, which began in 2019, which has been disrupting social, cultural, economic, political and health contexts around the world. It is a new coronavirus disease first identified in the city of Wuhan, China and referred to by the World Health Organization (WHO) as Coronavirus Disease 2019 (COVID-19), becoming a problem of great magnitude due to its potential for global dissemination and the need for care restructuring in different contexts and levels of health care⁽¹⁾.

Although the epidemiological impacts are evident, the health crisis is a major challenge, in view of the possible consequences on mental health, family structure and the quality of life of the population. Thus, gaps in knowledge involving the physical and psychosocial repercussions are evident, especially when involving people who are at high risk for serious complications, among them, patients with diabetes *mellitus* (DM)⁽²⁻³⁾.

Studies reveal that the presence of psychosocial problems specific to diabetes can be easily exacerbated in stressful environments, reducing the quality of life, the self-management of the affected person, in addition to triggering inadequate glycemic control, which may lead to non-adherence to the quarantine recommendations imposed by the pandemic⁽⁴⁻⁶⁾.

Statistical data from the International Diabetes Federation (IDF) state that DM affects approximately 463 million people worldwide. In Brazil, the number of people diagnosed in the last ten years has increased by 61.8%, thus occupying the 4th place in the ranking of countries with the highest number of people with DM aged between 20 and 79 years⁽⁷⁾.

People with DM can evolve with systemic disabilities, such as: cardiovascular diseases, retinopathies, neuropathies, nephropathy, infertility and psychiatric disorders⁽⁸⁾. In this sense, the person with diabetes becomes more sensitive to COVID-19, in the face of immunological alterations related to hyperglycemia, in addition to the resulting diseases capable of providing greater vulnerability to contagion and with a greater risk of developing severe forms of Severe Acute Respiratory Syndrome (SARS), contributing to fatal outcomes⁽⁹⁾.

However, in view of the isolation and social distancing measures adopted to ensure the dissolution of the epidemic curve and avoid collapses in health systems, there is a probable predisposition to suffering and mental illness in diabetic people. In addition to the epidemiological and sanitary measures due to the pandemic, there are difficulties in accessing health services that favor the interruption of treatment and greater vulnerability to infection⁽¹⁰⁾. Psychosocial effects can arise or intensify, severely affecting mental

health, physical functioning, family structure, loss of productivity, worse perception of the overall state of health and quality of life, requiring support measures and care management⁽⁵⁾.

The literature points to significant associations with lower life expectancy and quality of life, as well as a higher prevalence of mental suffering due to the need for continuous care, the high prevalence of complications and the need for hospitalizations or adjuvant therapies. Despite this relationship being widely investigated, the analysis of the impacts imposed by the pandemic context on mental health indicators is incipient and limited⁽⁹⁻¹⁰⁾.

In the perspective in which 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 predictor of the risk of serious complications, a permissive environment is formed for the development of investigations that aim to identify the socio-demographic characteristics profile, health conditions and social distancing experienced by this population and the formation of subsidies favorable to the reorganization of public health policies and comprehensive lines of care⁽¹¹⁾.

The data obtained from the present study may direct support strategies aimed at people with DM, aiming at minimizing the impacts imposed by the pandemic moment, as well as promoting well-being and mental health. Therefore, this study aimed to analyze the sociodemographic profile, health conditions and social distancing of people with diabetes in the COVID-19 era.

Methodology

Study type

This is a cross-sectional, exploratory study.

Data collection setting

The study was carried out in the two most relevant virtual communities (VC) (with the highest number of members and posts) on the Facebook® platform aimed at DM.

Period

Data collection took place from August 2020 to January 2021.

Population

The study population consisted of people with diabetes participating in two virtual communities on the Facebook platform.

Selection criteria

Inclusion criteria were: people with DM, of both genders, aged 18 years or older, and registered as members of open and public communities. Exclusion was conditional on VC participants of commercial or institutional origin and those without recent posts.

Sample definition

For the sample design, the non-probabilistic technique was used for convenience. Thus, 111 people with DM participated in this investigation.

Data collection

For recruitment, public messages posted on the communication forums were forwarded, in which the objectives, justification and data collection procedures were presented, in addition to the availability of the Informed Consent Form (ICF), through an electronic form on Google Forms.

