ASSESSMENT OF PSYCHOSOCIAL CONSEQUENCES OF COVID-19 IN DIABETES PATIENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objective: The aim of the study was to assess the psychosocial health, to identify coronavirus disease 2019 (COVID-19) specific concerns in people with diabetes and to analyze the changes in the management of diabetes during the corona crisis.

Methods: An online cross-sectional survey was conducted for a period of 6 months among the South Indian diabetes population. A validated questionnaire containing socio-demographics, general health status, the diabetes distress scale 17, and the 3-itemUCLA loneliness scale was sent to 600 people, out of which 226 participants were included in the study based on inclusion and exclusion criteria. Responses were analyzed using univariate and multivariate logistic regressions.

Results: Among the participants, females had moderate to high diabetes distress (54.4%). The subjects in the age group of 40–59 years felt lonely and had more diabetes distress. The two major worries among the participants were that "they are labeled as a risk group" and that "they might be overly affected." Participants with gestational diabetes mellitus (DM), DM duration of 7 months to 1 year, taking both medications (oral antidiabetic medication and insulin), HbA1c level of more than 8%, infected with coronavirus or having someone close to them infected with coronavirus, were more concerned about taking medication daily, and those who changed their meal plan during the corona period had the greatest concerns.

Conclusion: People who participated in the survey were more worried about the COVID-19 situation and were very disturbed. Psychosocial consequences of COVID-19 were more prevalent in diabetes patients, including diabetes distress, loneliness, and changes in daily diabetes management.

Keywords: Psychosocial consequences, COVID-19, Diabetes, Diabetes-distress scale, 3-item UCLA loneliness scale.

INTRODUCTION

Coronavirus disease 2019 (COVID-19) is a viral contagious disease. It is a single-stranded, enveloped RNA virus and it is named after its crown-like surface projections, which are seen in electron microscopy [1]. The outbreak of COVID-19 was noticed in Wuhan, China [2]. The World Health Organization (WHO) labeled this respiratory disease a pandemic on March 11, 2020 [3]. As for the current situation in India, the estimated total number of cases is 11 million, and 156,000 deaths. People aged 60 years and above and people with underlying medical problems such as high blood pressure, heart and lung problems, diabetes, obesity, or cancer are at a higher risk of developing severe illness [4].

One of the comorbidities that can affect the outcomes of COVID-19 is diabetes mellitus (DM), with India having more than 77 million individuals with diabetes. People with DM are labeled as a vulnerable group, as they have higher rates of hospitalization and mortality, and this risk increases when they counteract COVID-19 [5]. COVID-19 has forced many countries across the world to implement early quarantine measures as an essential disease control tool. Obligatory mass quarantine applied by nationwide lockdown programs has created mass hysteria, anxiety, and distress, which is due to factors such as loss of control and a sense of being cornered [6].

Studies show that those with severe illness or multiple co-morbidities present have elevated levels of psychological symptoms in the period of this COVID-19 pandemic situation. Individuals with diabetes are more prone to co-morbid mental illness and worries about accepting the diagnosis, living with diabetes, fear of complications, adherence to treatment, and fear of hypoglycemic events can contribute to marked distress, thus making diabetes difficult to self-manage. As a result, higher rates of depression and anxiety are seen [2]. Diabetes

distress is ordinary and is obvious from a psychological disorder. High levels of diabetes distress, related to higher HbA1C, poorer dietary, lower self-efficacy, and exercise behaviors, have a significant impact on medication-taking behaviors. Diabetes distress, which may be coupled with declines in self-management behaviors and suboptimal blood glucose levels, is experienced by one-third of adolescents with diabetes.

Concerns about glycemic control, fear of diabetes complications, and hypo- and hyperglycemia, which are daily worries for people with diabetes under normal circumstances, may confront people with diabetes. These fears increased during the pandemic, which impacted negatively on the capability of people with diabetes to self-manage. During quarantine, people experienced fear of infection, frustration, confusion, boredom, and scarcity of basic and medical supplies [7]. Due to this, the overall glycemic control became unbalanced in diabetic patients during the lockdown period.

