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Research Article

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Prevalence of Diabetes in the adult Population in Bangladesh during the Covid-19 Pandemic: A Cross-Sectional Analysis of Physical, Social, and Economical Factors

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Abstract

Background: Every individual's life has been influenced by the COVID-19 pandemic, including their socioeconomic status, livelihood, and physical and mental health. It has been found that individuals with underlying diseases, such as diabetes, have a high death rate, and, more notably, half of all diabetes mellitus is undiagnosed globally. The objective of this study was to assess the prevalence of diabetes during the COVID-19 pandemic and to identify the factors and their associations.

Methods and Materials: According to the study objectives, a cross-sectional online survey was performed to collect primary data. The population was made up of the Bangladeshi adult population who were over the age of 18 and have been diagnosed with diabetes or infected with COVID-19. Out of 450 received responses, 390 responses were analyzed after removing incomplete or ineligible data.

The relationship between the status of diabetes and various covariates was investigated using Chi-square analysis. The influencing factors associated with the risk of diabetes among participants were identified using a multiple logistic regression model. The odds ratios (OR) with 95 % confidence intervals (CI) were calculated. The significance level was two-sided, and statistical significance was defined as $p<0.05$. SPSS windows version 25.0 was used to analyze the data.

Results: The study result indicates that age, gender, marital status, family status (nuclear or joint), educational qualification, profession, COVID-19 status, systolic and diastolic blood pressure are the factors which are significantly associated ($p<0.05$) with diabetes during the pandemic. Participants under 35 years were 0.23 times more likely to suffer from diabetes than participants older than 50 years (OR = 0.232; 95% CI: 0.083 - 0.655; p = 0.006), and male participants were almost 0.5 times as likely to suffer from diabetes (OR = 0.539; 95% CI: 0.270 - 1.077; p = 0.08). Married participants were nearly 1.72 times more affected than unmarried, divorced, widowed, or separated participants (OR = 1.716; 95 percent CI: 0.639 - 4.605; p = 0.284). Obese people are more likely to suffer from diabetes than underweight/normal people (OR = 0.716; 95% CI: 0.333 - 1.542; p = 0.394) and overweight people (OR = 0.869; 95% CI: 0.414 - 1.824; p = 0.71) defined according to the Asia-pacific guidelines. Participants in nuclear families are 1.5 times more likely than those in joint families to develop diabetes (OR = 1.508; 95 percent CI: 0.806 - 2.822; p = 0.198). Government/private sector employees were 0.521 times more likely than students to develop diabetes (OR = 0.521; 95% CI: 0.107 - 2.527; p = 0.418). One surprising fact is that participants with a low monthly income (less than 15000 taka) are around 0.6 times more likely

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to develop diabetes than their counterparts (OR = 0.579; 95% CI: 0.187 - 1.793; p = 0.343). Participants who tested positive for covid had a 1.6 times increased risk of diabetes (OR = 3.913; 95% CI: 1.56 - 9.814; p = 0.004). Changes in food habits in the pandemic, smoking/tobacco product habits, average sleep per day, average exercise per day, average number of glasses consumed per day, average urination per day, and daily anti-biotics/medicine use are all predicted to be associated factors.

Conclusion: Diabetes is influenced by sociodemographic characteristics, COVID-19 effects, the devastating severity of the outbreak, habitual behaviors, and family medical history. The results suggest that during the COVID-19 pandemic, people with diabetes require social support as well as improved awareness and guidelines. Policymakers should incorporate diabetes awareness, diagnosis, treatment, and care into a national program.

Keywords: Diabetic patients, Physical health, COVID-19, Prevalence, Bangladesh

Introduction

WHO declared the COVID-19 pandemic an international public health emergency on March 11, 2020, because it is by far the most alarming atypical pneumonia outbreak since the far less severe SARS outbreak of 2002-2004 [1, 2]. As of December 31, 2021, the COVID-19 pandemic has infected over 280 million individuals globally, resulting in over 5 million deaths [3]. People who have been quarantined have experienced loneliness, anxiety, boredom, anger, denial, depression, insomnia, hazardous substance use, despair, self-harm, and suicide [4, 5].

