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PREVALENCE AND PATTERN OF PSYCHOLOGICAL ISSUES AMONG PATIENTS SUFFERING FROM CHRONIC DIABETES MELLITUS AFTER POST COVID

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ABSTRACT

One of the largest issues facing humanity in the recent past is the 2019 Coronavirus illness (COVID-19). Diabetes, as well as its comorbidities COVID-19 puts persons at a higher risk of complications and death. Hyperglycaemia, advanced age, and many morbidities, heart damage and significant inflammatory response anticipate a worse result. There is an exploration of the complicated interaction between COVId-19, diabetes and associated consequences. Most COVID-19 patients have a moderate sickness, whereas the chance of serious sickness has been raised. Critical components include the optimization of glycaemic management and adoption of disease-prevention interventions. The effects of COVID on clinical features, contact history, comorbidities, treatment patterns, and outcomes were studied shortly after the infection. Diabetes individuals have encountered significant COVID-19 and consequences after the illness. In order to evaluate the links thoroughly more in-depth research focusing on huge samples.

INTRODUCTION

The challenges of living and controlling diabetes may lead to emotional overload, with depressed and anxious feelings related with less adherence to treatment, leading to worse glycaemic control. Diabetes mellitus and mental diseases have a common interface. Patients with diabetes have an estimated two to four times the incidence of sadness and anxiety symptoms overall. Though more study is required to grasp completely the relationship

between diabetes and depression, metabolic dysregulation has a demonstrable effect on the brain function, and disruptions in the control of peripheral glucose may have an association with depression of mood. In some instances of depression, insulin-like growth factor (IGF) in the brain may be low and antidepressant behavioural responses have been observed in experimental trials. In the development of depression symptoms, the nutrient-activated intestine to brain signals also seem to have a function to play. A very significant relationship has been shown among people with normal weight between leptin levels, low mood and sleep disruption. Ghrelin can also have antidepressant action in males, and ghrelin suppression seems to occur.

In a stressful setting the relationship between diabetes and mental health conditions might be worsened and psychological discomfort can worsen depressive symptoms and result in bad diabetes. Another cause for insecurity and concern in the group of patients is the onset of a possibly lethal epidemic. Since December 2019, when a number of instances of severe coronaviral pneumonia in Wuhan-China were identified, COVID-19 infection has spread rapidly all over the globe. as it became known.

The best understanding is the psychological effect from the pandemic; the responses to social isolation and lock-out; the diagnostic response; public reactions to those who are affected by COVID-19 and hence the pathological effects of the pandemic. The diagnostic pandemic is a psychological and psychological problem before and after the pandemic. In India, anxiety and a feeling of stark and impending danger were the first and predominant answers to the outbreak. Anxieties were centred on the media, particularly in social media, from factual to unwarranted anxiety. At a time when change is the only continuous thing to do (when we pass through different levels in terms of consulting and caution)? What is it not supposed to do? Things are highly omnipresent and induce fear and anxiety. Each of us responds differently to the global and local barrier to knowledge. This might lead to the "farmed" individuals, mental symptoms and stress control disruptors and mentally troubled individuals. The disease's fears, despite the stringent tests and the absence of indications for general usage, also exist, and they range from misunderstandings of fever or poisonous poisonous cough as a COVID-19 infection. Besides the hand-wash suggestion, one wonders whether a mask is to be worn, what sort of mask, what distances to maintain and what surfaces to disinfect? Real worries exist during and after the outbreak over job losses and economic recession.

The first Chinese scientists in Wuhan, Hubei Province (China) found Coronavirus (COVID-19), a novel coronavirus strain which contains Severe Acute Respiratory Syndrome (SARS)-CoV (MERS), in January 2020. The Wuhan epidemic occurred in late December2019, when a wide range of pneumonia and acute respiratory syndrome patients were diagnosed with uncertain aetiology. This noved virus affects the respiratory system and symptoms vary from minor clinical events such dry coughing, breathlessness, sore throat and fever to various lethal consequences including moderate to severely bilateral pneumonia, acute respiratory distress syndrome (ARDS).