Psychological stress and lifestyle changes were recognized as feasible factors that were responsible for the derangement of glycemic control [8]. Addressing the psychosocial requirements of the patient would rise above the psychological obstruction allied with adherence and self-care while accomplishing long-term profit in terms of better health outcomes and glycemic control. Thus, an improved understanding of the psychological phases of the patient with diabetes would permit clinicians to originate strategies focusing on the progression of diabetes outcomes and the decline of disease burden [9]. Our study was conducted to assess the psychosocial health of diabetes patients, to identify the COVID-19 specific worries, to analyze the changes in daily diabetes management, and to find out the association of variables with psychosocial issues such as COVID-19 specific worries, diabetes distress, loneliness, and social support.

METHODS

Design and study participants

A prospective cross-sectional study was conducted from November 2020 to May 2021 by distributing online questionnaires to people of South India through social media such as WhatsApp, Facebook, and Instagram. Institutional Ethical Committee clearance was obtained from the Bapuji Pharmacy College Ethical Committee for human subject's research on January 30, 2021. Electronic consent was taken from the participants. Participants were selected for the study based on inclusion criteria, such as people of any gender having three types of diabetes (Type 1 DM, Type 2 DM, and gestational DM [GDM]) for more than 18 years and up to 90 years. Patients who were hospitalized during the study period, terminally ill patients, people who did not provide informed consent for the study, and patients who had any physical or cognitive impairment were excluded from the study.

Questionnaire content

The questionnaire consisted of different sections which included socio-demographics and health status, COVID-19 specific worries, diabetes distress, social support, and behavioral changes during the corona crisis. The questionnaire was corrected and validated by a physician. The sample size was calculated using the reference article and a pilot study was conducted, which showed positive responses from the participants. A list of eight potential diabetes-related worries due to the COVID-19 pandemic was included. Socio-demographic and health status items included age, gender, type of diabetes, diabetes complications, and latest HbA1c value, as well as questions about whether the participant had other chronic illnesses. Items indicating whether close relatives or participants had been diagnosed with COVID-19 were also included in the study. Measures of social relations included diabetes-specific social support and diabetes-specific loneliness. Loneliness was measured with the three-item UCLA Loneliness Scale [10]. Diabetes-related social support from family, friends, and healthcare professionals was measured. The social support questions were accessed separately as single items in this study and not as a total score. Diabetes distress was measured by the diabetes distress scale 17 (DDS17). Five questions about emotional burden were taken, and scores on each item ranged from 1 (not a problem) to 6 (a very serious problem). The DDS17 score is derived as the average of the five items. A score <2 shows low distress, and a score of >2 shows moderate to high diabetes distress [11]. Changes in diabetes-related behaviors include changes related to diet, physical activity, medication taking, and measurement of blood glucose levels.

Data analysis

The data were entered into a Microsoft Excel spreadsheet and analyzed with SPSS for Windows (Statistical Presentation System Software, SPSS Inc.) version 17.0. The mean and standard deviation were used to represent continuous data. Count data were represented as numbers and proportions. Multivariate logistic regression models were used to examine the likelihood of experiencing (1) Diabetes-related worries related to the COVID-19 pandemic by socio-demographic factors and health status; and (2) diabetes-related worries related to the COVID-19 pandemic by socio-demographic factors, health status, and psychosocial and behavioral factors. All coefficients were estimated using maximum likelihood, and all coefficients are reported as odds ratios (or) with 95% confidence intervals (CI) and standard errors (SE).

RESULTS

Socio-demographic details of the participants

A total of 226 diabetes patients participated in the study. Out of 37 (15%) participants aged between 18 and 39 years, 105 (46.5%) were aged 40–59 years, and 87 (38.5%) were aged 60 years and above. According to gender, 118 (52.2%) were females and 108 (47.8%) were males. 119 (52.7%) were from rural areas, and 107 (47.3%) were from urban areas. 101 (44.7%) participants had a diploma or masters, 83 (36.7%) had a high school education, 35 (15.5%) had a primary school education, and 7 (3.1%) had no formal education. 170 (75.2%) of the participants were married; 18 (8%) of the participants were single; 35 (15.5%) of the participants were widowed; and 3 (1.3%) of the participants were divorced. The majority of the participants were homemakers or housewives. 77 (34.1%) had a private job, 65 (28.8%) ran a business, 24 (10.6%) were unemployed, and 13 (5.08%) worked for the government. 12 (5.3%) of the participants were retired and 10 (4.4%) of the participants were students (Table 1).

