

Factors Associated with Post-Traumatic Stress Disorder in Covid-19 Survivors; Cross-Sectional Study

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Author's Contribution

²Conception and design, ³Collection and assembly of data, ^{1,2,3}Analysis and interpretation of the data, ¹Statistical expertise, drafting of article, ⁴Critical revision of the article for important intellectual content, ²Final approval and guarantor of the article.

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A B S T R A C T

Background: A new air-borne pandemic COVID-19 had resulted in a large number of morbidity and deaths. Post-traumatic stress disorder used to begin three months after its origin and probably lasts for 6 months.

Objective: To determine the association of factors with post-traumatic stress disorder in COVID-19 survivors after getting normal confirmed by COVID-19 negative test done through RTPCR diagnostic testing.

Methodology: According to Epitool a total of 165 COVID-19 survivors participated in this cross-sectional study. The non-probability convenient sampling approach was utilized. Demographic data was recorded using a self-made proforma while evaluation of post-traumatic stress disorder was done through IES-R scale.

Results: A total of 165 Covid-19 survivors took part in study, comprised upon 81 (49.1%) of men and 84 (50.9%) of females. The majority of COVID-19 survivors socioeconomically were from middle class in number of 148 (89.7%). About 66 (40.0%) encountered high impact post-traumatic stress disorder while surviving corona virus. COVID-19 survivors had trouble sleeping, being woken without cause, or over-slept, about 114 (69.1%) favored it whereas 51 (30.9%) opposed it. While 85 (51.5%) of COVID-19 survivors felt chest pain, tightness in chest or shortness of breath like symptoms after battling disease whereas 80 (48.5%) survivors had no impact.

Conclusion: The study determined that majority of COVID-19 survivors suffered from post-traumatic stress disorder had stronger association with the factors like nervousness, anxiousness and panic like stuff after surviving pandemic along with trouble in sleeping, staying asleep, awakened without reason or had overslept. While in comparison moderate association was configured between respiratory like symptoms including chest discomfort, heart beating and post-traumatic stress disorder in survivors who had battled out COVID-19.

Keywords: COVID-19, Post-Traumatic Stress Disorder, Reverse Transcriptase Polymerase Chain Reaction, Sleep discomfort, SARS-CoV-2.

Introduction

A new air-borne pandemic COVID-19 had resulted in a large number of morbidity and deaths. The after effects of virus used to continue even after the speculated recovery time. COVID-19 can be categorized as mild, moderate and severe in terms of symptoms and post-viral complications.¹ Shuiyan Xiao, Dan Lou et al found out that an infectious disease like COVID-19 increased the prevalence of trauma, disability, distress and psychological disorders.² Similarly, a study conducted by Irfan,

Muhammad and Akram et al in order to find out socioeconomic as well as contributing factors among 170 participants majorly lead to delay recovery of affected COVID-19 patients in Pakistan. Hence, they concluded that patients aging above 46 or persons whom were immunocompromised or those who were obese in stature or were even living in rural areas took much more time to recover from disease as compared to normal people.³

According to the statistical figures during that time of pandemic waves around April 2021 about 132 million had contracted COVID-19 confirmed through reverse transcriptase polymerase chain reaction due to which 2.9 million had lost their lives globally. Pakistan had 0.7 million cases in total out of which 0.6 million got survived while 0.015 million had died due to pandemic. Punjab had total of 0.241 million cases of COVID-19 out of which 0.623 million got recovered and 0.015 million lost their lives. As per updates 165.15 million people had got affected by pandemic globally out of which 3.425 million people have lost their lives. Exact pathophysiology of COVID-19 was not known at that time. COVID-19 had association with many pre-existing viruses like Spanish flu originated in 1917, Ebola virus, SARS-COV-2 (2003), Influenza, HIV, Cytomegalovirus, Candida albicans, Epstein bar virus, Enterovirus, Middle East Respiratory Syndrome (2019), Retro virus, Herpes virus. But COVID-19 was being considered more close to SARS-COV-2. Corona virus was a positive RNA stranded virus surrounded with spikes all along its structure. Initially people thought it originated from animals specifically bats, it had an impact on them too, but human's contraction mechanism was entirely different.

