

ORIGINAL ARTICLE

Frequency of Musculoskeletal Impairments or Disorders among Covid-19 patients recovered six months back A cross sectional studyRABIA JAWA¹, MUHAMMAD AMMAR AKBAR², SANIA MAQBOOL³, TAMKNAT ILYAS⁴, SAMEEN ARSHAD⁵, ALI HAYDER⁶, OSSAMA SIDDIQUI⁷¹Chairperson of the Department of PMR SHS & Assistant Professor of Physical Medicine & Rehabilitation School of Health Sciences SHS UMT^{2,4}Assistant Professor of Physical Medicine & Rehabilitation School of Health Sciences SHS, UMT³Demonstrator of Physical Medicine & Rehabilitation School of Health Sciences SHS, UMT⁵Mphil. Post graduate Resident PGR at Department of Physiotherapy King Edward Medical University Lahore⁶Clinical Demonstrator at Nur International university Lahore⁷Clinical Physiotherapist at Dr. Essa Physiotherapy & Rehabilitation CenterCorrespondence to Dr. Sania Maqbool, E-mail : saniamaqbool28@gmail.com, Cell : 0332-4164484**ABSTRACT****Background:** COVID-19 is essentially an illness brought about by corona virus. COVID-19 is transmitted primarily by close contact between infected individuals. COVID-19 has been related to myalgia and general weakness in one-quarter to one-portion of suggestive patients.**Aim:** To recognize the number of Covid-19 recovered patients who at present complain of musculoskeletal impairments.**Methods:** This was an observational study in which 181 covid-19 recovered patients were surveyed. Data was collected from different hospitals of Pakistan, through self-made questionnaire and analyzed by SPSS version 21.**Results:** After the collection of data, gender differences exist in musculoskeletal disorders after comparison of both genders with age group 20 to 50 years with 48% are males 58% are females and pie chart shows prevalence of musculoskeletal disorders among covid-19 recovered patients. According to the findings, around 35% of 181 healed patients (with pain in their body parts) have seen a doctor in the last 6 months, while 65% have not visited a hospital to consult a doctor for MSK disease**Practical Implication:** Musculoskeletal impairments are leading cause of pain and disability that can lead to deformity if remain untreated or left without prior notice. As Covid-19 infection rate is getting higher day by day and till date vaccination is not available to everyone here. We must ensure that anyone getting infected by the novel Corona can have least negative effects even after patients get cured.**Conclusion:** Gender differences exist in musculoskeletal problems. We have to compare it with Covid. Here we may say that it may be due to more stress among females, there are more chances of MSK issue among females as compared to males**Keywords:** Covid-19, musculoskeletal impairments, restriction of activities**INTRODUCTION**

COVID-19 is basically caused by a viral infection. COVID-19 is transmitted primarily by close contact between infected individuals. As infected people breathe, cough, sneeze, sing, or talk little drops and mist concentrates containing the infection can spread from their nose and mouth¹. The unthinking impacts of COVID-19 on skeletal muscle are not notable because of the infection's developing presence. A quick 20 percent decrease in weight was seen in a mouse model of SARS inside four days of disease. There are many factors which can contribute to MSK conditions i.e. race, habit, profession, gender, physical activity, socioeconomic status, diet, age, obesity and other co-morbidities, injuries or disability². MSK conditions are 2nd highest cause of the morbidity-related worldwide load of disease³. COVID-19 is related to musculoskeletal conditions such as myalgia, muscle weakness, and GBS (Guillain Barre Syndrome) causing the patients unable to carry out ADL's effecting QOL. In addition, symptoms such as muscle weakness can lead to muscle atrophy and contractures. {Abdullahi, 2020 #17} So, Along these lines, recovery focuses ought to likewise be improved to help in restoring endure of MSK impedances to their dynamic lives⁴. This rehab would benefit MSK conditions through decreasing pain and enhancing function which in turn improve social life and mental health. Patients with moderate and extreme SARS have decreased hold strength and they can't remove stroll for over 10 minutes. There is a decrease in practical limit of these patients which compared with diminishes in wellbeing related personal satisfaction. Subsequent to recuperating from Corona virus, individuals are confronting trouble in a few exercises like standing, bowing, stooping, bowed back work, conveying, and getting things, arm and hand monotonous developments, overhead exercises and driving and so on⁷. This sickness makes torment the patient who gets incapable of performing everyday

functions. It majorly affects the assembling of muscular inserts, apparatuses, instruments and routine progressing innovative work⁹.