General health status of study participants

Among 226 participants, 58 (25.7%) had Type I DM, 156 (69.0%) had Type II DM, and 12 (5.3%) participants had gestational DM. 34 (15.0%) were found to have had diabetes for more than 20 years, 41 (18.1%) of the participants had diabetes for 11–20 years, 107 (47.3%) of the participants were diabetic for 2–10 years, 37 (16.4%) of the participants were diabetic for 7 months–1 year, and 7 (3.1%) of the participants were diabetic for 0–6 months.

Among the participants, 123 (54.4%) of the participants were on oral anti-diabetic medicines, 45 (19.9%) of the participants were on insulin, 45 (19.9%) of the participants took both insulin and oral anti-diabetic medications, and 45 (19.9%) of the participants did not take any medication. The participant's HbA1c levels were evaluated, and 94 (41.6%) had good diabetes control (HbA1c-6.9%), 69 (30.5%) had fair control (HbA1c-7.9%), 13 (5.8%) had poor control (HbA1c-8% and above), and 50 (22.2%) did not know about long-term blood sugar levels (HbA1c).

Out of 226 participants, 108 (47.8%) gained weight during the corona period, and 118 (52.2%) did not gain weight. 13 (5.7%) of the participants were tested positive, and 108 (47.8%) of the participants showed that their close ones were tested positive. The number of diabetic complications of the participants was assessed, among which 62 (27.4%) had one complication. 59 (26.1%) participants had more than one complication, and 105 (46.5%) participants had no complications. The number of chronic illnesses of the participants was analyzed, where 80 (35.4%) participants had one chronic illness, 65 (28.8%) participants had more than one chronic illness, and 81 (35.8%) had no chronic illness (Table 2).

COVID-19 specific diabetes worries

The most seen worries among the participants were "That people with DM are labeled as risk group," "Due to my DM, I might be overly affected if infected with COVID-19" and "That I may not be able to manage my DM if I am infected with COVID-19" (Fig. 1).

Psychosocial health

Assessment of diabetes distress among the study participants

Among 226 participants, the Mean±SD score of 3.84±1.124 felt that "diabetes is taking up too much of my mental health and physical energy every day." The Mean±SD score of 3.98±1.350 felt "angry, scared, and/or depressed when I think about living with diabetes." The Mean±SD score of 3.56±1.257 felt that "I will end up with serious long-term complications, no matter what I do." The Mean±SD score of 3.73±1.361 felt that "diabetes controls my life." The Mean±SD score of 3.66±1.241 felt "overwhelmed by the demands of living with diabetes." The Mean±SD overall score of emotional distress on the DSS was found to be 3.75±1.05 (moderate distress) (Table 3).

Assessment of loneliness of diabetic patients during COVID-19 pandemic

Out of 226 participants, 58 (25.7%) felt isolated from others rarely. 49 (21.7%) often feel isolated from others. 119 (52.7%) sometimes felt isolated from others. 68 (30.1%) felt left out rarely, 50 (22.1%) often felt left out, and 108 (47.8%) sometimes felt left out. 57 (25.2%) felt a lack of companionship rarely. 79 (35.0%) often felt a lack of companionship. 90 (39.8%) sometimes felt a lack of companionship. Out of 226 participants, 1 (0.4%) participant's family, friends, or other people close to them were not supportive during the corona crisis. 42 (18.6%) of the participant's family, friends, or other people close to

Table 1: Socio-demographic details of the participants (n=226)