COVID-19 may be transmitted highly by breathing secretions from one to person. The virus enters the upper respiratory system via the mucous membranes, which affects the lungs later. COVID-19 is a moderate disorder in most instances although others acquire serious diseases of a breathing nature. A proportion of individuals suffer septic or respiratory and/or multiorgan failure severe diseases. Less than 5% of people afflicted develop significant or critical conditions, a problem that is likely to be overestimated, since the population is not

aware of subclinical infection rates. A further concern might be a secondary pneumonic infection.

Literature Review

Melissa Philip (2020) The COVID-19 pandemic is a major worldwide disaster in health. Since the epidemic includes a huge change in behaviour and causes significant psychological strain, social and psychological knowledge may be used to better match the human behaviour with the advice of many epidemiologists and specialists in public health. Prevention of the disease is best conducted by providing information on the individual's ailment, symptoms and pathways of transmission. A hand-washing or alcoholic preparation to massage hands and prevent touches of the face, especially of the nose, is the best strategy to prevent COVID-19. The present COVID-19 pandemic is a global risk of major morbidity and death globally. The economy and social integrity have also been affected. The general public's mental health difficulties, COVID-19 infected patients, intimate contacts, the aged, children and the medical professional are becoming more concerned. The paper intends to raise awareness and emphasise different problems related to the mental health of different people during the COVID 19 epidemic.

Akhtar Hussain (2020) We wanted to discuss quickly and provide a better knowledge of and treatment of coronavire diseases in patients with diabetes in general features of the new coronavirus. The COVID-19 clinical range varies from moderate flu Multiple organ failure, acute respiratory distress syndrome, and death are all signs of acute respiratory distress syndrome. Age, diabetes, and other factors have all been identified as key predictors of illness and mortality. Please be careful with using chloroquine in these topics of probable hypoglycemic effects. Therapeutic options tailor-made for patients, diligent monitoring of glucose and careful evaluation of medication combinations may lessen the negative effects. The probable pathophysiological processes of diabetes-COVID-19 connection and its therapy are suggested. Based on present limited facts, no clear conclusions can be formed. Additional study is necessary in this connection and clinical management.

Islam Galal (2021) As a recently developing condition, the long-lasting effects of the condition are unknown. The objective of this study is to examine the incidence, patterns and indicator of persisting symptoms after COVID-19 and the usefulness of the newly suggested COVID-19 score. A cross-sectional research included patients with verified COVID-19 in a hospital registry. Patient demographics have been documented and co-morbid conditions have been documented, the median length from the beginning of the symptoms, the history and acute therapy and the symptoms before and after convalescence. A diversity of long-term after-COVID-19 symptoms may be found in COVID-19. Increased intensity of the acute phase symptoms and the COVID-19 symptoms > 18 together with concomitant conditions enhance the probability of continuous post-COVID 19 manifestations as well as seriousness.

Farhana Akter (2020) In this research, COVID-19 patients in the south of the country studied the clinical symptoms, results and long-term problems while focusing those with diabetes. In this research, 734 COVID-19 were presented, 19.8% of patients with diabetes and 76% of COVID-19 were men. Plasma glucose, D-dimer, and Troponin-I concentrations amongst biochemical markers are considerably increased in the diabetic group. During SARS CoV-2 infection, Insulin-requiring patients rose three-fold. 1.4% of the patients had new beginnings of diabetes mellitus. Several COVID-19 patients suffering from post-covery problems such as pain, discomfort and sleep disruption have had diabetes. Diabetes patients reported serious

COVID-19 symptoms and consequences after their illness. In order to evaluate the links thoroughly more in-depth research focusing on huge samples.

Objectives

1. To analyze psychological issues of patient suffering from Diabetes
2. To evaluate the pattern of diabetes patients after recovering from covid

Diabetes and Risk from Covid 19

The risk of COVID-19 severe illness was higher for those with diabetes (PWD). COVID-19 also provides significant indirect dangers to PWD from health and lifestyle disturbances. The short-term and long-term understanding of these hazards and the best strategies of mitigating them will facilitate informed decisions during and after the COVID-19 pandemic. There is modest but ongoing evidence for COVID-19 and diabetes. We may summarise the findings from quick reviews in this perspective. COVID-19 and treatment concerns of PWD with and without the COVID-19 infection evaluate the direct and indirect dangers to PWD. We are also gathering together experts in diabetes treatment from high-rates COVID-19, recognising the limits of evidence in relation to COVID-19, to emphasise the experience of those nations most impacted, such as Italy, France, China, Great Britain and the USA.