A questionnaire organized by the researchers was used, containing sociodemographic variables (such as age, gender, city, state, education, marital status, if you live alone in the house, what occupation and economic class according to family income) and health conditions (presence of mental disorder; previous psychiatric treatment; time of DM treatment and diagnosis; number of appointments; physical activity; presence of diabetic complications; place and health professional who performs the follow-up) and the social distancing profile (adherence to the social isolation, quarantine, presence of flu symptoms in the last 30 days, contact with someone who tested positive for COVID-19, testing for COVID-19, diagnosis for COVID-19, occurrence of death due to COVID-19 in some family and level of

information regarding guidelines on ways of contagion by COVID-19).

Data analysis

The data were entered into a spreadsheet with double entry, in the Microsoft Excel® software and subsequently exported to the IBM Statistical Package for the Social Sciences program, version 24.0, to proceed with the descriptive statistical analysis.

Ethical aspects

The study was approved by the Research Ethics Committee of the Federal University of PiauÍ (UFPI), #4,178,828. The legal and ethical perspectives were respected, as recommended by Resolution 466/2012 of the National Health Council and circular letter No. 02 of February 24, 2021, which deals with guidelines for procedures in research with any stage in a virtual environment.

Results

Sociodemographic characterization

Table 1 presents the sociodemographic characterization of people with DM. Most diagnosis of DM were women: 78 people were female (which corresponds to 70.3%), 59 participants (about 53.2%) were in the 40-59 age group, 58 (52.3%) are married or live in a stable union, and 96 (86.5%) of respondents live with other people. In terms of education, high school completion were highlighted: 38 people (34.2%). Regarding work, 57 (51.4%) have a formal job and 32 (28.8%) earn between two and four minimum wages.

Table 1 - Characterization of the sociodemographic profile of people with DM during the COVID-19 pandemic (n=111). Picos, PI, Brazil, 2021

Sociodemographic Profile	N ^o (%)	95%CI ^a	Mean	SD ^b
Gender				
Male	33(29.7)	(21.8-39.7)		
Female	78(70.3)	(61.3-78.2)		
Age Range				
20- 39 years	52(46.8)	(37.7-56.1)	39.6(37.5-42.1)	12.3
40- 59 years	59(53.2)	(43.9-62.3)		
Education				
Elementary School	18(16.2)	(10.3-39.2)		
High school	38(34.2)	(25.9-43.4)		
University education	26(23.4)	(16.3-31.9)		
Postgraduate studies	29(26.1)	(18.6-34.8)		

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Sociodemographic Profile	N* (%)	95%CI†	Mean	SD‡
Marital status				
Single	39(35.1)	(26.7-44.3)		
Married / Stable union	58(52.3)	(43.0-61.4)		
Divorced / Widowed	14(12.6)	(7.4-19.7)		
Do you live alone in your home?				
Yes	15(13.5)	(8.1-20.8)		
No	96(86.5)	(79.2-91.9)		
Work				
Formal employment (With employment relationship)	57(51.4)	(42.1-39.4)		
Informal employment (No employment relationship)	54(48.6)	(39.5-57.9)		
Economic class according to family income				
Up to BRL 1,045.00 (Less than 01 minimum wage)	8(7.2)	(3.5-13.1)		
BRL 1,045.00 (01 minimum wage)	17(15.3)	(9.5-22.9)		
Up to BRL 2,090.00 (Up to 02 minimum wages)	30(27.0)	(19.4-35.8)		
From BRL 2,090.00 to BRL 4,180.00 (From 02 to 04 minimum wages)	32(28.8)	(21.0-37.7)		
From BRL 4,180.00 to BRL 10,450.00 (From 04 to 10 minimum wages)	19(17.1)	(11.0-24.9)		
More than BRL 10,450.00 (More than 10 minimum wages)	5(4.5)	(1.7-9.6)		