Socio-demographics (n=226)	Frequency	Percent
Age		
18–39	34	15.0
40–59	105	46.5
60 and above	87	38.5
Gender		
Female	118	52.2
Male	108	47.8
Area where you live		
Rural	119	52.7
Urban	107	47.3
Education		
Diploma/Master	101	44.7
High school	83	36.7
No formal education	7	3.1
Primary school	35	15.5
Marital Status		
Divorced	3	1.3
Married	170	75.2
Single	18	8.0
Widowed	35	15.5
Occupation		
Business	25	11.1
Gov. Job	13	5.8
Homemaker/Housewife	77	34.1
Private Job	65	28.8
Retired	12	5.3
Student	10	4.4

Table 2: General health status of study participants

General health status	Frequency	Percentage
Duration of diabetes		
>20 years	34	15.0
0–6 months	7	3.1
11–20 years	41	18.1
2–10 years	107	47.3
7 months–1 year	37	16.4
Type of medication		
Both	45	19.9
Do not take any medication	13	5.8
Insulin	45	19.9
Oral anti-diabetic medicines	123	54.4
HbA1c level		
6–6.9%	94	41.6
7–7.9%	69	30.5
8% and above	13	5.8
I don't know	50	22.1
Weight gain during COVID-19 pandemic		
No	108	47.8
Yes	118	52.2
COVID-19 tested positive		
No	105	46.5
Participants tested positive	13	5.8
Close ones tested positive	108	47.8

them were somewhat supportive during the Corona crisis. 56 (24.8%) of the participant's family, friends, or other people close to them were too aware of their diabetes (Table 4).

127 (56.2%) of the participant's family, friends, or other people close to them were very supportive. 5 (2.2%) of the participant's diabetes health-care team were not supportive. 101 (44.7%) of the participant's diabetes health-care team were somewhat supportive. 9 (4.0%) of the participant's diabetes health-care team were too aware of their diabetes. 111 (49.1%) of the participant's diabetes health-care team were very supportive. 83 (36.7%) of the participants reported that they were not lonely, and 143 (63.3%) of the participants reported that they felt lonely.

Diabetic specific behaviors

Out of 220 participants, 14 (6.2%) participants checked their blood sugar level daily during the corona period, 106 (46.9%) checked their blood sugar level monthly, 41 (18.1%) checked once every three months, and 64 (28.3%) checked weekly. 121 (53.5%) of the participants ate more than usual during the corona period. 105 (46.5%) did not eat more than usual. 196 (86.7%) participants were more aware of taking medication during the corona period. 30 (13.3%) were not aware of taking medication regularly. 163 (72%) participants did not exercise more than usual during the corona period. 63 (28%) exercised more than usual during the corona period. 144 (63.7%) participants changed their meal plans during the corona period. 82 (36.3%) did not change their meal plan during the corona period (Table 5).

Comparison of two major worries with demographical data, DSS and UCLA loneliness scale

The female subjects showed moderate to high diabetes distress (54.4%) as compared to male subjects in the study. The subjects in the age group of 40–59 years felt lonely, and their diabetes distress was greater when compared to other age groups. Participants who were <60 years old were 2.2 times more likely to respond with "Due to my diabetes, I might be overly affected if infected by the coronavirus" compared to participants over 60 years old. Participants who were lonely were 2 times more likely to respond with "Due to my diabetes, I might be overly affected if infected by coronavirus" compared to participants who were not lonely. Participants who had type 1 diabetes were 0.169 times less likely to respond, "That people with diabetes are labeled as the risk group" compared to participants having type II diabetes. Participants who were lonely were 2.5 times more likely to respond, "That I may not be able to access my diabetes healthcare team if I needed to" compared to participants who were not lonely. Participants with GDM and duration of DM of between 7 months and 1 year had the highest worries when compared to other groups (Table 6).

