Original Article

TENDENCY AND ASSOCIATION OF DEVELOPING RELATED SYMPTOMS WITH CHRONIC FATIGUE AMONG COVID-19 SURVIVORS FROM LAHORE; CROSS-SECTIONAL STUDY.

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ABSTRACT

Background: Humanity has suffered a great deal from COVID-19 as it resulted in enormous morbidity and mortality. It was Commonly observed that people felt sluggish post-covid and found it difficult to carry out household chores. In short it impacted the quality of life. The objective of this study was to determine whether anyone in Lahore has experienced fatigue-like symptoms quite similar to chronic fatigue along with its association during or after the fight against COVID-19.

Material and Methods: The initiation of this study required permission from the ethical committee of University Institute of Physical Therapy. Participants from Lahore in a number of 125 calculated through Epitool application took part in this cross-section study that have accompanied and survived COVID19. Study has been carried out across participants who were isolated at home during the pandemic. Hospitalized patients were excluded. Self-administered proforma was used to assess demographic data but also commonly encountered symptoms of chronic fatigue. MFI scale was administered for validating fatigue related responses.

Results: Total of 125 individuals who have undergone COVID19 took part in this study. About 91 (55%) of individuals impacted from chronic fatigue as a symptom after COVID19. Nearly 109 (66%) survivors encountered body aches, and pains while they suffered from COVID19. About 112 (68%) participants felt low at energy while recovering from COVID19, while 71 (43%) got pain in their digits, back or even in head region after getting recovered from corona virus.

Conclusion: Hence it has been concluded the individuals that participated in the study from Lahore majorly developed symptom of fatigue or felt low at energy not only while being tested positive but also suffered from chronic fatigue after recovering from COVID19. Positive correlation has been established between total fatigue of multidimensional fatigue scale and combating feeling of body aches, pain while being covid positive. Similarly, association of gross fatigue developed with lost interest as well as patience after covid.

Key words: Fatigue, COVID19, Cross-sectional study, Survivors.

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INTRODUCTION:

Humanity has suffered a great deal from COVID-19 as it resulted in enormous morbidity and mortality. Covid-19 resemble in many aspects to SARS-CoV-2, MERS (Middle East Respiratory Syndrome) and Spanish flu outburst in 1917's era.[1] On January 24, 2020, SARS-CoV-2 was confirmed as cause of Covid-19 after being found in bronchoalveolar lavage fluid of three patients at Jinyintan hospital.[2] Among the numerous nations severely impacted by Covid-19, the UK has suffered the worst, with over 286,000

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confirmed cases and over 44,000 fatalities.[3] Studies have suggested that the phase of illness continued for a span of 2-3 weeks while its after effects carried for even months.[4] Corona virus has impacted the world in many aspects from creating a wave of horror i.e. anxiety, panic, lung impairment causing trouble in airways also associated with SARS making people lethargic, leading to fatigue, deteriorating sleep awakens cycle persisting for a span of up to 6 months even after getting recovered from disease. Abnormal weariness after typical activity has been referred to as fatigue. GABA deficits (fatigue and weariness) have been caused by direct hematogenic and indirect systemic inflammation (IL-6) as well as hyperinflammatory generated pathways triggered by SARS-CoV-2 infection.[5] Along with above generated adversities pain, irregular sleep patterns, immunological, neurosensory, gastrointestinal and cellular energy metabolism dysfunction has been considered as symptoms of chronic fatigue syndrome along with severe post-exertional exhaustion that would not improve with rest.[6] Generally, it has been seen that after recovering from COVID-19, over 30% of those afflicted with the virus, either symptomatic or asymptomatic during the acute phase, continued to have accompanied symptoms.[7] Prior studies have reported that nausea, headache and sore throat were the most commonly faced symptoms by the individuals who combated COVID-19.[8,9,10] Moreover fatigue, insomnia and dyspnea have been the most reported symptoms lasting over span of 3 weeks revealed by the systematic review of 28 post-COVID-19 symptom studies.[11] After pandemic it has been commonly observed that people felt sluggish and found difficult to carry out household chores, in short quality of life got impacted.[12] From July 10 to July 28, 2020, a research was carried out at Hayat National hospital in Riyadh, Saudi Arabia. They recorded mean fatigue score as 40.81 ±5.75 in post Covid patients.[13] Women have come across chronic fatigue syndrome more often while overall prevalence in general population is about 0.17- 0.89% as referred by same study. This Study also suggested that individuals had to go through a span of 3 months before the actual onset of chronic fatigue syndrome. Another study which was carried out on patients who got discharged from indoor of hospital, about 63% experienced fatigue as the most prominent symptom for a period of 6 months post-covid.[14]