Furthermore, COVID-19's physical symptoms (such as cough, hypoxia, and fever) combined with the adverse effects of the required medications may produce greater psychological discomfort and stress [5]. Natural disasters and pandemics are stressful events that occur around the world and have a significant influence on the physical and psychological health of the population [6, 41]. COVID-19 has had a stronger impact on individuals with comorbid conditions such as diabetes, hypertension, coronary heart disease, obesity, cancer, and HIV/AIDS since its recent emergence [7, 8]. After cardio-metabolic disorders (12.5%), diabetes has been the second most prevalent comorbidity (9.7%) among COVID-19 patients [7, 9]. According to the International Diabetes Federation (IDF), 465 million (9.3% of the world population) individuals worldwide were diagnosed with diabetes in 2019, with that number expected to rise to 700 million by 2045 [10]. Around 79% of diabetes patients live in low or middle-income countries, with Asian countries accounting for more than 60% [11].

In 2015, Bangladesh had 7.1 million people suffering from diabetics, including 3.7 million undiagnosed cases and over 129,000 deaths [10,12]. According to some statistics, Bangladesh has over 10 million diabetic patients [13], with diabetes afflicting nearly one out of every ten persons [14]. We have classified diabetes according to the HbA1C test as follows:

Classification of Diabetes according to the HbA1C test	
Level	**A1C**
Normal	less than 5.7%
Prediabetes	5.7% to 6.4%
Diabetes	6.5% or higher

Over 1.5 million cases and over 28,000 deaths have been confirmed from COVID-19 in Bangladesh, a country of over 167 million people, despite the efforts of the government and other agencies [15, 16]. Due to high population density, poor personal hygiene standards, availability of food and medicine, high unemployment rates, the mass of the Bangladeshi population is highly vulnerable to this virus.

COVID-19-specific diabetes fears were strongly associated with lower age, cigarette smoking, perceived poor health status, and the existence of other diabetic problems, according to a recent study. COVID-19 specific diabetes worry was also linked to a lack of social support from family, friends, coworkers, and the diabetes care team, as well as overeating [17]. To date, there is no data is available in Bangladesh on the prevalence of diabetes among covid positive patients.

As a result, the goal of this study was to look into the factors among the adult population of Bangladesh and determine whether there was any link between the COVID-19 pandemic and socio-demographic variables, pandemic behavioral variables, and diabetes.

Materials and Methods

Materials

The current study was conducted using a cross-sectional design with a convenient sampling technique to assess the general public's response. Because a community-based nationwide sampling survey was not feasible, data was collected online. This was shared through social media. Data was collected with the assistance of Research Assistants (RAs) who had access to diabetes patients where necessary. During the post-wave of the COVID-19 pandemic in Bangladesh, data was collected between April 2021 and August 2021. Bangladeshi citizens who could speak and understand the common language Bangla were the target population.

To begin the survey, demographic data were collected, followed by a series of survey questions. A summary of the

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study's setting, purpose, methods, confidentiality agreement, and informed consent were all included in the survey. It took 5-7 minutes to complete the self-reported survey. The participants' formal permission and consent were obtained prior to the study's implementation. They were neither paid nor given credit points for their participation. The questionnaire was available in both native Bengali and English. We used a bilingual translator to complete the translation, which was then double-checked by an independent researcher, and then back-translated by another bilingual translator to verify for consistency and eliminate any bias.

A pilot test with 30 samples was conducted prior to data collection to ensure the questionnaire's validity and reliability. These data were left out of the final analysis. Family members completed the online questionnaire for participants over the age of 70 who did not have a smartphone or were digitally illiterate. Participants had to be over the age of 18 and a Bangladeshi citizen, as well as have been diagnosed with diabetes or been infected with COVID-19. Exclusion criteria included a lack of knowledge of their health-related data, incomplete survey, and information obtained from unreliable sources.