The musculoskeletal framework is additionally influenced by the sickness, yet today there is an absence of data about the overall physiological impacts of COVID-19 upon the human body⁸. We will give RICE (rest, icing, compression, elevation) therapy to patients to speed up the healing process, reduce inflammation and pain immediately. We will prefer cold therapy instead of heat therapy because it improve vascularization for recovery and more helpful in reducing inflammation and pain¹⁰. After recovering from COVID-19 most of the patients face muscular stiffness. We will give profound tissue knead. This procedure focuses on the ongoing muscle pressure which is develop through pressure. Through applying direct pressure on soft tissue by the physical therapist muscular tension can be release¹¹.

The hospitalized immobilization and the genuine inactivity in view of relentless separation and social isolating can reduce the limit of body structures to fight with the viral pollution and henceforth growing the danger of impedance to the frontal cortex, heart, MSK, resistant and respiratory systems. The composing reviews the effects of developing, proper eating routine outline, and mentioned dynamic work during COVID erupt¹². Because of the quick spread of this infection, it is beyond the realm of imagination to expect to keep every one of the patients in clinics, patients with moderate side effects are sent home in disengagement. It was discovered that they should be given a total recovery bundle by physiotherapists and psychologists for a solid and calm life and to reestablish their proactive tasks and respiratory capacity¹⁴.

The hospitalized immobilization and the actual latency because of persistent detachment and social separating can diminish the capacity of body frameworks to battle with the viral contamination and hence expanding the risk of impedance to the cerebrum, heart, MSK, invulnerable and respiratory frameworks¹⁵.

The reasoning of this examination is to decide the quantity of

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Covid-19 recuperated patient who complaints of musculoskeletal impairments and how and to what extent Covid-19 is contributing to causing such issues. Covid-19 infection rates are rising daily, but not everyone in this country has access to vaccinations as of yet. Even once patients are treated, we must make sure that everyone infected with the new Corona can have the fewest harmful effects. When managed properly, patients who have recovered from Covid-19 are less likely to experience musculoskeletal problems.

METHODOLOGY

Exploration configuration intends to design and set up the entire methodology for leading research. There are distinctive examination strategies relying on a nature of an examination study or issues being tended to. We used cross sectional study. Nonprobability of convenient sampling technique was used. Sample size was 181. Target population was covid-19 recovered patients. The study has been completed within 3 months time frame after the approval of synopsis. The data was collected from different govt. sector hospitals of Lahore.

Inclusion criteria :

1. All those covid-19 patients that have been recovered six months ago.
2. Male and female both will be included.
3. Specific age group is selected: above 20 and below 50.

Exclusion criteria :

1. Patients with other systemic disease
2. Patients with neurological condition.
3. Patients with degenerative joint diseases

Data Collection Procedure: Information has been examined by utilizing SPSS form 21. SPSS is used for entry of variables and for formulating graph like bar chart and pie chart. The bar chart shows demographic data like gender, age, area of living and occupation and pie chart shows prevalence of musculoskeletal disorders among covid-19 recovered patients.

Data Collection Tool: Nordotic musculoskeletal questionnaire is used to collect data. The data is collected using the online designed self-administrated questionnaires after describing the participants about the purpose and objectives of the research and why this research is important. We collected data using the Nordotic musculoskeletal questionnaire. The questionnaire consisted demographic data in which we used age group of above 20 and below 50, comparison between both genders and age differences, person area of living, occupation and included 4 open ended questions which have following options **YES** and **NO**, during the last 6 months regarding pain, ache, discomfort, and ADLs in different body regions from neck to ankle region.

RESULTS

Figure 1,2 depicts the prevalence of MSK disorders among COVID-19 recovered patients of Pakistan including both genders and age with the sample size of 181 subjects out of which 87 were males and 94 were females as shown in bar chart. The bar chart shows the ages of our participants which range from 20 to 50 years old corona recovered people. The maximum number of recovered patients had average age of 23 years. Figure 3 shows the prevalence of pain and discomfort in COVID-19 recovered patients was found using SPSS version 21. The outcomes show that out of 181 recuperated patients around **51%** people's difficult situation in the previous a half year i.e., torment, discomfort, body ache and numbness etc. However approx. **49%** of individuals had not complaint of anyMSK impairment or disorder.