*N = Absolute number; †95%CI = 95% confidence interval; ‡SD = Standard deviation

Characterization of health conditions

According to Table 2, most of the participants (75 of them, a percentage corresponding to 67.6%) received the diagnosis of DM for more than 6 years, 78 (70.3%) of the interviewees carried out health monitoring in private clinic, 48 (43.2%) people had 2-3 consultations a year and 81 (73%) preferred to be followed up by an endocrinologist. Regarding the type of treatment: 90 (81.1%) of the participants used the diet; 76 (68.5%) use oral medication; 63 (56.8%) do not use insulin, as well as 63 (56.8%)

preferentially practice physical activities. Among DM complications, 74 (66.7%) denied having any complications and 33 (29.7%) reported having ophthalmological complications, 15 (13.5%) indicated cardiovascular complications, 13 (11.7%) reported dyslipidemia, 10 (9%) reported renal complications and 7 (6.3%) reported neurological complications. As for the association between DM and mental disorder, 23 (20.7%) of the participants had already been diagnosed at some point in their lives, of which 18 (78.3%) received treatment, resulting in a prevalence of 15.3% for drug treatment.

Table 2 - Characterization of the health conditions of people with DM during COVID-19 pandemic (n=111). Picos, PI, Brazil, 2021

Health condition	N* (%)	95%CI†
Have you ever been diagnosed with a mental disorder at some point in your life?		
Yes	23(20.7)	(14.0-29.0)
No	88(79.3)	(71.0-86.0)
Have you ever been treated for a mental disorder?		
Yes	18(78.3)	(58.7-91.2)
No	5(21.7)	(8.8-41.3)
How long ago were you diagnosed with diabetes mellitus?		
Up to 5 years	36(32.4)	(24.3-41.5)
≥ 6 years	75(67.6)	(58.5-75.7)

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Health condition	N* (%)	95%CI†
How many appointments do you make per year?		
1 visit	28(25.2)	(17.9-33.9)
2-3 visits	48(43.2)	(34.3-52.5)
≥ 4 visits	35(31.5)	(23.4-40.6)
What type of treatment do you have for diabetes mellitus? [Diet]		
Yes	90(81.1)	(73.0-87.5)
No	21(18.9)	(12.5-27.0)
What type of treatment do you have for diabetes mellitus? [Oral medicine]		
Yes	76(68.5)	(59.4-76.6)
No	35(31.5)	(23.4-40.6)
What type of treatment do you have for diabetes mellitus? [Insulin]		
Yes	48(43.2)	(34.3-52.5)
No	63(56.8)	(47.5-65.7)
Do you do regular physical activity?		
Yes	63(56.8)	(47.5-65.7)
No	48(43.2)	(34.3-52.5)
Have you had or do you have any type of complications from diabetes mellitus? [Cardiovascular]		
Yes	15(13.5)	(8.1-20.8)
No	96(86.5)	(79.2-91.9)
Have you had or do you have any type of complication of diabetes mellitus? [Ophthalmological]		
Yes	33(29.7)	(21.8-38.7)
No	78(70.3)	(61.3-78.2)
Have you had or do you have any type of complication of diabetes mellitus? [Neurological]		
Yes	7(6.3)	(2.9-12.0)
No	104(93.7)	(88.0-97.1)
Have you had or do you have any type of complication of diabetes mellitus? [Renal]		
Yes	10(9.0)	(4.7-15.4)
No	101(91.0)	(84.6-95.3)
Have you had or do you have any type of complication of diabetes mellitus? [Dyslipidemia]		
Yes	13(11.7)	(6.7-18.7)
No	98(88.3)	(81.3-93.3)
Have you had or do you have any type of complication of diabetes mellitus? [None]		
Yes	37(33.3)	(25.1-42.4)
No	74(66.7)	(57.6-74.9)
The follow-up of your treatment is carried out in which health service?		
Family Health Strategy	24(21.6)	(14.8-29.9)
Private Clinic	78(70.3)	(61.3-78.2)
None	9(8.1)	(4.1-14.3)
Which health professional are you accompanied by?		
Nurse	5(4.5)	(1.7-9.6)
Clinical doctor	25(22.5)	(15.5-30.9)
Endocrinologist Doctor	81(73.0)	(64.2-80.6)

*N = Absolute number; †95%CI = Confidence Interval

Characterization of the social distancing profile

Regarding actions to mitigate the pandemic (Table 3) regarding social distancing, 50 (45%) of

the participants stated that they are respecting it, 99 (89.2%) feel well-informed regarding the guidelines on the ways of transmitting COVID -19. In the last thirty

days, considering the period of data collection, 91 (82%) reported not having had any flu symptoms, 72 (64.9%) had not been tested for COVID-19 and 96 (86.5%) of those who did, self-declared that the diagnosis

was negative for the disease. The data reveal that 74 (66.7%) of the participants had no contact with someone who tested positive for COVID-19 and 102 (91.9%) had no relatives who died because of SARS-CoV-2 virus.