Whether PWD will contract COVID-19 is more uncertain. PWD is typically believed to be expanded to a COVID-19 risk of infection. There is yet minimal community testing of COVID-19, so data mostly from hospitalised cohorts. Systematic studies comprised mostly of data from China estimating rates of diabetes in persons in hospital with COVID-19 at 8% (95% of CI, 6%–11%), 7.87% (95% CI, 6.5%–9.2%) and 9.7% (95% CI, 6.9–12.5%). In the U.S., the percentage is greater, when PWD accounted for 10.9% of all COVID-19 patients from 12 to 28 February 2020 (equivalent to the U.S. diabetic population), 24% of all cases hospitalised (non-intensive treatment unit [ICU]) and 32% of ICU admission. The connection of blood glucose management with the results of COVID-19 has been limited to date. A further retrospective research by China-based persons who have type 2 diabetes showed that well-controlled blood glucose has connected better results in infected individuals. Poor infection might contribute to greater blood glucose administration;thus it is not apparent how the glucose-control connections are caused and the COVID-19 results worse.

Diabetes and Post Covid 19

There is a great deal of ambiguity about how and what will remain of the COVID-19 epidemic. Disruption arising from domestic crises may result in an increase in HbA1c among those impacted up to 16 months later, with certain evidence that the same applies especially to those of lower socio-economic level and persons treated with insulin. A failure to get normal healthcare is a primary cause of morbidity and death following catastrophes; when the immediate danger has gone, strokes, acute myocardial infarction and diabetic complications have all increased. Continuous transmission risks may also be minimised by services like diabetic clinics in their workplace.

Case control studies of CO VID-19 during the pandemic indicated that the development of COVID-19 in persons might be determined by comorbidity. Although data are somewhat limited, recent studies have shown that diabetes mellitus (DM) prevalences and higher levels

of blood glucose may act as separate mortality-morbidity factors associated with COVID-19; first because individuals with diabetes have an extended period of recovery from viral diseases because of their affected immune systems, and second because of the ability of the virus. In addition, several recent investigations have shown certain long-term concerns connected with COVID-19, which need additional inquiry and evaluation to explain the facts.

India is the ninth most populous country in the world, with more than 161 million inhabitants. SARS-CoV-2 infections in India reached about 352,287 persons by 24 September 2020, while 5,044 persons had been death-counted. Cases of diabetes, among others, are rising at an alarming pace in India, and 8.4 million cases of diabetes are present in adults in India, as accessible statistics from the International Diabetes Federation (IDF). Multiple scientific investigations relating to the clinical characterisation of COVID-19 have been done and published to far. In any event, the link of COVID-19 with diabetes and the impact of the condition on people after recovery is still a topic for investigation. The goal of this research was to determine the number of diabetic individuals diagnosed by COVID-19 individuals in various healthcare settings, as well as to compare clinical manifestations and long-term impacts in Bangladesh from the perspectives of clinical epidemiology, metabolic alterations, and long-term consequences on diabetes patients.

RESEARCH METHODOLOGY

This is a cross-sectional research to evaluate the incidence of mental health problems throughout the social distance phase owing to COVID-19 in a cohort of patients with diabetes. In a follow-up at a public hospital in Indian Endocrinology Department, electronic medical data were utilised to identify individuals with diabetes. A telephone invitation and request for the informed consent form has been given to patients who satisfied the inclusion criteria. A second phone contact for data gathering was made to participants who consented to take part in the research. All data were obtained within eight days to ensure that all subjects had the same epidemic time. In order to protect subjects from social exposure, all interactions were done through phone via trained researcher. All information gathered during the phone conversations was immediately recorded in a research staff-validated computer database.