Figure 4 depicts the prevalence of MSK related problems during ADL's. Figure 5 represents the prevalence of MSK disorders in COVID-19 recovered patients. The results show that out of 181 recovered patients approximately **35%** subjects (with pain in their body parts) has shown to doctor for situation since past 6 months while **65%** subjects had not visited hospital to consult a doctor for

MSK disorder in last 6 months.

Figure 1: Age of participants

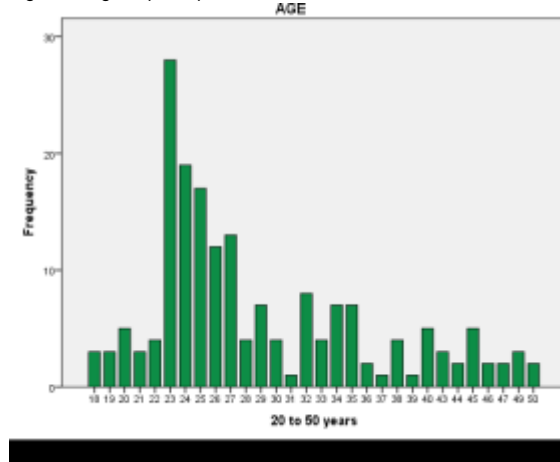


Figure 2 : Gender

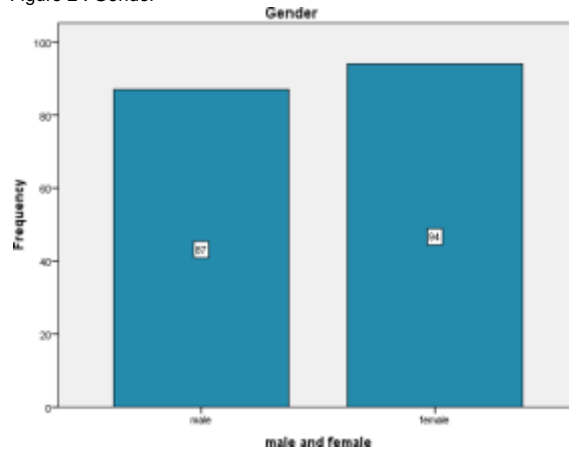
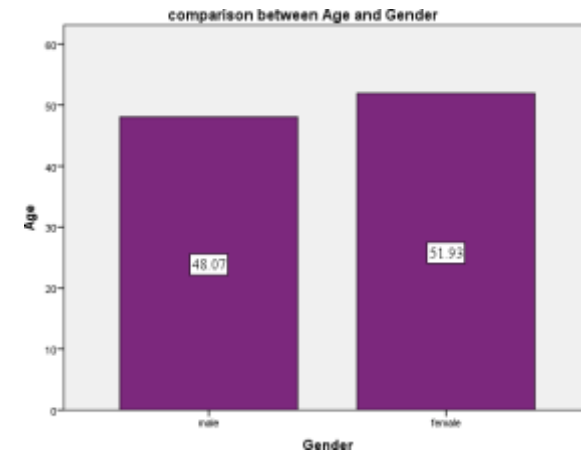


Fig. 3: Comparison between age and gender



Comparison of genders with ages: The comparison of both genders is done with age group 20 to 50 years having MSK disorders among Covid-19 recovered patients of Pakistan. It is found by using SPSS version 21 with sample size of 181 subjects, out of which approximately **48%** are males and **52%** are females as shown in the bar chart.

Have you at any time during the last 6 month had trouble (such as ache, pain, discomfort, numbness) in:

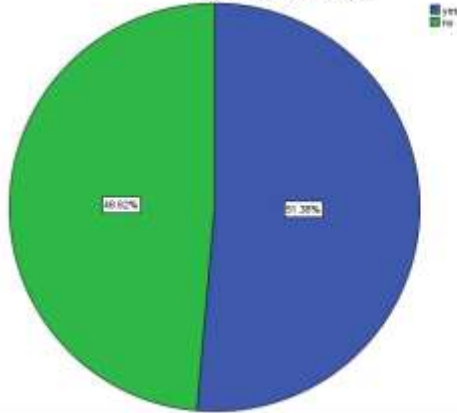


Figure 4: Prevalence of pain & discomfort

Figure 5: Prevalence of MSK during COVID-19

During the last 6 months have you been prevented from carrying out normal activities (e.g job/house work/hobbies) because of this trouble in:

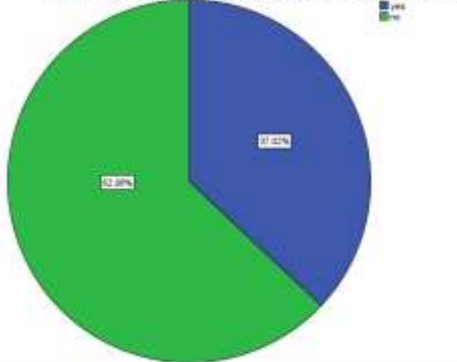
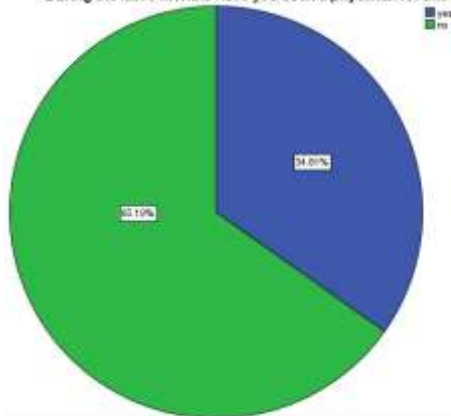


Figure 6: Prevalence of MSK during ADL's

During the last 6 months have you seen a physician for this condition:



DISCUSSION

In one of the systematic review and meta-analysis indicates that COVID-19 is related to musculoskeletal conditions such as myalgia, muscle weakness, and GBS (Guillain Barre Syndrome) causing the patients unable to carry out ADL's effecting QOL. In addition, symptoms such as muscle weakness can lead to muscle atrophy and contractures. In our study we find out that after recovering from COVID.

Another study evaluates the 110 patients having a history of

COVID-19 infection confirmed by RT-PCR were used in this investigation. They answered questions on their sociodemographic factors, clinical information about their COVID-19 infection, and a form measuring MSK discomfort based on the Nordic MSK Questionnaire. The patients were aged on average 37.7 years (SD 12.9), and 72.7% of them were female. 90% of patients reported MSK symptoms that happen during or right after an acute COVID-19 infection attack¹⁶. But the results of our study are different from the mentioned above. The study centers and duration was totally changed.

In another cross-sectional study evaluated the skeletal muscle strength and physical performance (1-min sit-to-stand and short physical performance battery tests), dyspnea, fatigue, and single-breath counting at discharge from a post-acute COVID department, in patients recovering from COVID-19 pneumonia who had no locomotor disability before the infection. We observed a high prevalence of muscle weakness and physical performance impairment in patients recovering from a moderate-to-severe COVID-19 pneumonia and hospitalized without any previous motor limitation¹⁷.

According to our study find out that a considerable fraction of patients which were admitted in the hospital due to COVID-19 still report symptoms related to COVID-19 up to 4 months after their discharge. They also complaint of low tolerance for exercise and respiratory symptoms which are associated with low quality of life in survivors of corona. Although age is important factor related to covid mortality, 4 months post hospitalization.

In another study had found that there is also significant musculoskeletal dysfunction in some patients with COVID-19, although studies have not yet been conducted. The significance of this study was to summarize the known musculoskeletal impairments in patients with COVID-19 and to combine this with computational modeling and biochemical signaling studies to predict musculoskeletal cellular targets and lasting consequences of the SARS-CoV-2 infection. Early findings in patients with COVID-19 have recognized musculoskeletal conditions associated with this disease¹⁸. We have also found that COVID-19 is related to musculoskeletal impairments. At the same time, it is most disabling to know that most of the covid-19 recovered individuals are complaint of musculoskeletal impairments even they are recovered six months back.

CONCLUSION

We've come to the conclusion that covid-19 has a substantial role in musculoskeletal dysfunctions both during infection and after recovery. Although there is a minor increase in the proportion of female patients reporting of MSK difficulties, both genders are practically equally impacted.

Limitations: Difficult access and finding of covid recovered patients. Lockdown and limited resources may have result in biased response. Lack of funds for conducting the research on large scale.

Recommendations: The more organized study with large sample size is recommended. The research should be conducted to evaluate highly affected occupation workers. The study on most common regions involved and their impact on working activity is recommended. Further research should consider social factors related to gender differences.

Conflict of interest: Nothing to declare

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