Every 1 out of three individuals reported fatigue as the most encountered one symptom.[15] Rates of similar weariness have been documented as a result of earlier epidemics such as SARS and MERS.[16] Studies have also reported that fatigue, loss of taste and smell continued for span of 3 to 7 months after combating virus like SARS-CoV-2.[17] Some studies suggested that it occurred because of multiple reasons due to which it closely resembled with Epstein Barr virus, influenza and other related forms of coronavirus.

This study has been carried out mainly to detect whether individuals across Lahore region have undergone fatigue like symptoms while recovering from COVID-19. It was determined in the study that whether the association between fatigue related situation while being covid positive was configured (through MFI scale) with feeling low or lack interest after combating virus lacked in previous studies.

Additionally, previous studies did not invite people from all sectors and were limited to hospital setting or had associated fatigue with increasing age.[12]

According to our knowledge, it was a novel study done at that time of pandemic in our region and highlighted the tendency of developing symptoms of chronic fatigue in Covid-19 home setting. It will help clinicians in identifying the fact that fatigue impacted patients not only during the disease but continued to depict its effects after surviving covid-19 and keep it in consideration for their patients in future.[4]

MATERIAL AND METHODS

The initiation of this cross-section study required permission from the ethical committee

of University Institute of Physical Therapy. IRB letter No 837-II dated 02 February 2021. Participants in a number of 125, calculated through Epitool application, took part in the study. They had undergone corona virus but managed to survive it and as a result suffered from tiredness and fatigue-like symptoms not only during, but after the disease. Sample size was attained with help of biostatistician who used parent article to calculate it.[18] Lack of energy and extreme sense of tiredness that could interfere with a person's usual daily activities was termed as chronic fatigue. Mean age of the survivors has been 30.29±11.28. People under the age of 18 were excluded from the study. Individuals of age group 21 to 45 years including males and females, participated in the study. Those individuals were eligible for study who had survived COVID19 confirmed through reverse transcriptase polymerase chain reaction test (RTPCR). Chronic fatigue was assessed through multidimensional fatigue inventory scale containing five domains of fatigue including general fatigue, physical fatigue, reduced activity, reduced motivation and mental fatigue.[2] Total fatigue in MFI scale was calculated by summing scores of all five domains where greater value indicated greater fatigue encountered by participants. Each item of scale was scored on Likert scale "1" depicted not at all to "5" showing very much. Demographics was recorded through self-administered questionnaire so in total two questionnaires was used. Study was carried out among participants who were isolated at their homes during the time of pandemic. Hospitalized patients were not considered for data collection, specifically those who were critical at the time of pandemic and were admitted in intensive care units as a result of suspected virus. Moreover, individuals who were immunocompromised suffering from diabetes mellitus, hypertension, cancer, asthma etc. or the individuals who had not undergone COVID19 or were admitted in the hospital for any disease during COVID19 pandemic were not considered for the study. Informed consent was taken in an online form prior to recording response from the participants. Non-probability convenient sampling was used to negate any sort of biasness while recording data. Study was done at time of pandemic where it was impossible to collect data physically, therefore online method was applied with non-probability sampling method. Moreover, people who willingly gave their consent by filling the questionnaire made part of study. The study took 6 months for completion after approval from relevant authority of institution. All the data was recorded in the Google form which later got converted into SPSS version 25.0 via Microsoft Excel. Qualitative data was recorded in the form of frequencies, percentages, bar graphs while quantitative data was expressed as mean, standard deviation, histogram etc. Previous literature validated all the questions of proforma being used.[2,19]