DISCUSSION

A total of 226 subjects participated in the survey, out of which 118 (52.2%) were females and 108 (47.8%) were males, which is in accordance with the study carried out by Shaltout *et al.* where a female preponderance was observed [12]. In our study, the participants were divided into 3 age groups. Participants aged 60 years and above were most worried about getting infected by COVID, which was in accordance with a study conducted by Yan *et al.* [13]. Among 226 participants, 34 (15.0%) had a duration of diabetes for more than 20 years, 41 (18.1%) had a duration of 11–20 years, 107 (47.3%) had a duration of 2–10 years, 37 (16.4%) had a duration of 7 months to 1 year, and 7 (3.1%) had a duration of 0–6 months. We found a similar study conducted by Nachimuthu *et al.* where most of the participants had diabetes for more than 5 years, 65% had diabetes duration of 5–10 years, 19% of the study participants were below 5 years, and 16% were above 10 years of duration [14].

Our study findings showed a significant relationship between high emotional distress and COVID-19 specific worries. A study conducted in Denmark showed a significant association between high diabetes distress and feelings of loneliness related to COVID-19 specific worries [3]. In our survey, 70% of males showed low distress when compared to females (54.4%), who showed moderate to high distress. A study conducted by Prowse *et al.* showed similar results where males reported little or no negative impacts, while females more likely reported the negative impacts [15].

A Turkish study conducted by Önmez *et al.* reported a high HbA1c level during the period of lockdown. In the present study, a similar increase in HbA1c values was observed and it was statistically significant with the worries they had during the period of Corona [16]. In our study, it was found that people with chronic illness and diabetes complications experienced relatively higher levels of diabetes distress. This finding
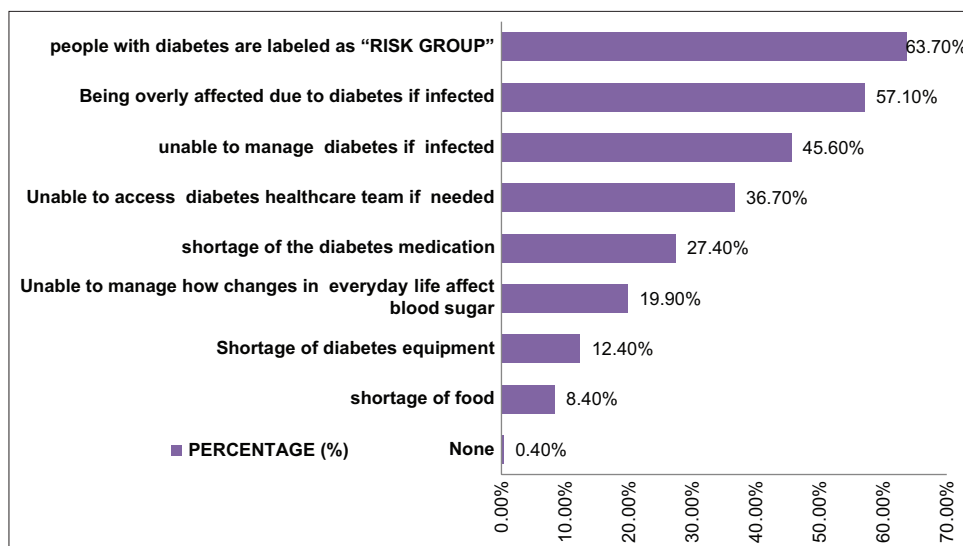
Fig. 1: COVID-19 specific worries experienced by people with diabetes

Table 3: Diabetes distress score

Group	n	Minimum	Maximum	Mean	Std. Deviation
Feeling that diabetes is taking up too much of my mental health and physical energy every day	226	1	6	3.84	1.124
Feeling angry, scared, and/depressed when I think about living with diabetes	226	1	6	3.98	1.350
Feeling that I will end up with serious long-term complications, no matter what I do	226	1	6	3.56	1.257
Feeling that diabetes controls my life	226	1	6	3.73	1.361
Feeling overwhelmed by the demands of living with diabetes.	226	1	6	3.66	1.241
Emotional distress (DDS 17)	226	1	6	3.75	1.05

Table 4: Distribution of study participants based on their response to questions on loneliness and social support