Sample

The sample size was calculated using the following equation [26, 39]:

$$n = \frac{z^2pq}{d^2} = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2} = 384.16 \approx 384$$

Here,

n = number of samples

z = 1.96 (95% confidence level)

p = prevalence estimate (50% or 0.5) (as no study found)

q = (1−p)

d = error of the prevalence estimate = 0.05

The calculated sampling size was 384. There are limited studies to base this on however p = 0.5 was initially selected. Out of 450 received responses, 390 responses were analyzed after removing incomplete or ineligible data. The mean age of the participants was M=38.73 (SD = 16.263 years) with a range from 18 to 100 years, and 61.3% of the participants were male.

Measures

The questionnaire included a total of 44 questions. The e-questionnaire was divided into three sections: sociodemographic questions, health information, and COVID-19-related behavioral changes.

Socio-demographic variables were collected, including age, gender, BMI, education qualification, marital status, occupation, family status (nuclear or joint), no of family members, monthly income, etc. BMI was classified according to Asia-Pacific guidelines.

Classification of BMI according to Asia-Pacific guidelines	
Level	**BMI (kg/m²)**
Underweight	<18.5
Normal	18.5–22.9
Overweight	23–24.9
Obese	≥25

COVID-19-related behavioral changes were obtained by asking questions about daily physical activities, average sleep amount per day, average exercise hours per day, and strictly following COVID-19 preventive measures like washing hands regularly, avoiding touching sensitive body parts, avoiding close contacts, avoiding large gatherings, etc.

Participants were also asked about their health information such as the habit of smoking or consumption of any tobacco products, no of glasses of water consumed in a day on average, no of times urinate on average per day, consumption of any anti-biotics/medicine on daily basis, medical history of their family, blood pressure, etc. Classification of blood pressure for adults according to NCBI is given below:

Classification of blood pressure for adults according to NCBI		
Level	**SBP (mmHg)**	**DBP (mmHg)**
Normal	<120	and <80
Prehypertension	120–139	or 80–89
Stage 1 Hypertension	140–159	or 90–99
Stage 2 Hypertension	≥160	or ≥100

Statical Analysis

Descriptive statistics were used to identify the demographic characteristics of participants. Chi-square analysis was employed to investigate the association between the status of diabetes and different variables [38, 39, 42]. A multiple logistic regression model was used to identify the influencing factors related to the risk of diabetes among participants [27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 40]. Odds ratios (OR) with corresponding 95% confidence intervals were computed. The significance level was two-sided, and $p < 0.05$ was considered to be statistically significant. The results were analyzed using SPSS windows version 25.0.

Results

Bi-variate Analysis

Table 1 shows the association between the status of diabetes and different variables among the participants. In terms of socio-demographic variables, participants' mean age (± SD) was 38.73 (± 16.263). Among the participants,

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Table 1: The cross tables of attributes with χ2 test statistics and p-value

