Impact of Prevailing Awareness on The Psychosocial Impact of The COVID-19 Pandemic Among T1DM Patients from North India

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Abstract

Background: SARS-CoV-2 has impregnated its effect on the physical and mental status of affected individuals worldwide. The psychosocial impact on individuals with pre-existing medical illnesses is not well documented.

Objectives: To evaluate the extent of awareness about COVID-19 and its symptoms, prevention, and quantifying the anxiety among individuals with T1DM during the lockdown in India.

Methods: An online survey-based observational study was conducted in two clinics in North India among children and adults with T1DM. A Google form was circulated among the participants and their response was assessed using SPSS version 25.

Results: Among 44 study individuals, about 97% had a good extent of knowledge of the COVID-19 symptoms. The mean age of the study population was 20.78±8.35. The male-to-female ratio was 1.2:1. More than half of the individuals were well-versed in diabetic knowledge (carb ratio, correction factor). Around three-fourths of the patients were able to continue their exercise routine during the pandemic. Almost all (97.7%) patients were aware of COVID-19-associated symptoms, preventive care, and ways of transmission. Almost half of them were anxious about the COVID-19 pandemic. This was mainly attributed to better media coverage and communication between each other. Assessment using the COVID-19 anxiety score indicated that less than 50% of the participants experienced anxiety.

Conclusion

Dealing with T1DM is a challenge for the healthcare system and it is even more challenging during the pandemic period. Prior knowledge and awareness seem to mitigate anxiety and related issues in individuals with chronic illness, especially T1DM.
Introduction

The COVID-19 pandemic has affected almost every individual both physically and psychologically [1,2]. Individuals with co-morbidities such as diabetes, hypertension, respiratory disorder, cancer, or cardiac issues showed a higher incidence of COVID-19 [3]. The most prevalent co-morbidities in COVID-19 patients were hypertension, and diabetes followed by cardiovascular disease. According to the TEDDY Study conducted by Caruso et al in 2020 COVID-19 infection is associated with the development of pancreatic autoantibodies which can lead to T1DM. Hence, COVID-19 could influence the pathophysiology of diabetes [4].

The risk of getting infected with SARS-CoV-2 can be psychologically stressful for patients. This fear factor cannot be neglected as it can affect patients with comorbidities in a more negative way. According to a mental health survey conducted in China, almost 50% of the people were suffering from depression and anxiety during the pandemic [5]. The regular visits of patients to the doctors can get impeded because of the prevalence of the COVID-19 pandemic. T1DM is a common condition prevalent among younger individuals and it is necessary to take routine tests and medicines and visit the dietician which can be affected during the pandemic because of social distancing. The main aim of our study is to observe how the COVID-19 pandemic impacted the quality of life of individuals suffering from T1DM.

Materials and Methods

This was an online survey-based observational study conducted in two clinics in Delhi and Kanpur, North India. The study involved patients diagnosed with T1DM according to the ISPAD (International Society for Pediatric and Adolescent Diabetes) Clinical Practice Consensus Guidelines 2018.5 All involved participants provided consent to take part in the study. Participants or their parents were invited to be a part of this study, they could understand simple English, and had a good internet connection. An online google form was circulated to the participants. Patients, demographic information including age, gender, education, current residency, and COVID-19 diagnosis (if positive) were collected. Responses about knowledge regarding the pandemic and prevention including COVID-19 mode of transmission, signs, and symptoms, and prevention were recorded. The details of the questionnaire are included in the appendix.

The Corona Anxiety Scale (CAS) is the first published measure of COVID-19-related psychopathology validated on a large sample of adults who reported significant anxiety in the beginning stages of the COVID-19 pandemic including a significant sample of people infected with the disease.6 CAS contained five questions. Each item was written to capture a unique manifestation of this form of anxiety. Specifically, these included the cognitive (i.e., repetitive
thinking; worry; processing biases; dreaming; planning), behavioral (i.e., dysfunctional activities; avoidance; compulsive behaviors), emotional (i.e., fear; anxiety; anger), and physiological (i.e., sleep disturbances; somatic distress; tonic immobility;) dimensions of COVID-19 anxiety. Each item was rated on a 5-point scale to reflect the frequency of the symptom, ranging from 0 (not at all) to 4 (nearly every day) over the preceding two weeks. Dizziness, which is the first item of the CAS, is a major symptom of panic attacks and an associated feature of generalized anxiety disorder. Sleep disturbance, the second item of the CAS, is a common symptom of both generalized anxiety disorder and post-traumatic stress disorder. Tonic immobility, which is the third item of the CAS, is not a major symptom of any psychiatric condition. However, motor inhibition is an involuntary response to extreme fear and perception of inescapability and is typically experienced by victims of highly traumatic situations, such as sexual assault.

Appetite loss, which is the fourth item of the CAS, is a common symptom of major depressive disorder, a condition that often co-occurs with panic disorder. Appetite loss is also a noticeable sign of fear because it reflects the physiological process of blood leaving the digestive tract into areas of the body that mobilize the person to deal with an imminent threat. Nausea or abdominal distress, which is the last item of the CAS, also captures the digestive changes associated with a fear response. Dizziness, nausea, and abdominal distress are also major symptoms of panic attacks and are associated features of generalized anxiety disorder.

Statistical analysis

The responses to the questionnaire and their response were assessed using SPSS version 25. Data were analyzed using excel. Mean and Standard deviations were done for quantitative variables. The categorical variables were presented as frequency and percentages.

