Benha International Journal of Physical Therapy
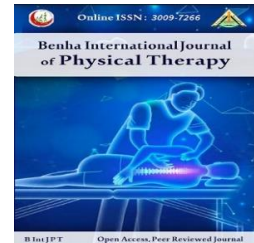
Original research

Impacts on psychological status and quality of life of people positive with COVID-19 in Bangladesh

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Abstract

Background: The coronavirus disease-2019 (COVID-19) caused by the SARS-CoV-2 virus quickly surged the whole world and affected people's physical, mental, and social health, thereby upsetting their quality of life (QOL). **Purpose:** The study aimed to investigate the psychological status and QOL of COVID-19-positive patients after recovery in Bangladesh. **Methods:** A multi-centered cross-sectional survey was conducted using a convenient sampling technique. A total of 305 COVID-19 cases, diagnosed by reverse transcription-polymerase chain reaction (RT-PCR) tests, were selected for interviewing through a phone call. Firstly, the participants were asked about socio-demographic information, and then the survey used self-report questionnaires of the Impact of Event Scale-Revised (IES-R), European Quality of Life 5 Dimensions 3 Level Version (EQ-5D-3L), and EuroQoL-visual analogue scales (EQ-VAS) questionnaires. **Results:** The participant's age Mean $\pm$ SD was 34.84 $\pm$ 12.98. A maximum of 65.7% of participants were male, and 49.7% were from semi-urban areas. Around 50.1% of respondents had COVID-19-related symptoms, and a maximum of 19.3% were suffering from fatigue. The majority of the participants had hypertension (14.4%) and were newly diagnosed with respiratory cases (10.8%). Researchers found that 71.9% had taken management for health problems. The IES-R scale reported that around 29.8% had a mild psychological impact due to the COVID-19 outbreak. It displayed a significant association (p-value<0.05) among different variables of EQ-5D-3L with the age of the participants. The results focused on the significant association (p-value<0.05) between psychological variables and isolation duration in people positive for COVID-19. **Conclusion:** The study revealed that the psychological status and QOL of the people positive for COVID-19 declined. Appropriate, adequate, and timely information is needed to build awareness among the masses regarding the COVID-19 pandemic.

Keywords: Bangladesh, COVID-19, Mental health, Psychological status; Quality of life.

Introduction

The Coronavirus Disease (COVID-19) is an infectious illness caused by the worldwide transmission of Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) and declared a global pandemic emergency[1]. Severe acute respiratory infection symptoms are common in the early stages of this illness[2]. The COVID-19 pandemic is affecting significant change throughout the world, but little is known about its influence on the survivors' quality of life (QOL) and psychological well-being. COVID-19's immediate and long-term impact on the people impacted must be determined[3]. The COVID-19 virus is typically spread between people by respiratory droplets and contact routes, according to existing findings.[1] COVID-19 has had a fast impact on daily life, business, and global commerce and transportation. This pandemic has far-reaching consequences for individuals' everyday lives as well as the global economy[4].

The entrance of the COVID-19 pandemic in Bangladesh in March 2020 harmfully impacted the health-related QOL of the Bangladeshi populace in a variety of psychologically stressful situtions[5,6]. A diversity of challenges and health crises for mental health in the general population of Bangladesh during the lockdown periods continued to create further complications in an already overburdened healthcare system.[7] The psychological reactions of Bangladesh towards the COVID-19 pandemic are thriving in propagation to the population with fear, anxiety, sleeping disturbances, avoidance behavior, depression, and suicidal thought that are predicted as per the situations experienced in the raising period[7,8]. COVID-19 has had a negative influence on the population's QOL and psychological well-being in different ways[9]. Reduced health status and QOL are further linked to increased morbidity, likely respiratory difficulties, hypertension, cardiovascular disease, cerebrovascular disorders, and diabetes that lead to death[10]. The pathophysiology and pathogenesis of CoV-2 that cause serious disorders in humans have some overlapping and discrete characteristics[11].