The following sentences describe loneliness and social support of diabetes	Frequency	Percent
How often did you feel isolated from others?		
Hardly ever	58	25.7
Often	49	21.7
Sometimes	119	52.7
How often did you feel left out?		
Hardly ever	68	30.1
Often	50	22.1
Sometimes	108	47.8
How often did you feel lack of companionship?		
Hardly	57	25.2
Often	79	35.0
Sometimes	90	39.8
How supportive was your family, friends or other people close to you during corona crisis?		
Not supportive	1	0.4
Somewhat supportive	42	18.6
They have been too aware of my diabetes	56	24.8
Very supportive	127	56.2
How supportive was your diabetes healthcare team?		
Not supportive	5	2.2
Somewhat supportive	101	44.7
They have been too aware of my diabetes	9	4.0
Very supportive	111	49.1
UCLA Loneliness Scale		
Not lonely	83	36.7
Lonely	143	63.3

Table 5: Changes in daily diabetes management

Changes in daily diabetes management	Frequency	Percent
How often did you check your blood sugar level during corona period?		
Daily	14	6.2
Monthly	106	46.9
No change, did Infrequent checks as and when I feel the need	1	0.4
Once in 3 months	41	18.1
Weekly	64	28.3
Did you eat more than usual during corona period?		
No	121	53.5
Yes	105	46.5
Were you more aware of medication taking during corona period?		
No	30	13.3
Yes	196	86.7
Did you exercise more than usual during corona period?		
No	163	72
Yes	63	28
Have you changed your meal plan during corona period?		
No	82	36.3
Yes	144	63.7

is in line with a study conducted by Shinan-Altman *et al.* that showed increased negative emotions in diabetes patients with chronic illness and diabetes complications [17].

In a cross-sectional study conducted by Joensen *et al.*, participants more frequently worried "about being overly affected due to diabetes

Table 6: Representation of odds ratio of diabetic people with 2 major worries with demographical data, diabetes distress scale and UCLA loneliness scale

COVID-19 specific worry	That people with diabetes are labeled as "RISK GROUP"		Being overly affected if infected by coronavirus	
Groups	OR (CI 95%)	SE	OR (CI 95%)	SE
Age				
<60	0.81 (0.47–1.4)	0.2	2.2*(1.252–4.010)	0.2
60 and above	-		-	
Gender				
Female	0.8389 (0.329–2.136)	0.8	1.1 (0.417–2.670)	0.4
Male	-		-	
Area where you live				
Rural	1.643 (0.838–3.220)	0.7	0.68 (0.345–1.339)	0.2
Urban	Ref		Ref	
Education				
Diploma/Master	2.093 (0.645–6.796)	0.3	3.2 (0.878–11.657)	0.4
High school	3.559 (1.265–10.008)	0.4	2.4 (0.764–7.588)	0.7
No formal education				
Primary school	Ref		Ref	
Marital Status				
Divorced				
Married	0.648 (0.218–1.927)	0.2	0.51 (0.162–1.620)	0.513
Single	0.206 (0.017–2.481)	0.3	0.23 (0.022–2.443)	0.231
Widowed	Ref		Ref	
Occupation				
Business	0.297 (0.061–1.440)	0.8	1.5 (0.324–6.990)	0.9
Gov. Job	0.576 (0.101–3.280)	0.9	2.51 (0.436–14.40)	0.8
Homemaker/Housewife	0.539 (0.160–1.818)	0.7	0.55 (0.158–1.887)	0.5
Private Job	0.459 (0.128–1.646)	0.3	0.81 (0.229–2.845)	0.8
Retired	0.697 (0.118–4.129)	0.3	0.57 (0.097–3.350)	0.8
Student	0.117 (0.010–1.386)	0.1	0.16 (0.015–1.648)	0.7
Unemployed	Ref		Ref	
What type of diabetes do you have?				
Diabetes during pregnancy	0.096 (0.009–1.001)	0.3	0.54 (0.068–4.291)	1.05
Type 1 Diabetes	0.169* (0.072–0.399)	0.4	1.23 (0.543–2.787)	0.417
Type 2 Diabetes	Ref		Ref	
UCLA Loneliness Scale				
Not lonely	Ref		Ref	
Lonely	1.485 (0.851–2.590)	0.2	2.032*(1.120–3.688)	0.3
Emotional distress (DDS 17)				
Low distress	Ref		Ref	
Moderate or high distress	2.107 (0.815–5.446)	0.4	3.220 (0.901–11.50)	0.5