Table 3 - Characterization of the social distancing profile of people with DM during the COVID-19 pandemic (n=111). Picos, PI, Brazil, 2021

Social distancing profile	N* (%)	95%CI†
Are you in social isolation (quarantine)?		
Yes	50(45.0)	(36.0-54.3)
No	13(11.7)	(6.7-18.7)
Partially	48(43.2)	(34.3-52.5)
Have you had any flu-like symptoms in the last 30 (thirty) days?		
Yes	20(18.0)	(11.7-25.9)
No	91(82.0)	(74.1-88.3)
Have you been in contact with someone who tested positive for COVID-19‡?		
Yes	37(33.3)	(25.1-42.4)
No	74(66.7)	(57.6-74.9)
Have you been tested for COVID-19‡?		
Yes	39(35.1)	(26.7-44.3)
No	72(64.9)	(55.7-73.3)
Have you been diagnosed with COVID-19‡?		
Yes	15(13.5)	(8.1-20.8)
No	96(86.5)	(79.2-91.9)
Did you have a relative who died from COVID-19‡?		
Yes	9(8.1)	(4.1-14.3)
No	102(91.9)	(85.7-95.9)
Do you feel well-informed about the guidelines on how to transmit COVID-19‡?		
Yes	99(89.2)	(82.4-94.0)
No	12(10.8)	(6.0-17.6)

*N = Absolute number; †95%CI = confidence interval; ‡COVID-19 = Coronavirus disease

Discussion

The sample analyzed in this study shows a predominance of females (70.3%) with similar characteristics to the epidemiological study carried out in southeastern Brazil, in which most women are married or in a stable relationship, live with other people and have occupation⁽¹²⁾. The association between sex and mental suffering demonstrates that, in the COVID-19 pandemic, women are more susceptible to the development and/or intensification of symptoms of anxiety and depression, especially when they have diabetes, since this condition increases the predisposition for emotional instabilities. Still, other determinants stand out, such as hormonal levels and the sociocultural context that contribute to greater impacts on mental health^(8,13).

Insulin resistance is related to several factors, including body changes that occur with increasing age, such as metabolic changes and deficit in physical exercise, increasing the chances of sedentary lifestyle

and onset of diabetes⁽¹⁴⁾, which justifies the greater involvement found among the age group of 40-59 years (53.2%). Other factors, such as education, can make it difficult to access health information and reduce the understanding of guidelines on the prevention and/or treatment of DM, resulting in less control of the disease and a greater risk of complications, as well as a higher incidence of psychopathological comorbidities⁽¹⁵⁾.

The practice of physical exercises was expressive in the sample and can bring several benefits to the health of the person with diabetes, in addition to acting in glycemic control, such practice can help to lose weight and fat, improve aerobic resistance, provide well-being and improve the life quality⁽¹⁶⁾. A balanced diet and physical activity are the pillars of diabetes self-care and can reduce the risk of unfavorable outcomes in people with cardiometabolic morbidities⁽¹⁷⁾. The adoption of a regular exercise plan, however, may not be the most viable alternative in the face of the health crisis, due to social distancing, which has resulted in restrictions on

outdoor activities and concerns about the high risk of disease spread. in sports centers⁽¹⁸⁾.

Of the studied group, only 13.5% lived alone at home. The fact of living alone and not having company during this period can generate insecurity and anxiety, as the pandemic is considered a stressor, given the social repercussions⁽¹⁹⁾.

According to the Brazilian Society of Diabetes, people with chronic diseases, such as diabetes, can respond intensely to stress during epidemic outbreaks, experiencing severe feelings of anxiety, worry, eating and sleeping changes, loss of interest in carrying out activities that before generated pleasure and a feeling of uselessness^(11,20). Of the studied population, 20.7% indicated that they were diagnosed with a mental disorder and 78.2% stated that they had been treated for the disorder.