Patients who have received medical treatment for a period of one year for type 1, type 2 diabetes, and three years for type 1 diabetes, were identified in an electronic database at the Endocrinology outpatient clinic for a regular follow-up period (2016-2019). Criteria for inclusion were the age of 118 years, haemoglobin testing (HbA1c) gathered in the hospital laboratory between January and March 2020 and a valid electronic medical record telephone number. It was eliminated individuals with physical or cognitive impairments preventing the study questions, as well as patients hospitalised during the trial.

IBM SPSS Statistics version 20 has been used to do statistical analyses. Categorical data have been provided in numbers and percentages, whilst continuous data have been given in the shapiro-wilke test as means ± SD and/or median (min-max), and have been normalised. The Mann-Whitney and Kruskal-Wallis tests had not usually been employed to compare score by various factors since the symptom score was not usual. Spearman also employed the correlation between acute and post-COVID 19 phases to detect the link between the symptom score. ROC curve analysis was done in order to discover the sensitivity and accuracy of acute phase symptoms in predicting long-term problems following COVID In all statistical tests, a P-value of 0.05 was statistically significant.

Data Analysis

Table 1 Patients with chronic post-COVID-19 symptoms

	N (%)	Mean score	*P* value*
Age (years)			
< 25	58 (13.5%)	12.9 ± 13.5	0.393
25–40	227 (52.8%)	12.6 ± 12.3	
> 40	145 (33.7%)	14.0 ± 12.7	
Gender			
Male	156 (36.3%)	13.2 ± 12.5	0.998
Female	274 (63.7%)	13.1 ± 12.6	
BMI			
Underweight	147 (34.2%)	11.9 ± 13.6	0.107
Normal	120 (27.9%)	13.6 ± 11.4	
Overweight	52 (12.1%)	14.4 ± 15.2	
Obese	66 (15.3%)	14.5 ± 12.6	
Smoking			
Nonsmoker	371 (86.3%)	12.9 ± 12.8	0.138
Current smoker	26 (6%)	13.3 ± 10.8	
Ex-smoker	33 (7.7%)	16.1 ± 11.8	
Hospital admission during illness			
Yes	103 (24%)	14.0 ± 12.4	0.216
No	327 (76%)	12.8 ± 12.7	
Need of oxygen therapy			
Yes	72 (16.7%)	17.4 ± 12.5	< 0.001^
No	358 (83.3%)	12.3 ± 12.4	
ICU admission			
Yes	20 (4.7%)	17.3 ± 12.3	0.066
No	410 (95.3%)	12.9 ± 12.6	

In covered COVID-19 instances, the length of symptom remission appeared to be longer than the duration of bacterial pathogense community acquired pneumonia. Prior research have shown that 97% of their symptoms healed in individuals with communitarian pneumonia, whereas dyspnea cleared after an average of 3 weeks following beginning of symptoms and lethargy. The reason why some individuals experience a lasting recovery is not yet completely identified. Durable viremia may all be added, due to ambiguous or weak immunological reactions, recovery or recurrence, inflammatory and other immunological reactions, deconditioning, and psychological aspects such as stress syndrome post-trauma. Furthermore, severe infections with COVID 19 need ICU treatment and might lead to continuous sequelae after recovery, including respiratory, musculoskeletal, mental and psychiatric issues. These concerns may continue to influence quality of existence as Post-intensive Care Syndrome (PICS). The predominance of mental and physical conditions, which typically take a longer time, is typical among patients suffering from PICS. PICS may also lead to disability and suffering. According to Murray and others, around fifty percent of COVID-19 hospitalised patients need continuous treatment to improve their long-term outcomes.