RESULTS:

Total of 125 individuals who suffered from COVID19 took part in this study. Mean age of the participant was recorded as 30.29± 11.283. Out of which 61(49%) were males, and 64(51%) were females. Students got more impacted by COVID19 in this study and have outnumbered rest of professions. About 56 (34%) students got affected by this global pandemic. Mostly middle-class individuals, about 115 (70%) become victim of corona virus. Unmarried participants suffered more from the pandemic than the married ones. Mean total fatigue accustomed by participants as per MFI scale was recorded as 58.45±12.76. Minimum value of total fatigue was recorded as 20 while maximum was 96. About 91 (55%) individuals impacted from chronic fatigue as a symptom after COVID19. Nearly 109 (66%) survivors encountered body aches, body pains while they were suffering from COVID19. About 112 (68%) participants felt low at energy while COVID19 affected them while 71 (43%) got pains in their extremities, back or even in head region after recovering from corona virus. Association has been found out between chronic fatigue as a symptom (calculated by

MFI scale) after of covid with facing body pains and aches (p value = 0.00) significance between feeling moody, lack of patience or loss of interest after COVID19 and fatigue was found (p value = 0.00) through application of chi-square test. Pearson correlation was also applied between the variables, where p-value was found to be significant.

Table 1: - Descriptive statistics of Demographics (N=125).

Gender	Frequency	Percentage
Male	61	49
Female	64	51
Married	52	42
Unmarried	73	58
Lower Class	02	1.6
Middle Class	115	92
Upper class	8	6.4
Total	125	100%

Table 2: - Descriptive statistics of COVID19 survivors who suffered Chronic fatigue (N=125).

COVID19 survivors who encountered chronic fatigue after virus	Frequency	Percentage
Yes	91	73
No	34	27
COVID19 survivors who felt low at energy or fatigue at time affected by virus.		
Yes	112	90
No	13	10
Total	125	100%

Table 3: - Correlation of symptoms related fatigue during covid-19 period as well as after combating virus or similar to it with total fatigue of MFI scale (N= 125).
Correlation has been significant at 0.05* level (2-tailed).

Domain of MFI Scale	Self-Administered Symptoms	Pearson Correlation (R-value)	P-value
Total Fatigue	You faced body aches or pains while covid positive	.519**	0.00
Total Fatigue	After covid you felt moody, lack patience or lost interest	.364**	0.00
Total Fatigue	Felt pain in digits, back head or body	.229*	0.01

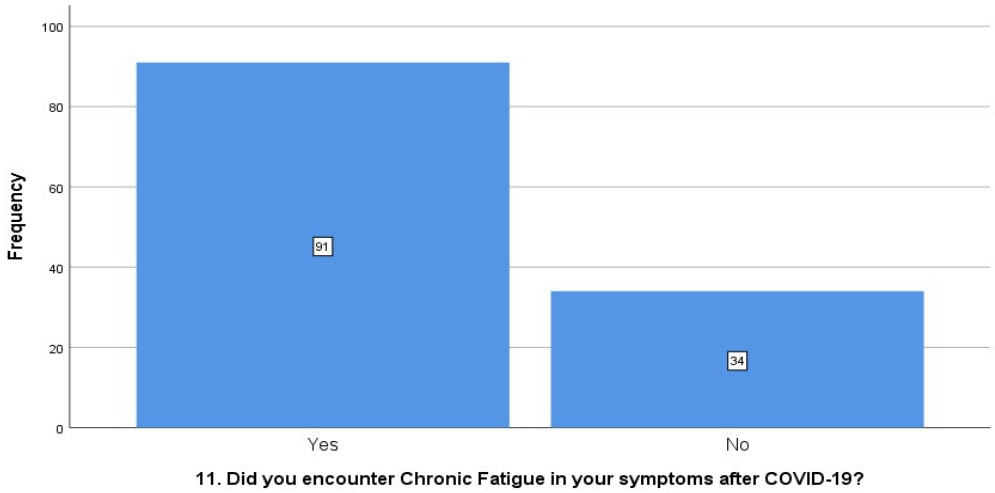

Figure 1: - Graphical representation of COVID19 survivors who encountered Chronic fatigue as a symptom after COVID19 period.