Transmission to humans occurred when an infected person sneezes or coughs from where it used to become airborne and affects other person. Virus used to take 1 to 14 days in order to become active in body after which patient had to quarantine for 14 more days. Following the viral infection furthermore pro-inflammatory cytokines like interleukins and interferon gamma gets released which travels via the blood-brain barrier harming the organs like hypothalamus of central nervous system.⁴ Cough or fever were the most common symptoms, asymptomatic people had also been recognized as possible sources of infection.⁵ Earlier researches had shown that exposure to corona virus generated quite a lot of stress and anxiety among its affecters.⁶ Epidemics had impact on both non-infected and persons who got affected by it as a result of quarantine. Post-traumatic stress disorder can take 3 months to start following an incident and usually lasts for 6 months.⁷ Earlier research indicated that younger people had got more impact from COVID-19 both emotionally as well as stress level wise.⁸ Concerns, horrors, fears had been noticed as prominent features of COVID-19 possibly due to lack of suitable anti-viral medicine and secondly due to spread of disinformation on social media.^{9, 10} Quarantine from family and friends lead to loneliness and powerlessness moreover it used to shatter family income by creating unemployment. The reason for conducting this study was to determine the association of factors with PTSD which could commonly be encountered by COVID-19 survivors after getting recovered from pandemic.

Moreover pandemic had generated quite a lot of stress, fear and anxiety globally as well as in our region. There was also not much evidence available supporting bottom line in Pakistan regarding current issue during COVID-19.

Methodology

The start of this study required authorization from University of Lahore's ethical council. Ethical approval was received from Ethical review Committee of University Institute of physical therapy, The University of Lahore, Lahore, Pakistan (Reference number: IRB-UOL-FAHS-/837- II /2021). All ethical rules and regulation were followed while conducting the study and the participants were included in the study based on informed consent. According to Epitool sample calculating application a total of 165¹¹ COVID-19 survivors participated in a cross-sectional study from Lahore city of Pakistan. The non-probability convenient sampling approach was utilized on COVID-19 survivors previously tested positive during pandemic and had supporting evidence confirmed through reverse transcriptase polymerase chain reaction (RTPCR). Data was collected from the survivors of COVID-19 by obtaining their consent in the form of Google document, which was converted into SPSS using Microsoft Excel. The study was completed in 6 months during COVID-19. Demographics were recorded by using self-administered proforma while post-traumatic stress disorder was assessed through IES-R scale.¹² Male and females lying between age group 20-60 were indulged in study; they had once survived COVID-19 during three waves of virus. Individuals who had undergone COVID-19 more than once had not been considered, I.C.U admitted patients suffering from COVID-19 or any other respiratory disorders like Asthma, COPD etc. were not part of study, Central nervous related disorder patients like (Parkinsonism pt., Alzheimer's disease pt., Epileptic pt., Schizophrenic pt.) were not considered for study. Moreover, immunocompromised and cancerous patients were also not considered for study. Association between the factors like (sleeping pattern deterioration, anxiety or panic symptoms and respiratory type discomforts) with PTSD encountered by COVID-19 survivors was done by Pearson correlation method. Data was analyzed by using SPSS version 25.0. P value of ≤ 0.05 was considered significant.

Results

A total of 165 COVID-19 survivors took part in study, comprised upon 81 (49.1 %) of men and 84 (50.9 %) of females. The average age was 30.12 ± 10.74 . About 127 (77%) of the participants faced symptomatic COVID-19 while 38 (23%) survivors in contrast had no symptoms. The majority of COVID-19 survivors were socioeconomically from middle class in a

number of about 148 (89.7%) individuals. About 66 (40.0%) encountered high impact post-traumatic stress disorder while surviving corona virus. COVID-19 survivors had trouble sleeping, being woken without cause, or over-slept, about 114 (69.1%) favored it whereas 51 (30.9%) opposed it. While 85 (51.5%) of COVID-19 survivors felt chest pain, tightness in chest or shortness of breath like symptoms after battling disease whereas 80 (48.5%) survivors had no impact.

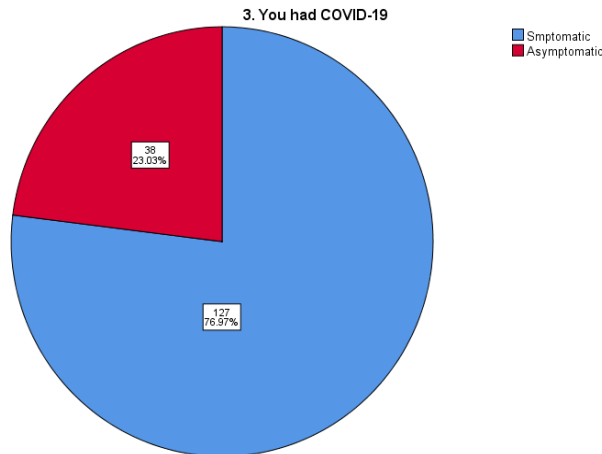


Figure 1. Descriptive statistics of the study participants who encountered COVID-19 either symptomatically or asymptomatic-ally (N=165).