Variable Categories		Status of Diabetes		Total	Chi-Square Value
		Yes	No		(P-Value)
Gender	Male	37 (15.5%)	202 (84.5%)	239 (100%)	12.224 (0.007)
	Female	41 (27.2%)	110 (72.8%)	151(100%)	
Age (years) Mean = 38.73	18-35	11 (5.7%)	182 (94.3%)	193 (100%)	77.182 (0.000)
SD = 16.263	36-50	30 (30.9%)	67 (69.1%)	97 (100%)	
	>50	37 (37%)	63 (63%)	100 (100%)	
Marital Status	Married	67 (28.9%)	165 (71.1%)	232 (100%)	33.938 (0.000)
	Unmarried/Divorce/Widow/Separated	11 (7%)	147 (93%)	158 (100%)	
BMI Mean = 24.486	Underweight + Normal	19 (14.7%)	110 (85.3%)	129 (100%)	11.814 (0.066)
SD = 3.662	Overweight	20 (21.3%)	74 (78.7%)	94 (100%)	
	Obese	39 (23.4%)	128 (76.6%)	167 (100%)	
No of Family Members Mean = 4.33	01-Apr	52 (21.7%)	188 (78.3%)	240 (100%)	9.306 (0.025)
SD = 1.455	05-Oct	26 (17.3%)	124 (82.7%)	150 (100%)	
Educational Qualification	Illiterate + School Level + SSC	25 (30.1%)	58 (69.9%)	83 (100%)	27.606 (0.001)
	HSC	10 (15.9%)	53 (84.1%)	63 (100%)	
	Bachelors	20 (13.8%)	125 (86.2%)	145 (100%)	
	Masters and above	23 (23.2%)	76 (76.8%)	99 (100%)	
Profession	Service Holders (Govt. + Private)	26 (21.3%)	96 (78.7%)	122 (100%)	50.252 (0.000)
	Business/Others	45 (35.2%)	83 (64.8%)	128 (100%)	
	Student	7 (5%)	133 (95%)	140 (100%)	
Monthly Income (taka) Mean = 17637.82	<15000	36 (15.7%)	193 (84.3%)	229 (100%)	13.734 (0.033)
SD = 27988.134	15000-35000	23 (25.3%)	68 (74.7%)	91 (100%)	
	>35000	19 (27.1%)	51 (72.9%)	70 (100%)	
Strictly follow the preventive measures of COVID-19	Yes	35 (15.7%)	188 (84.3%)	223 (100%)	6.365 (0.095)
	No/Maybe	43 (25.7%)	124 (74.3%)	167 (100%)	
COVID-19 Status	Positive	10 (3.2%)	305 (96.8%)	315 (100%)	290.228 (0.000)
	Negative	68 (90.7%)	7 (9.3%)	75 (100%)	
SBP Mean = 121.667	Normal	26 (13.6%)	165 (86.4%)	191 (100%)	26.741 (0.000)
SD = 10.509	Pre-hypertension/Stage 1/Stage 2 Hypertension	52 (26.1%)	147 (73.9%)	199 (100%)	
DBP Mean = 80.423	Normal	49 (19.6%)	201 (80.4%)	250 (100%)	32.054 (0.000)
SD = 9.357	Pre-hypertension/Stage 1/Stage 2 Hypertension	29 (20.7%)	111 (79.3%)	140 (100%)	

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25.6% were more than 50 years and this age group had the most diabetes patients and showed significant association (χ2 = 12.224, p = 0.007). 61.3% of the participants were male and 59.5% of the participants were married. Marital status showed significant impact (χ2 = 33.938, p = 0.000).

Average exercise per day showed no association but BMI (χ2 = 11.814, p = 0.066) was liable for the respondents' status of diabetes. Family status (χ2 = 9.306, p = 0.025) showed significant association where 61.5% were from nuclear families consisting of 1 to 4 family members and were mostly affected. Most participants had bachelor's degrees (37.1%) but the participants who were illiterate or had no higher secondary degree were mostly diabetes patients. This education qualification is also a significant factor (χ2 = 27.606, p = 0.001).

Table 2: The correlation among the status of diabetes, the status of COVID-19, age, gender, BMI, no of family members, monthly income, marital status, SBP, DBP, change of food habit, the habit of smoking/any tobacco products, average sleep per day, average exercise per day, average no of glass consumed per day, average urination per day and consumption of any anti-biotics/medicine on daily basis.