The term "long COVID" describes people who experience signs and symptoms that persist or worsen after being exposed to COVID-19. Various forms of long-term COVID complications might affect QOL, functional status, and work productivity[12]. COVID-19 has a significant influence on a variety of levels and has been linked to considerable physical and psychological disability, as well as a worse quality of life[13]. Many studies suggest that numerous complications such as tiredness, shortness of breath, muscular discomfort, joint pain, headache, cough, chest pain, changed smell, taste, cognitive impairment, memory loss, anxiety, and sleep disturbances are prevalent[12]. COVID-19 survivors also report poor QOL after infection, as well as considerable physical and psychological damage[14]. Anxiety, depression, and sleep difficulties have been documented in one-third of COVID-19 survivors[15].

The World Health Organization (WHO) found that about one-third of COVID-19 patients experience a decline in QOL and an impact on psychological status. There are a few numbers in the research illustrated about the QOL and psychological status of the survival patients that Bangladeshi people's QOL and psychological status data didn't explore before. The study aimed to assess the impact on QOL and the psychological status of the people positive for the COVID-19 pandemic in Bangladesh.

Methods

Study design:

A cross-sectional retrospective survey was conducted through a convenient sampling technique. The World Health Organization (WHO) guidelines were always followed to conduct the study. In accordance with the principles of the Helsinki Declaration, participants received assurances on confidentiality, privacy concerns, and ethics, which were upheld across the study[16].

Participants:

The researcher selected the participants from the hospital reports who tested COVID-19 positive by reverse transcription-polymerase chain reaction test (RT-PCR) and antigen test at the Popular Diagnostic Centre and Centre for the Rehabilitation of the Paralyzed (CRP), Savar, Dhaka. A total of 11 students from the Bangladesh Health Professions Institute (BHPI) and Saic College of Medical Science and Technology (SCMST) collected data as their volunteer contribution.

From the medical reports of RT-PCR, the socio-demographic information of the participants,

such as age and gender, was obtained. The data were collected from November 2021 to February 2022. The participant's inclusion criteria were previously diagnosed with COVID-19 for both males and females with an age above 18 years who willingly participated in the study by asking permission over the phone. People who had significant physical and mental illnesses that were found in reports and were aged below 18 were excluded from the study.

Procedures:

The survey was conducted over a phone call using a standardized tool. The first part of the study questionnaire consisted of the socio-demographic characteristics of participants, including age, gender, marital status, living area, isolation duration, educational level, occupation, and monthly income of the respondents. The second part of the survey comprised self-report questionnaires of the Impact of the Event Scale-Revised (IES-R) to assess the psychological impact and anxiety due to COVID-19 and the European Quality of Life 5 Dimensions 3 Level Version (EQ-5D-3L) and the EuroQoL-visual analogue scale (EQ-VAS) questionnaires to evaluate the health-related QOL of the COVID-19 survivors.

The IES-R scale was designed in 1998 by Matthias Schützwohl and Andreas Maercker. [17] The IES-R has a 22-item, briefly self-reported questionnaire that is convenient to administer. Every item is scored from 0 to 4 on a 5-point scale. The measure is made up of eight items for avoidance, six items for arousal symptoms, and eight items for symptoms of intrusion. [18] The psychological impact increases as the score rises. According to Creamer et al., the psychological impact of the IES-R score was classified as normal (0–23), mild (24–32), moderate (33–36), and severe (>37)[19]. The maximal reliability of this tool is excellent, and the three factors have good convergent validity[20].

The EQ-5D-3L questionnaire comprises the following five dimensions: mobility, self-care, usual activities, pain or discomfort, and anxiety or depression, and each dimension has three levels: no problems, some problems, and extreme problems. The EQ-5D-5L has significant known group validity as shown by the difference in scores among various disease groups (depression, schizophrenia, and bipolar) and experiences of chronic illness[21].The participants were asked to respond to each topic. Additionally, the participant is required to complete the EQ-VAS questionnaire, which measures an individual's overall QOL as it relates to their current health status[22].

The purpose of the study was additionally rendered apparent to each participant by the researcher. Participants were assured that any personal information would not be published anywhere. The researcher obtained permission from each volunteer participant, and after getting consent, data was collected through the Bengali questioning format. Due to the pandemic situation and highly contaminated disease, data was collected by mobile phone, and audio calls were recorded. After completing the initial data collection, every questionnaire was checked again to find out any mistakes or unclear information.