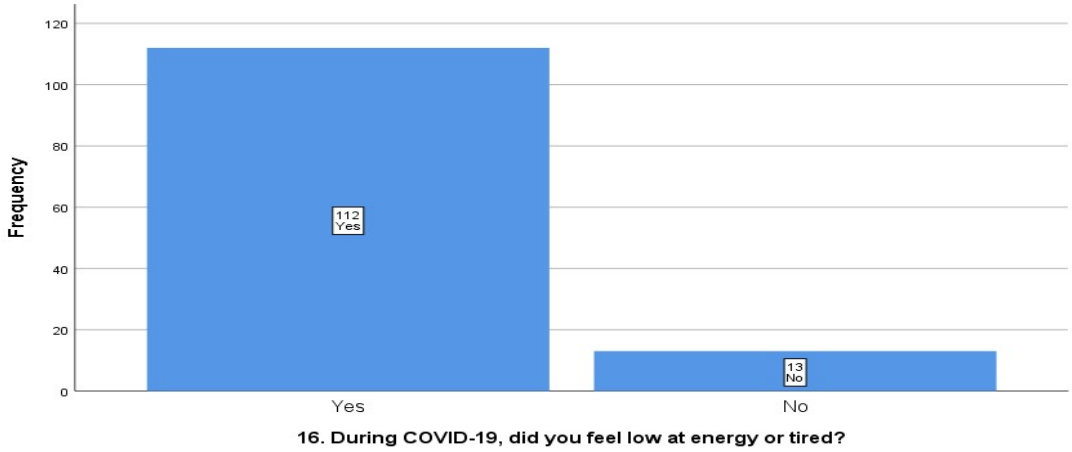

Figure 2: - Graphical representation of COVID19 survivors who felt low at energy or chronic fatigue as symptom after accompanying corona virus.

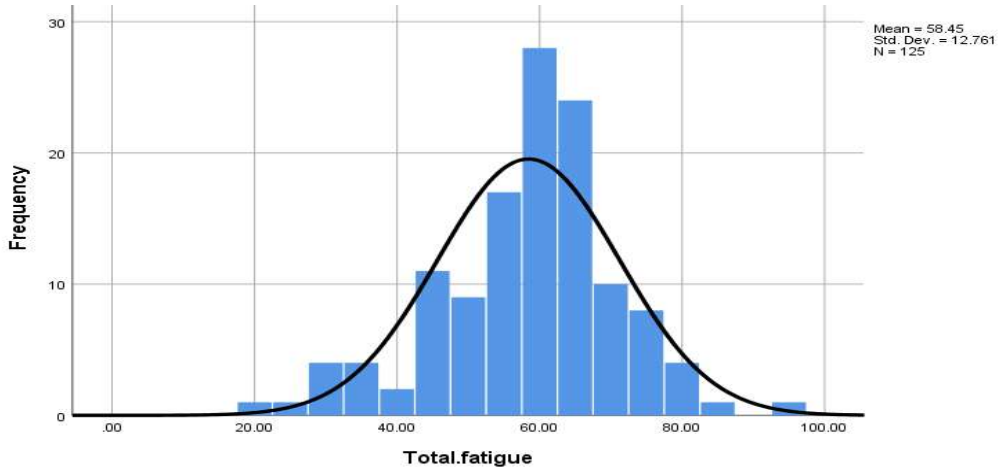

Figure 3: - Graphical representation of total fatigue estimated by MFI (Multidimensional fatigue inventory) scale among COVID19 survivors with mean value of 58.45±12.76.