In Brazil, the prevalence of depression in people with diabetes, in usual situations, seems to be similar to that found in other countries, reaching 22%⁽⁵⁾. A similar study carried out in China showed a prevalence of anxiety and depression in the general population of 35% and 20%, respectively⁽²¹⁾. The presence of symptoms of depression and anxiety may be associated with lower adherence to treatment, leading to worse glycemic control. Given this, metabolic dysregulation directly influences brain function and disturbances in peripheral glucose regulation, which may be related to depressed mood⁽⁵⁾.

A study points out that people who develop diabetes are more prone to feelings of loneliness and isolation⁽²²⁾. In view of this, health care and attention during the pandemic period must prioritize, in addition to maintaining clinical conditions, the promotion of mental health and the appreciation of family support, with strategies favorable to self-care and the development of effective measures to cope with it.

Faced with the exacerbated media exposure of COVID-19, various information was shared, such as means of prevention and social distancing measures. Thus, 45% of the participants with DM reported complying with social isolation measures and 89.2% said they were well-informed about the guidelines on how to transmit COVID-19. A study done in Ethiopia in 2020 indicated a significant increase in the persistence of depression symptoms compared to pre-pandemic data⁽²³⁾.

Amidst the distancing and social isolation measures imposed by the pandemic, the use of technologies such as social media stands out, as it constitutes an important strategy for real-time communication, expanding access to data and information⁽²⁴⁾. Thus, it is considered that a quality service, with online availability to clarify the main doubts and with specialized professionals, can, in addition to directing the follow-up of the patient, offer emotional support and establish strategies to promote self-care and maintenance of mental health⁽²⁴⁾.

Although social isolation is pointed out as a source of anxiety and stress in the population, such findings may indicate that distancing, during the pandemic, is not per se a risk factor for mental illness, but is associated with other factors that permeate this pandemic context and epidemiological and sanitary measures. Having a reduced income in the period, being part of the risk group and being more exposed to information about the dead and infected, for example, can cause greater damage to mental health in this period⁽¹⁰⁾. In this way, there is also the circulation of disinformation and false news, without scientific or factual basis, the so-called fake news⁽²⁵⁾.

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, in addition to acute myocardial infarction, peripheral arteriopathy, stroke and microangiopathy⁽²⁶⁾. In the studied group, 33.3% of people stated that they did not have any complications resulting from DM, however, the second highest percentage, with 29.7%, is related to ophthalmological complications.

DM requires qualified assistance, adequate treatment to prevent complications and promote quality of life. This assistance is the responsibility of health professionals and, mainly, nurses who have greater contact with the user at different levels of care. Among the participants of this study, 21.6% of the interviewees were treated in the Family Health Strategy, and 4.5% are followed up by the nurse. It is noteworthy that this professional category has skills to manage the physical and psychological, intellectual and emotional repercussions⁽²⁷⁾, leading to reduced mental suffering in diabetics, during and after the pandemic.

The limitations of the study were due to data collection, which were limited to those who had access to the internet and were recruited through the Facebook platform. As this is a cross-sectional study, it was not possible to compare the psychic impact before and during the pandemic. Therefore, the development of longitudinal studies is suggested to monitor the evolution of the mental health of people with diabetes.

Conclusion

It was evidenced through the study that, although a small proportion of diabetics had a mental disorder, the pandemic seems to have negatively impacted their lives, as they are more likely to develop the severe forms of SARS-CoV-2.

Knowing the characteristics of this population considered a risk group for COVID-19, as proposed in this study, is important for the development of more optimized and specific health education practices. To face

the problems encountered by individuals with DM, the multidisciplinary team that assists them must focus their attention on factors that are negatively influencing metabolic control.

It is worth mentioning that the implementation of remote assistance strategies can be a solution, at this time, seeking to alleviate concerns and offering support through digital technologies, such as WhatsApp, video calls, social media platforms (Facebook, Instagram, etc.), so that people with DM continue to have professional support for the physical and mental demands that arise during the pandemic.

It is also suggested the development of longitudinal studies to monitor the evolution of the population's mental health and the effectiveness of primary health actions aimed at people with diabetes.

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