Statistical analysis:

The data analysis was performed in Statistical Package for Social Sciences (SPSS) version 22. The Spearman's test was performed to find a correlation between the EQ-VAS score and the IES-R score. The research proposal approval was taken from the IRB (CRP/BHPI/IRB/12/2021/539). Verbal consent was obtained from each participant before collecting the data.

Results

This study provided a comprehensive survey of the QOL and psychological status of the people positive for the COVID-19 pandemic. Around 305 COVID-positive participants were involved in this study. The participant's age (mean ± SD) was 34.84 ± 12.98. The majority of the participants' age ranges were 26–49 years, which was 57.5%, and around 65.7% were male participants. In this study, married participants (63.1%) were found to be more than unmarried individuals, and the majority of the participants completed the higher secondary certificate (HSC) at 40.5%, whereas a minority of the participants were illiterate at 1.6%. While considering occupation, the service holder was found to be the highest at 40.2%, while the lowest participants were farmers at 2.6%. Among the participants, monthly expenditures of 26,000–49,000 Bangladeshi taka (BDT) were a maximum of 62.1%, and the majority of participants from semi-urban areas were 49.7% (**Table 1**).

Table 1: Distribution of participants according to socio-demographic characteristics (n=305)

Demographic	N (%)	Demographic	N (%)	Demographic	N (%)
Age		*Living area*		*Monthly expenditure (Taka)*	
25≥ years	90 (29.4%)	Urban	72 (23.5%)	≥ 25,000	91 (29.7%)
26-49 years	175 (57.5%)	Semi Urban	151 (49.7%)	26,000-49,000	189 (62.1%)
50≤years	40 (13.1%)	Rural	82 (26.8%)	≤ 50,000	25 (8.2%)
Gender		*Occupation of participant*		*Educational level*	
Male	200 (65.7%)	Job	122 (40.2%)	Illiterate	5 (1.6%)
Female	105 (44.3%)	Business	40 (13.1%)	Primary	11 (3.6%)
Marital Status		Student	76 (24.8%)	Secondary	17 (5.6%)
Unmarried	107 (35%)	Housewife	48 (15.7%)	SSC	42 (13.7%)
Married	193 (63.1%)	Farmer	8 (2.6%)	HSC	123 (40.5%)
Divorce	1 (0.3%)	Others	11 (3.6%)	Graduate	48 (15.7%)
Widow	5 (1.5%)			Post-graduate	47 (15.4%)

Approximately 65.7% of participants were in isolation for less than 14 days. After being positive for outbreaks, the majority of the participants (66%) had taken medication for management in this study. Researchers found 71.9% had taken management for health problems. Among the COVID-19-positive survivors, only 5.9% have taken a physiotherapy intervention (**Table 2**).

Table 2: Isolation duration and management taken after COVID Positive of participants (n=305)

Isolation duration	N (%)	Management after COVID positive	N (%)
14> days	200(65.7%)	Medication	201 (66%)
14-21 days	74 (24.2%)	Hospitalization	64 (20.9%)
21< days	28 (9.2%)	Others	37 (12.1%)
No duration of isolation	3 (1%)		
Medical management	N (%)	**Physiotherapy Intervention**	N (%)
COVID management taken	220 (71.9%)	Received usual physiotherapy	9 (2.9%)
Medication according to doctor instruction	74(24.2%)	Received chest physiotherapy	1 (0.3%)
Hospitalization	6 (2%)	Received others physiotherapy	8 (2.6%)
Others	6 (2%)	Total Physiotherapy	18 (5.9%)

While exploring symptoms, around 50.1% of the respondents were suffering from COVID-related symptoms. Among them, fatigue 19.3%, dyspnea 9.8%, cough 12.7%, headache 6.2%, dizziness 2.6%, anxiety 5.6%, weakness 11.4%, muscle pain 11.4%, joint pain 6.9%, disturbance of balance 2.9%, any vital organ disease 1.3%, and other symptoms 1.3% were present. This study found that the majority of the participants had hypertension 14.4%, diabetes 13.1%, cardiovascular disease 4.2%, kidney disease 1.6%, and lung disease 2.3%. The newly diagnosed diseases found the majority of respiratory disease in 10.8%, cardiovascular disease in 1.6%, diabetes in 2%, kidney disease in 1%, liver disease in 0.7%, neurological disease in 4.2%, and other diseases in 7.5%.