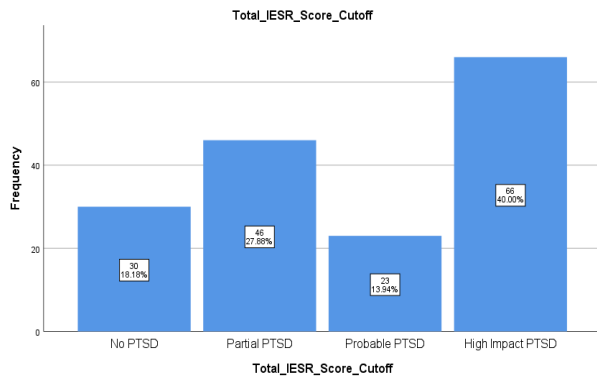


Figure 2. Descriptive Statistics of study participants who encountered PTSD attained through IES-R Score Cut-off method.

Discussion

This study on COVID-19 survivors had indulged individuals from all socioeconomic statuses but majority of them were from middle class. Prior studies suggested that socio-demographic, co morbidity, disease severity did matter in COVID-19 survivors.¹³ Infected patients were in need mechanical ventilation or in tense situation required hospitalization as COVID-19 diagnosis more likely to cause

mood, cognitive or sleep disorders along with other psychosocial variables.^{14, 15}

Table I: Descriptive statistics of factors faced by COVID19 Survivors who had encountered post-traumatic stress disorder too.

Factors	Frequency	Percentage
Post-COVID19 survivors who felt chest pain, chest tightness, shortness of breath, heart pounding		
Yes	85	51.5%
No	80	48.5%
COVID19 survivors who encountered trouble in sleeping pattern or overslept or stayed awoken at night		
Yes	114	69.1%
No	51	30.9%
COVID-19 survivors who felt nervous, anxious or panic like symptoms after encountering pandemic		
Yes	68	41.2%
No	97	58.8%

Table II: Correlation of factors affecting Covid-19 survivors with Post-traumatic stress disorder.

Factors affecting Covid-19 survivors	IES-R Score Cut-off (r)	P-value
Trouble in sleeping pattern after recovering from COVID-19	-0.267**	0.001*
Chest pain or shortness of breath like symptoms after recovering from COVID-19	-0.184*	0.018*
Anxiety or panic like symptoms after recovering from COVID-19	-0.313**	0.000*

Correlation was significant at 0.05* level (2-tailed).

Studies had indulged factors like smoking, BMI etc which was not part of this study, future studies should consider these factors.¹⁶ The study supported the literature that COVID-19 did indulge members of family which stressed out entire family.⁸ Anxiety like symptom was reported more commonly by COVID-19 survivors than like depression type symptoms which was in line with this study.¹⁷ Though prior study had found weak association of stress of pandemic but here stronger correlation was configured. Similarly previous researches showed that females got more impacted by fear, panic anxiety but this study clearly illustrated males got more impact by stress instead of females.⁸ It was found out that recurrent and bothersome memory, flashback of trauma along with disturbance of mood including sleep pattern was observed in COVID-19 survivors which supported prior findings.⁹ It was also reported formerly that people with low income got worse impact of post-traumatic stress disorder as compared to other social statuses², middle class people got more impacted from post-traumatic stress disorder in this study.

COVID-19 survivors in our study reported complaint of sleep disturbance which had supported previous literature.¹⁸ Respiratory and neurological complications were commonly reported by COVID-19 survivors in this study which backed

prior research.¹⁹ The awful nature of sickness, its first cryptic pathological features, and the related quarantine procedures might all contribute to the disease's spread. Majority of Covid-19 survivors had mild to moderate symptoms as formerly reported by other researchers .²⁰

Conclusion

The study determined that majority of COVID-19 survivors suffered from post-traumatic stress disorder had stronger association with the factors like nervousness, anxiousness and panic like stuff after surviving pandemic along with trouble in sleeping, staying asleep, awakened without reason or had overslept. While in comparison moderate association was configured between respiratory like symptoms including chest discomfort, heart beating and post-traumatic stress disorder in survivors who had battled out COVID-19.

Limitations: Study was conducted on small sample. Study was conducted natively should be conducted in other cities too and Immunocompromised patients were not consulted for study.

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