	Variable Categories	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Status of Diabetes																
2	Status of COVID-19	0.112															
3	Age (years)	0.391**	0.342**														
4	Gender	0.151**	-0.085	0.083													
5	BMI	0.162**	0.027	0.184**	0.088												
6	Monthly Income (In BDT)	0.06	0.121	0.317**	-0.254**	0.086											
7	No of family members	0.086	0.1	-0.014	0.01	0.051	-0.147**										
8	Marital Status	-0.228**	-0.367**	-0.662**	-0.088	-0.199**	-0.362**	0.074									
9	Systolic Blood Pressure (Numeric value in mmHg)	0.308**	0.319*	0.318**	0.102	0.137*	0.007	-0.031	-0.223**								
10	Diastolic Blood Pressure (Numeric value in mmHg)	0.262**	0.032	0.07	-0.133*	0.139*	0.077	-0.001	0.008	0.204**							
11	Change of food habit	-0.04	0.155	0.074	-0.043	-0.179**	0.083	-0.034	-0.052	-0.035	0.004						
12	Habit of smoking/ consuming any tobacco products	0.111*	-.0336**	-0.124*	0.349**	0.019	-0.244**	-0.021	0.136**	-0.058	-0.056	-0.061					
13	Average sleep per day (in hrs)	-0.084	-0.247*	-0.266**	-0.127*	0.009	-0.062	0.079	0.227**	-0.019	0.154*	-0.021	0.053				
14	Average exercise per day (in hrs)	0	-0.172	-0.194**	-0.172**	-0.136**	-0.029	0.019	0.158**	-0.281**	-0.078	0.099	0	0.175**			
15	Average no of glasses consumed per day	0.05	-.0243*	0.059	-0.085	-0.06	-0.019	0.047	-0.041	0.058	-0.001	0.025	0.024	-0.037	0.139**		
16	Average no of urination per day	0.003	-0.349**	-0.05	-0.055	-0.005	-0.057	0.08	0.086	-0.026	0.062	-0.001	0.082	0.214**	0.043	0.248**	
17	Consumption of any anti-biotics/ medicine on daily basis	-0.328**	-0.074	-0.279**	-0.108*	-0.174**	-0.173**	-0.027	0.187**	-0.223**	-0.033	0.049	0.033	-0.042	0.042	-0.058	0.013

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The respondent's profession (χ2 = 50.252, p = 0.000) and monthly income (χ2 = 13.734, p = 0.033) were also the critical factors for having diabetes. When looking at the variables related to awareness of COVID-19, the majority of participants (57.2%) clean and disinfect frequently touched objects and surfaces and stay at home if sick except to get medical care. avoid shaking hands with others and overall, strictly follow the preventive measures of COVID-19 which showed a slight significant association (χ2 = 6.365, p = 0.095). Around 80.8% of the participants were tested COVID-19 positive once and 20% of the participants had diabetes. Systolic blood pressure (χ2 = 26.741, p = 0.000) and diastolic blood pressure (χ2 = 32.054, p = 0.000) were found to be significantly associated with the physical health of the participants.

Table 2 shows a positive correlation between age, gender, BMI, SBP, DBP, and the status of diabetes at the 0.01 level. Marital status, average sleep per day, and consumption of antibiotics/medicine on a daily basis showed a negative correlation with the effect of lockdown on physical health. Surprisingly, change of food habit for the pandemic, doing exercise, consumption of water and no of urination per day showed almost no correlation

Table 3: Multinomial Logistic Regression of diabetes patients and associated factors