Among the five descriptive systems of the EQ-5D-3L, the majority of the participants had pain or discomfort in 52.9%, anxiety and depression in 51.6%, activity problems around 25.5%, usual activity in 25.5%, mobility problems at 22.5%, and self-care problems in 21.6%. The EQ-VAS score Mean ±SD was 90.05±10.223. The psychological impact of the COVID-19 outbreak was measured by the IES-R scale, which demonstrated that the mean IES-R score was 22.32 ± 7.37. In this study, the IES-R score reported that around 62.9 had normal psychological status, 29.8% had mild, and a few of the respondents had moderate and severe psychological impact due to the COVID-19 outbreak (**Table 3**).

Table 3: Impact of Event Scale-Revised scoring (IES-R)

(Ranging from 0 to 88)	Frequency	Percentage	Mean ±SD
Normal (from 0 to 23)	192	62.9	
Mild (from 24 to 32)	91	29.8	22.32 ± 7.37
Moderate (from 33 to 36)	17	5.5	
Severe (≥37) psychological impact	5	1.6	

Here described the association of age of the participants among the five descriptive variables of EQ-5D-3L for measuring the quality of life of the COVID survivors. It displayed a significant association (p-value<0.05) among all five descriptive variables of EQ-5D-3L with the age of the participants. The results focused on the significant association (p-value<0.05) between

isolation duration and three different psychological statuses (trouble staying asleep, pictures popping into the mind, and waves of strong feelings). Moreover, a significant association was found (p-value <0.05) between the pain or discomfort of EQ-5D-3L and those who received physiotherapy treatment (**Table 4**).

Table 4: Association age of participant among descriptive system of EQ-5D-3L, and isolation duration and psychological status

Variable	Association different variable	Chi value	P-value
Age of participant	Pain or discomfort	17.39	0.008*
	Mobility	12.31	0.05*
	Usual activities	13.33	0.01*
	Self-care	10.57	0.03*
	Anxiety or depression	0.03	0.000*
Isolation duration	Trouble staying sleep	21.23	0.02*
	Picture popped into mind	16.32	0.01*
	Waves of strong feelings	17.58	0.02*
Received Physiotherapy	Pain or discomfort	17.25	0.008*
	Mobility	9.37	0.15
	Usual activities	4.06	0.39
	Anxiety or depression	11.67	0.07

The results showed an association between psychological impact and monthly expenditure, along with intrusion and avoidance subscales of the IES-R. Here is also displayed the relationship between psychological impact and occupation, along with the hyperarousal variable of the IES-R (**Table 5**). The spearman's test suggested a negative correlation between the EQ-VAS score and the IES-R score.

Table 5: Association between subscale of IES-R and monthly expenditure and occupation

Variable		Association	Chi value	P-value
IES-R (n =305)	Intrusion	Psychological status and monthly expenditure	17.09	0.029*
	Avoidance	Psychological status and monthly expenditure	15.73	0.015*
	Hyperarousal	Psychological status and occupation	41.52	0.003*

Discussion

This was a cross-sectional survey to assess the psychological impact and QOL of people positive for COVID-19 in Bangladesh. The results of the present study showed that the COVID-19 outbreak had a mild psychological impact on positive COVID, with a mean IES-R score of 22.32 ± 7.37. In this study, the IES-R scale reported that 29.8% of participants had a mild psychological impact due to the COVID-19 outbreak. One similar study found that males were more likely to have IES-R, whereas females were more likely to have depression. The man who underwent institutional quarantine had the greatest post-traumatic stress disorder (PTSD) symptoms[23]. According to a study conducted in Bosnia and Herzegovina and Serbia, the COVID-19 outbreak had a mild psychological impact on 23.0%, a moderate psychological impact on 9.9%, and a severe psychological impact on 34.2% of respondents[24]. Another study conducted in Pakistan found a positive correlation between a few demographic factors and symptoms of anxiety and psychologically connected disorders[25].