DISCUSSION:

This study included individuals from almost every sector of the community where students dominantly got affected intensely among all individuals or professionals of society contrary to studies carried among health professionals of hospital as chief target.[12] Chronic tiredness even after being medically cleared of original ailment has an influence on day-to-day functioning and return to work. Majority reported fatigue or felt low at energy even after getting recovered from pandemic. The study has emphasized the point that participants came across fatigue or associated symptoms not only while having the disease but encountered feelings of chronic fatigue after getting recovered.[12] Prior studies suggested the fact that about 70% of individuals Suffered from fatigue post covid, where most of them were doctors by profession. In line with this our study concluded that nearly same number of COVID19 affected individuals had chronic fatigue from all sects after disease while more than half of the participants reported fatigue even during the disease. Similar to it, vast number of participants also reported with the feeling of body aches and pains while sustaining covid-19. Individuals have additionally reported pain in head, back or digits after recovering from the disease which was missed in prior studies.[12]

Past studies have mostly estimated limited domain of fatigue by application of fatigue assessment scale whereas we have administered multidimensional fatigue scale and estimated five domains like general fatigue, physical fatigue, reduced activity motivation and mental fatigue.[2] Total fatigue has also been calculated where greater score indicated higher level of fatigue, calculated by summing all domains lacked by prior literature.[12] We have estimated that the association of fatigue and related symptoms lacked prior to this study in our region.[2] Previous literature has highlighted evidence on fatigue encountered by the individuals while staying at hospital but this study did not cover such individuals who stayed at the hospital during the pandemic period.[20] One of the studies suggested that fatigue continued as a symptom among sufferers for more than a year.[21],[22]

In future, studies should be carried out for longer period to see adversities related to fatigue among COVID19 suffers. A survey by British association carried out online suggested that the population in their study got affected by muscular fatigue while this study lacked evidence of muscular pain.[23] Future studies should also keep this point in mind. Fatigue has been indicated as one of the most common symptoms among two to three symptoms which continued after recovering from COVID19.[24] Prior studies also suggested that single stranded SARS- CoV-2 led to malaise and lack of concentration but this study lacked that,[25] previous studies have not been able to establish association between age and fatigue while we configured association between age group cut-off with fatigue symptoms and feeling of pain, body aches while being covid-19 positive.[26] Future studies should consider factors like obesity, respiratory symptoms and quality of life into consideration to find its association with chronic fatigue. Our study found relation between total fatigue as well as individuals who lost interest, post-covid while it lacked to configure association between among depression and systemic inflammation which have been reported by earlier studies.[27] Future studies should establish more associations keeping malaise, sleep like factors in view while considering our findings. This study has limitations like future studies could incorporate scale where they would not recode items to finalize responses related to fatigue which made it difficult to analyze data specifically items i.e. 2, 5, 9, 10, 13, 14, 16, 17, 18 and 19 which have been reverse scored.[2] Hospitalized individuals who suffered chronic fatigue were not taken into account as the study was completed during pandemic. They should be considered for further studies. Future studies should consider long term effects of chronic fatigue for extended period of time to address chronic fatigue syndrome. Sample size should

be increased along with the refinement of study design as our study has an observational method and limited time.

CONCLUSION:

Individuals participating in the study from the territory of Lahore majorly developed symptom of fatigue or felt low at energy not only while suffering from the disease but also had chronic fatigue after recovering from COVID19. Positive correlation has been established between total fatigue of multidimensional fatigue scale and feeling of body aches and pain while being covid positive. Similarly, association of gross fatigue was found with loss of interest as well as patience after covid.

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CONFLICT OF INTEREST:

None

AUTHOR's CONTRIBUTION

HS: Manuscript Writing, Data Analysis
AZ: Study Concept, Data Analysis
SF: Manuscript Review

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