Diabetes (>6.4)			
Ref: Normal (<5.7) & Prediabetes (5.7-6.4)			
Variables	**P-value**	**OR**	**95% Confidence Interval for OR**
Gender (ref: Female)			
Male	0.08	0.539	0.270 - 1.077
Marital Status (ref: Unmarried/Divorce/Widow/Separated)			
Married	0.284	1.716	0.639 - 4.605
BMI Classification (ref: Obese)			
Underweight/Normal	0.394	0.716	0.333 - 1.542
Overweight	0.71	0.869	0.414 - 1.824
No of Family Members (ref: 5-10)			
01-Apr	0.198	1.508	0.806 - 2.822
Age in years (ref: >50)			
18-35	0.006	0.232	0.083 - 0.655
36-50	0.394	0.751	0.389 - 1.451
Monthly Income in taka (ref: >35000)			
<15000	0.343	0.579	0.187 - 1.793
15000-35000	0.895	1.059	0.451 - 2.489
Educational Qualification (ref: Masters and above)			
Illiterate/School Level/SSC	0.926	0.955	0.365 - 2.499
HSC	0.742	1.193	0.417 - 3.414
Bachelors	0.565	1.296	0.536 - 3.133
Profession (ref: Student)			
Service Holders (Govt./Private)	0.418	0.521	0.107 - 2.527
Business/Others	0.478	1.654	0.412 - 6.639
COVID-19 Status (ref: negative)			
Positive	0.481	1.615	0.426 – 6.124
SBP (ref: Pre-hypertension, Stage 1 & 2 Hypertension)			
Normal	0.819	0.924	0.469 - 1.821
DBP (ref: Pre-hypertension, Stage 1 & 2 Hypertension)			
Normal	0.675	1.169	0.564 - 2.425

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Table 3 displays a regression analysis of factors associated with participants with diabetes. The adjusted regression analysis model shows that participants below 35 years were 0.23 times affected than participants aged more than 50 years (OR = 0.232; 95% CI: 0.083 - 0.655; p = 0.006). The odd ratio for male participants were almost half comparing female participants (OR = 0.539; 95% CI: 0.270 - 1.077; p = 0.08). Married participants were almost 1.72 times affected than the participants who are unmarried or divorced or widow or separated (OR = 1.716; 95% CI: 0.639 - 4.605; p = 0.284). Obese people are more likely to suffer from diabetes than underweight/normal people (OR = 0.716; 95% CI: 0.333 - 1.542; p = 0.394) and overweight people (OR = 0.869; 95% CI: 0.414 - 1.824; p = 0.71) defined according to the Asia-pacific guidelines.

Family status has been found as a predictor for diabetes. Participants of the nuclear family consisting of 1-4 members are 1.5 times more likely to suffer from diabetes compared to the participants from the joint family consisting of 5-10 members (OR = 1.508; 95% CI: 0.806 - 2.822; p = 0.198). Educational qualification showed almost no significance but in the case of profession, there was a significant association. Govt./private service holders were 0.521 times more likely to suffer from diabetes than students (OR = 0.521; 95% CI: 0.107 - 2.527; p = 0.418).

The surprising fact is participants, having a monthly income of less than 15000 taka are found to be 0.579 times affected by diabetes than their counterparts (OR = 0.579; 95% CI: 0.187 - 1.793; p = 0.343). Systolic and Diastolic Blood Pressure of the participants showed no significant impact but the participants who were tested covid positive were 1.6 times more likely to suffer from diabetes (OR = 3.913; 95% CI: 1.56 - 9.814; p = 0.004).

Discussion

COVID-19 has caused devastating health effects across the globe and impacted our daily life. COVID-19 may cause particular concern in people with comorbidities like diabetes, as they are at a higher risk of serious illness and mortality [18]. Diabetes patients have been observed to have mortality rates that are up to 50% greater than the general population [19].

Our findings suggest that people have followed the Ministry of Public Health's instructions to avoid contamination such as - using masks, cleaning and disinfecting frequently touched objects and surfaces, washing hands, and avoiding shaking hands with others, avoiding gatherings, avoiding close contacts, permanence at home, etc. Around 57.2% of respondents strictly followed the preventive measures of COVID-19. According to a study, the mean BMI among participants with diabetes was 33.5 and it was higher than the participants without diabetes [20]. Our study also found that obese people are more likely to suffer from diabetes than underweight/normal people and overweight people which is consistent with a recent study in Bangladesh [21].