if infected with COVID-19" (56%), "that people with diabetes are characterized as a risk group" (39%) and not being able to manage diabetes if infected with COVID-19 (28%) [18]. Similar results have been obtained in our study where 129 (57%) worried that "Due to my diabetes, I might be overly affected if infected by the coronavirus." 144 (63.7%) participants have worried "that people with diabetes are labeled as RISK GROUP," and 103 (45.6%) are worried "that I may not be able to manage my diabetes if I'm infected with the Corona virus" [3]. The question regarding worries about being labeled as a risk group was intended to measure experiences of sigma associated with this labeling. However, respondents may have interpreted this as being worried about the actual risk associated with diabetes.

In a study conducted by Madsen *et al.*, women had a larger tell of social isolation when compared to men. More than half of the respondents often or sometimes felt either a lack of company or isolated from others, while just under 1/3 often or sometimes felt left out [18]. UCLA-D revealed that one in four of the respondents often or sometimes missed someone to talk to about diabetes and that one in three did so with regard to feeling alone with their diabetes. This has been correlated with our study, which showed that 52.7% sometimes felt isolated from others, 47.8% felt left out, and 47.8% sometimes felt a lack of companionship [19,20].

This indicated that a larger population of people with diabetes felt left out and isolated from others during the COVID-19 pandemic than

during normal circumstances. People with diabetes are supposedly even more alone at home than the general population, which may lead to a feeling of being left out and a lack of companionship. Home isolation affected the mental health and psychosocial status of the patients. Our study indicates that people who reported being more worried were more likely to check their blood glucose levels and were more aware of taking their medication.

Our findings can shed light on other populations who are at heightened risk of COVID-19 infection in an environment rife with exposure to risk. In addition, given the survey's anonymous design, such an approach can collect people's honest views and sensitive information. It is also a more feasible data collection method in special situations like COVID-19, where face-to-face interviews are difficult and risky. The samples were collected from South India. Therefore, findings may not be generalizable to the entire population.

CONCLUSION

The female subjects showed moderate to high diabetes distress (54.4%) when compared to male subjects in the study. The subjects in the age group of 40–59 years felt lonely, and their diabetes distress was greater when compared to other age groups. The two major themes among the participants were "That people with DM are labeled as a risk group," "Due to my DM, I might be overly affected if infected with COVID-19" and "That I may not be able to manage my DM if I am infected with COVID-19." Participants who were <60 years old were 2.2 times more

likely to respond with "Due to my diabetes, I might be overly affected if infected by the coronavirus" compared to participants over 60 years old. Participants who were lonely were 2 times more likely to respond with "Due to my diabetes, I might be overly affected if infected by the coronavirus" compared to participants who were not lonely. Participants who had type 1 diabetes were 0.169 times less likely to respond, "That people with diabetes are labeled as RISK GROUP" compared to participants having type II diabetes. Participants who were lonely were 2.5 times more likely to respond with "That I may not be able to access my diabetes healthcare team if I needed to" compared to participants who were not lonely. Participants with GDM and a duration of DM of between 7 months and 1 year had the highest worries when compared to other groups. Subjects who took both medications (OAD and insulin) had more worries compared to others. Subjects with an HbA1c level of more than 8% were more worried about COVID-19.

People who got infected with the coronavirus and someone close to them who had been infected with the coronavirus were more worried about infection. People who were concerned about taking their medication on a daily basis and changing their meal plans during the corona period were found to be more concerned. There is no correlation between measures of social relations such as support from the healthcare team, friends, and family. From this study, it has been concluded that people who participated in the survey were more worried about the COVID-19 situation and were very disturbed. Diabetes patients had a higher prevalence of COVID-19-related psychosocial consequences. With the perceptions of this study, further research could be done to explore the unknown facts and prevalence of psychosocial consequences among the diabetes population.

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