Table 2 Post-COVID-19 symptom score in patients according to comorbidities

	Yes	No	*P* value*
Diabetes mellitus	13.4 ± 11.8	13.1 ± 12.7	0.730
Hypertension	15.4 ± 12.9	12.7 ± 12.5	0.039^
Cardiac disease	13.8 ± 4.9	13.1 ± 12.7	0.276
Chronic pulmonary disease	20.5 ± 15.6	12.7 ± 12.3	0.012^
Renal disease	16.5 ± 11.9	13.1 ± 12.6	0.278
Psychiatric disease	22.0 ± 14.2	12.9 ± 12.5	0.068
Any chronic illness	15.8 ± 13.6	12.2 ± 12.1	0.004^

Nervousness and despondency were 35% of patients covered in this research. In both the acute and the chronic term, COVID-19 is consistently associated with a serious mental health condition. The contagion of severe coronavirus is widespread in nervousness, despoticism, posttraumatic stress disorder and insomnia. Of the first 153 COVID 19 patients in Britain, thirty% developed neurosis, decreased cognitive performance, and other problems of psychological health. The development of psychotic symptoms is also connected with corticosteroid medication. Relative to SARS, 5-44% complained of a number of one-year mental problems, including anxiousness, desperatency, psychosis and higher post-trauma stress syndrome.

Table-3 Laboratory and radiological findings of COVID-19 patients at admission

Variables	Without diabetes	With diabetes	Total	Pearson's $\chi 2$	P value
Blood sugar level (n=734)					
< 4 mmol/L	1 (0.2%)	2 (1.4%)	3 (0.4%)	82.983	0.000
4-11 mmol/L	496 (84.4%)	72 (49.3%)	568 (77.4%)		
≥ 11.1 mmol/L	91 (15.5%)	72 (49.3%)	163 (22.2%)		
Serum uric acid (n=229)					
High	19 (19.6%)	10 (7.6%)	29 (12.7%)	7.294	0.007
Normal	78 (80.4%)	122 (92.4%)	200 (87.3%)		
Serum creatinine (n=219)					
High	5 (4.5%)	17 (15.9%)	22 (10%)	7.902	0.005
Normal	107 (95.5%)	90 (84.1%)	197 (90%)		
CRP (n=390)					
High	52 (19.2%)	53 (44.2%)	105 (26.9%)	32.03	0.000
Normal	218 (80.8%)	67 (55.8%)	285 (73.1%)		
Troponin (n=214)					
High	21 (15%)	32 (43.2%)	53 (24.8%)	20.725	0.000
Normal	119 (85%)	42 (56.8%)	161 (75.2%)		
Ferritin (n=361)					
High	141 (62.9%)	84 (61.3%)	225 (62.3%)	2.075	0.354
Low	3 (1.3%)	0 (0.0%)	3 (0.8%)		
Normal	80 (35.7%)	53 (38.7%)	133 (36.8%)		
D-Dimer (n=416)					
High	139 (47.3%)	79 (64.8%)	218 (52.4%)	10.557	0.001
Normal	155 (52.7%)	43 (35.2%)	198 (47.6%)		
SGPT (n=290)					
High	81 (45.3%)	49 (44.1%)	130 (44.8%)	0.034	0.854
Normal	98 (54.7%)	62 (55.9%)	160 (55.2%)		
CBC WBC TC (n=203)					
High	16 (11.8%)	20 (29.9%)	36 (17.7%)	10.425	0.005
Low	1 (0.7%)	0 (0.0%)	1 (0.5%)		
Normal	119 (87.5%)	47 (70.1%)	166 (81.8%)		
Lymphocyte (n=203)					
High	0.7%	3 (4.5%)	4 (2.0%)	3.258	0.196
Low	66 (48.5%)	31 (46.3%)	97 (47.8%)		
Normal	69 (50.7%)	33 (49.3%)	102 (50.2%)		

Troponin-1 was also shown to be considerably increased in diabetic patients compared to COVID-19 participants without diabetes (Table 3). Similar findings have already been discovered in Italy. In individuals with co-morbidities including diabetes mellitus, considerable number of individuals showing high levels of heart troponin. A high rate of death High cardiac troponin sensitivity may also be beneficial in identifying danger in older individuals, as well as in analysing the clinical principles of older individuals with diabetes. However, in terms of diabetes cases, this retrospective research was of minor size therefore a selection biais may occur. Further research for a better perception are thus needed. In addition to worsening pre-existing diabetics, Diabetes Mellitus may also be triggered by the COVID-19. A few additional instances of diabetes (1,34 percent n=10) after COVID-19 were discovered in this investigation. However, whether Type 1 or Type 2 diabetes mellitus was detected on the pancreatic beta cells, the existence of ACE2 receptors cannot be illuminated, and so more analysis and cohorts need to be examined.