In people under the age of 50, females had a higher chance of being affected by COVID-19, but males had a higher risk at older ages [22]. In this study, people over the age of 50 and females were found to be had a higher risk of diabetes. The explanation of this disparity is unknown, but biological factors (hormonal factors, stress, anxiety, depression), workload, and variable testing process should all be examined. Data from this study suggest that diabetes is associated with a higher level of education, marital status, participation in less active work, and family history of diabetes which is similar to a previous Bangladeshi result [21]. Over the last seven years, the prevalence of diabetes in Bangladesh has risen significantly, and similar rising patterns have been found in other Southeast Asian countries [22, 14]. Individuals from nuclear families with 1-4 members are 1.5 times more likely to develop diabetes than participants from joint families with 5-10 members.

We discovered that diabetes is influenced by one's profession. Government/private sector employees were 0.521 times more likely than students to develop diabetes. Students are in their youths, they play in the field, move around their educational institutions, and they have the energy to undertake both physical and mental tasks. Since businessmen are the head of their institute, work for a long time in the chair, have their peacetime, and so on, businessmen are more likely to get diabetes. Reduced physical activity related to the COVID-19 lockdown may be contributing to an increase in obesity in Bangladesh. Another cause could be the use of modern technology, which has reduced physical workload, yet obesity is not associated with the high socioeconomic position in high-income nations [23].

Factors could be that people with greater socioeconomic position use their resources to eat nutritious diets, exercise regularly, use personal trainers, etc. According to a study in China, the COVID-19 lockdown policy has a negative impact on physical activity and self-confidence [24]. Another predictor related to physical activity is having a monthly income of less than 15,000 taka. The reasons for this could be that those with a low or middle income are more likely to engage in physical activity and to do so for an extended period. In Bangladesh, we discovered that high-income respondents were more physically harmed than low-income respondents, which is consistent with prior mental health research [25].

In this study, 80.8 percent of the patients tested positive for COVID-19 at least once, and 20% of the participants had diabetes. The individuals' physical health was found to be significantly related to their systolic and diastolic blood pressures. Other risk factors are predicted to be average sleep per day and consumption of antibiotics/medicine on a daily basis.

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Conclusions

According to the findings of the study, a significant portion of the population, notably diabetic patients, is at high risk of severe complications during the COVID-19 outbreak. People who have been placed in home quarantine as a result of lockdowns must also have their physical health checked and diabetes diagnosed. The failure to diagnose diabetes was primarily due to a lack of information and healthcare accessibility. Participants with undiagnosed diabetes and pre-diabetes had similar levels of poor metabolic health to those with diagnosed diabetes, though not to the same extent. People's physical conditions deteriorated as a result of not participating in regular physical activities, which led to a state of low health wellbeing. Sociodemographic indicators, COVID-19 effects, and family history were found to be linked to diabetes, as found in other studies. Physical activity, indoor games, and a regular sleep cycle, on the other hand, will help in the betterment of this disease. Physical health difficulties and their implications among the adult population should be addressed with appropriate behavioral, psychological, and mental treatments. In seriously afflicted conditions, a referral to a professional is suggested. Moreover, to address diabetes prevention in Bangladesh, more resources should be allocated to primary health care.

Study Limitations

The above-mentioned findings may have certain limitations. The first limitation is that respondents self-report their characteristics, which may be subject to reporting bias to some extent. Another limitation is the tiny data size, however, collecting data from covid patients was both tough and critical for health. Moreover, this study employed a cross-sectional design, which cannot establish causality. We propose that future studies should employ a variety of approaches to obtain more precise results.

Data Availability Statement

The datasets used in this paper are not available to the general public. The authors keep the datasets in a safe location in accordance with confidentiality. Contact the corresponding author for accessing the datasets.

Ethics Statement

In compliance with local laws and institutional regulations, no ethical review or approval was necessary for the study on human participants. To engage in this study, the patients/participants were asked for their consent online.

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