This study provided a widespread assessment of the QOL of the people positive for COVID-19. Among the five descriptive systems of the EQ-5D-3L, the majority of the participants had pain or discomfort, anxiety, and depression. Participants in a study who disclosed symptoms had lower average scores using the EQ-VAS. Long-lasting COVID symptoms have a significant impact on health-related QOL due to their prolonged duration. The symptoms due to long-term COVID may be a cause of low health-related quality of life (HR-QoL) and might be an important contributor to future disease burden[22]. Another study explored that anxiety or depression was indicated by the majority of research participants, followed by pain or discomfort[26].

According to Zhang and Ma (2020), the mean age ± SD of the participants was 37.7±14.0, and 41.4% were aged between 18 and 30 years[27]. In a study, Aly and Saber (2021) discovered approximately 75.7% were married and approximately 55.7% had high school or above[28]. According to another study, the majority of participants (50.3%) work in the private sector, while the lowest number of participants (7.9%) were housewives[29]. In a study, Algamdi (2021) found that medication had taken 8.7% and hospitalization 91.3%[30]. In another study, a total of 53% of participants completed the two-week isolation term, with 36.4% experiencing longer periods of isolation[31].

In this study, over half of the participants were suffering from COVID-19-related symptoms, and among them, fatigue was 19.3% and dyspnea was 9.8%. A study by Hossain et al. (2021) found that fatigue was 84.8% and discomfort was 15.4%. [29] This study found that the majority of the participants had hypertension (14.4%). Mannan et al. (2021) found that the majority of the respondents had diabetes, cardiovascular disease, kidney disease, and respiratory disease[32].

Limitations

COVID-19 has been spreading swiftly over the world since November 2019 and has been designated a global pandemic by the World Health Organization. Data gathering was difficult in this scenario since the government had proclaimed a statewide lockdown multiple time. The investigation was completed with just 305 samples, which seemed like a limitation. It was extremely difficult to convince individuals to participate completely in the study due to limited movement and maintaining social distance. A few participants were not agreeing to the phone call record. Although very few participants received physiotherapy, the authors tried to correlate quality of life with the number of participants receiving physiotherapy.

In this study, the researcher only took the COVID-positive participants from the Western Zone of Dhaka to identify their QOL and psychological status. So, the result cannot be generalized to all of Bangladesh. So, it is strongly recommended to increase the sample size to generalize the result all over Bangladesh. Proper health management can reduce or prevent problems with the QOL and psychological status of COVID survivors. The government and non-government organizations should be aware and take the necessary steps to address health-related QOL and mental issues.

Conclusion

This study identified the psychological status and QOL of the people positive for the COVID-19 pandemic. It was found that health-related QOL and psychological status were declined by COVID-19. Patients with COVID have a wide range of common physical complications, including

mobility, self-care, activity, pain, and anxiety, as well as impacts on psychological status. The study explored that fatigue, dyspnea, general weakness, respiratory issues, cognitive impairment, and postural imbalance were the most common problems for COVID survivors. Appropriate, adequate, and timely information is needed to build awareness among the mass population and people who are positive for the COVID-19 pandemic.

Institutional Review Board Statement: The proposal was submitted to the Institutional Review Board (IRB) of the Bangladesh Health Profession Institute (BHPI), and after the defense, the research proposal approval was obtained from the IRB (CRP/BHPI/IRB/12/2021/539). Trial registration was obtained prospectively from the Clinical Trial Registry of India (CTRI/2021/12/038706) on December 5, 2021.

Informed Consent Statement: All participants were given verbal briefs on the study objectives, and voluntary written consent was obtained before data collection. Participants were assured of confidentiality, ethics, and privacy issues, which were maintained throughout the study according to the principles of the Helsinki Declaration. [16]

Data Availability Statement: Data is available from corresponding author on reasonable demand and requirements.

Conflicts of Interest: The authors declare that there are no conflicts of interest regarding the publication of this article.

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