A fifth of the participants received steroids in this research. Use of COVID-19 steroids further impairs glycaemic state and increases the demand of insulin. During COVID-19, most patients obtain more than 40-unit insulin, i.e. 40 Ks/day. Other research have also shown similar findings. Intensive therapies with insulin, such basal bolus insulin therapy and

continuing intravenous insulin infusion, are known to be harmful and successful in therapies for patients with hyperglycemia who have been hospitalised.

We have shown that among COVID-19 individuals with diabetes, difficulties such as limitation of movement and discomfort are prevalent. A series of data associated the morbidity and mortality of vitamin D deficiency with COVID -19. Vitamin D supplementation might prevent multiple organ damage produced by COVID-19. The clinical signs of chronic pain include psychological discomfort coupled by physical incapacity, which may make individuals with diabetes exasperate. Our key results are comparable to earlier findings of the SARS, MERS and COVID-19 acute stage; there is evidence of depression in the post-illness period of prior coronavirus outbreaks, anxiety, exhaustion and post-traumatic stress disorder. These are the observations we made in the case of COVID-19 diabetic individuals. Depression (24 per cent), panic (13 per cent), attention loss (29 per cent), memory loss (22 per cent) and sleeplessness were other prevalent psychiatric results (13 percent). Especially sleeplessness, loss of memory, fear and despair were related, indicating that although a complete manic state was unlikely there might be subthreshold symptoms. Although this research lacked sufficient group comparisons or evaluation of preexisting mental disorders, there was a significant prevalence of anxiety, sadness and post-traumatic stress disorder. The consequences of the virus on the overall population are hard to distinguish from the influence of an epidemic or the likelihood that selection distortions lead to high prevalence levels. Measurements of health quality of life in cohorts with SARS were significantly poorer than in control groups. In comparison to mental health, the impact on social functioning was nonetheless more affected. However, the typical, extremely frequent symptoms might induce It's possible that the selection bias is unconnected to SARS-CoV-2 infection. Because our findings were only based on cohort data, no specialists verified it. Finding out the mechanism of numerous disorders owing to COVID-19 requires additional psychiatric, clinical and molecular study.

CONCLUSION

Our research demonstrated that after one month of social distance eating problems were prevalent in persons with diabetes. Literature data shows that about 14 to 35% of diabetes patients get a positive EAT-26 test for eating disorders, which is substantially lower than the level seen in our group. A pilot research conducted by Fernandez Aranda et al. showed that over 38 percent of patients developed eating problems after only two weeks of confining. The authors highlight that health and fitness concerns may be a triggering element in the development of an eating disturbance in susceptible people. It's vital to highlight that the research was done in less than the lock-down measures assessed in this research by Fernandez-aranda et al after a lengthy time of social distance. However, the high incidence of eating disorders in this community might interfere with nutrition and, as a result, glycaemic management, albeit not assessed in our investigation. The significant incidence of sleep problems in diabetic patients during this timeframe was another important part of our investigation. Only one research has been conducted to evaluate sleep quality during the COVID-19 pandemic, showing 18 percent sleeping problems prevalence. In our sample, it is possible that a positive sleep screening may be multifactorial, such as the existence of obstructive sleep apnea in groups with the highest levels of BMIs and eventually the occurrence of night-time hypoglycemia, a longer stay at home, a lower amount of exercise and irregular sleep hours. Furthermore, the prevalence of sleeplessness in this era may be a symptom of worry associated with an increased worry for the risk of COVID-19 during diabetes.

This research indicated that, despite lack of a diagnostic purpose in patients with type 1 and type 2 diabetes, a large percentage of patients demonstrated substantial psychological suffering during the COVID 19 pandemic. We have an alarming influence on the psychological health of diabetic patients as a consequence of the present circumstance. The findings from this research show that individuals with type 1 and type 2 diabetes had access to and assistance during and after this epidemic. Future research and measures should investigate the influence of diabetes mental health interventions and avoid worsening in glycaemic control over a quarantine period.

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