Results

In our study, we observed that the T1DM patients responded dynamically because of their prior knowledge and awareness regarding the pandemic. The duration of T1DM in our study population (N=44), ranges between two months to 24 years. The baseline characteristics of the patients are mentioned in Table 1. We found that only three individuals were in serious condition and were dependent on an insulin pump. Most of the patients were well versed in diabetic knowledge, 47.7% knew about insulin carb ratio. 65.9% knew the correction factor and around three-fourths of the patients were able to continue their exercise routine during the pandemic. Almost half of the patients had difficulty acquiring glucometer strips and 72.8% lost their interest in self-monitoring of blood glucose.

Almost all (97.7%) patients were aware of COVID-19-associated symptoms, preventive care, and ways of transmission. Around 80% of the individuals stated that they did not have any of the major symptoms during the COVID-19 infection. Their major source of information was the internet and more than 70% were satisfied with the information that was provided. One-third of the individuals regularly updated themselves with COVID-19 information at least once a week. They observed that more than 50% of the respondents were aware of the COVID-19 symptoms and were prepared to face the situation [14].
Almost half of them were anxious about the COVID-19 pandemic. Regarding preventive measures, 93.2% used hand sanitizers, and all of them wore masks and frequently washed their hands. Only less than half had the fear of getting infected during the pandemic and about 80% stayed vigilant avoiding COVID-19-infected individuals. During the lockdown one-fifth of the participants suffered from depression, anger, and loneliness. (Fig 1)
Figure 1: Determinants of Corona Anxiety Scale

About half of them reported an increase in blood sugar levels because of the higher consumption of junk food intake (63%). We found 50% had a shortage of glucometer strips whereas the other 50% could manage to get them. More than 70% of the participants lost interest in self-monitoring of blood glucose which is considered a major reason for high HbA1c in 8%. Most of them 52.3% had observed a worsening in sugar. The most observed reason was diet 43.2% and whereas 15.9% forgot to take insulin during the lockdown, 40.9% had financial stress, and 75% had no shortage of insulin.

Discussion

The COVID-19 pandemic and the lockdown have caused havoc in the Indian healthcare system. India is considered the country with the highest prevalence of diabetes and according to the Diabetes Atlas 2017, there are 128,500 children and adolescents with diabetes in India.11 The COVID-19 pandemic has affected the medical needs of patients suffering from T1DM. This survey captures the awareness of the patients suffering from T1DM and we have used it to gauge the anxiety level of the T1DM patients during the pandemic using the CAS Scale. We found that very few (N=3) individuals were in serious condition and were dependent on an insulin pump. The insulin pump provides better control of blood sugar levels, but it is often accompanied by psychological interference and there is also a fear of insulin instability and unavailability [12].

Almost half of the patients had difficulty acquiring glucometer strips and 72.8% lost their interest in self-monitoring of blood glucose. A study conducted in Europe mentions the risks faced by diabetic patients during the pandemic period. The author found an increased risk, especially in the case of people living alone and not able to order medicines through online stores.13 The patients must be aware of their current glycemic status, preventive measures, diet, and medication, this can motivate them to adhere to their routine exercise regimen.
Knowledge about COVID-19 infection and prevention

All the patients (97.7%) were aware of COVID-19-associated symptoms, preventive care, and ways of transmission. The awareness level among the individuals was not surprising and it was in concordance with the multi-ethnic study conducted by Teo et al in 2021. They observed that more than 50% of the respondents were aware of the COVID-19 symptoms and were prepared to face the situation [14].

Covid knowledge

Government, social media, the internet, family, and friends played an effective role to create awareness about the pandemic. 97.7% were aware of COVID-19 symptoms. The major source of information was the internet 18.2% and 70.5% were satisfied with the information provided. 29.5% used to track the COVID-19 related information once a week. 45.5% were worried about the COVID-19 pandemic. 93.2% used hand sanitizers. 100% wore masks and frequently washed their hands. Fear of getting the infection was only 40.9% and 81.8% didn’t come to any contact with an infected person. During the lockdown, 20.5% used to feel depressed, angry, and lonely. 47.7% observed worsening of blood sugar.

Corona Anxiety Scale

We used the Corona Anxiety scale to assess the anxiety of T1DM patients during the COVID-19 pandemic. In the study conducted by Peimani et al, in 2022, they found that among the specific worries of diabetic patients, they were highly worried about the lack of availability of medications especially the shortage of insulin [18]. However, in our study, three-fourths of the study population had insulin shortages even though there were no restrictions on transportation. Self-blood glucose monitoring is an integral part of treatment, but more than 70% lost interest in self-monitoring of blood glucose which is considered a major reason for high HbA1c.

We evaluated the determinants of the Corona Anxiety Scale in terms of stress, sleeplessness, anxiety, and appetite. (Fig 1) We found that about half of the study population was anxious about their current medical condition during the COVID-19 pandemic. A study conducted in Saudi Arabia found that almost 55% of the individuals were suffering from depression due to COVID-19 anxiety [15]. An increase in their blood sugar levels was observed because of the higher consumption of junk food intake. Many studies have already speculated that there can be an increase in the blood sugar level because of increased intake of fast food, sugary drinks, calory dense nutrition.16,17 The Corona anxiety scale had no significant outcome. The majority had no issues with the pandemic, or they had accepted it as the “new normal” [19].

Conclusion

Dealing with T1DM is a challenge for the Indian health system. Prior knowledge and awareness seem to mitigate anxiety and related issues in individuals with chronic illness especially T1DM. The high prevalence of depression, anxiety, and stress call for public health advisory bodies to revise their policies to help people in distress during future pandemic conditions. Establishing an accessible healthcare service even during a pandemic is a necessity since the COVID-19 pandemic.
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