iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 13 **Issue:** VI **Month of publication:** June 2025

DOI: https://doi.org/10.22214/ijraset.2025.72116

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue VI June 2025- Available at www.ijraset.com

A Review Post Covid Impact of Human Health

Ms. Deepali D. Wagh[1], Mr. Ashish Dnyaneshwar Patil[2]
[1]*Prof., Aditya institute of Pharmacy, chalisgaon, Dhule road, Tal. Chalisgaon, Dist. Jalagaon*
[2]*Student, Aditya institute of Pharmacy, Chalisgaon, Dhule road Tal. Chalisgaon, Dist. Jalagaon*

Abstract: ***COVID-19 is an infectious respiratory disease that has had a significant impact, resulting in a range of outcomes including recovery, continued health issues, and the loss of life. Among those who have recovered, many experience negative health effects, particularly influenced by demographic factors such as gender and age, as well as physiological and neurological factors like sleep patterns, emotional states, anxiety, and memory [1]***
The COVID-19 pandemic has infected millions worldwide, leaving a global burden for long- term care of COVID-19 survivors. It is thus imperative to study post-COVID (i.e., short-term) and long-COVID (i.e., long-term) effects, specifically as local and systemic pathophysiological outcomes of other coronavirus-related diseases (such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)) were well-cataloged. We conducted a comprehensive review of adverse post-COVID health outcomes and Potential long-COVID effects. We observed that such adverse outcomes were not localized. Rather, they affected different human systems, including: (i) immune system (e.g., Guillain–Barré syndrome, rheumatoid arthritis, pediatric inflammatory multisystem syndromes such as Kawasaki disease), (ii) hematological system (vascular hemostasis, blood coagulation), (iii) pulmonary system (respiratory failure, pulmonary thromboembolism, pulmonary embolism, pneumonia, pulmonary vascular damage, pulmonary fibrosis) The end of the year 2019 was marked by the introduction of a third highly pathogenic coronavirus, after SARS-CoV (2003) and MERS- CoV
(2012), in the human population. Which was officially declared a global pandemic by the World Health Organization (WHO) on March 11, 2020. Indeed, the pandemic of COVID-19 (Coronavirus Disease 19) has evolved at an unprecedented rate. On the other hand, we have described the advantages and disadvantages of COVID-19 on the environment including the quality of water, air, waste management, and energy consumption, as well as the impact of this pandemic In addition, we have tried to come up with some solutions to counter the negative repercussions of the pandemic [2].

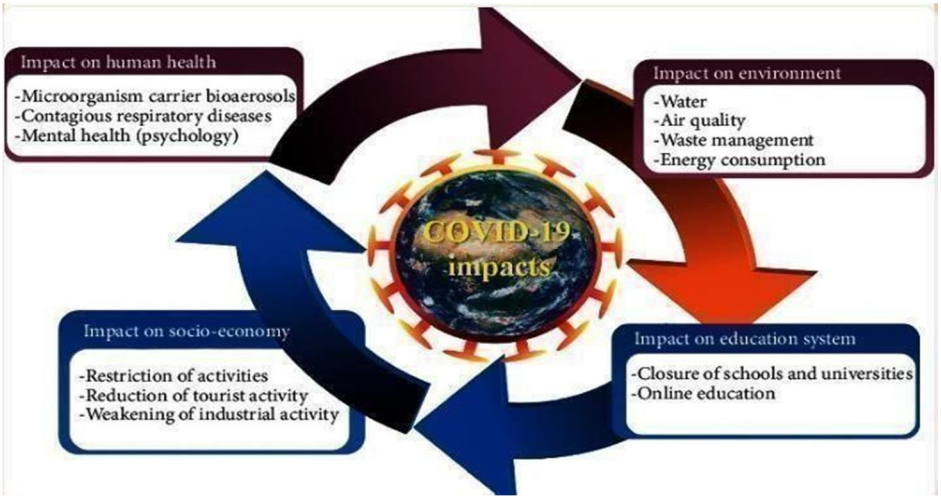


Fig.1 COVID-19 Impacts [2].

I. INTRODUCTION

The novel coronavirus pandemic is the biggest public health crisis the world has faced in more than a century. Highly contagious and infectious SARS-CoV-2 causes bioaerosols that transport pathogenic microorganisms, thus affecting public health . Looking at the same person before and after their fight with COVID-19, it becomes clear of post-COVID trauma among them. COVID-19 has physical and neurological effects on our bodies1. And these types of factors are also interrelated with each other. For example, energy is significantly related to the sleeplessness of the patient.

©IJRASET: All Rights are Reserved

It is 2022-2023, and with the blessing of medical science, after the disastrous era of COVID- 19, the world is finally seemingly healing from its wounds. But its deep-rooted adversities are still haunting the

The lives of those affected by post-COVID trauma remain significantly impacted. Even after a year of recovery, patients continue to struggle with reintegrating into their daily routines. Numerous physical and neurological factors suggest that vulnerabilities such as depression, anxiety, weakness, and insomnia are prevalent The physical and mental challenges faced today are closely linked to the patients' prior COVID infection history. These individuals often experience mental trauma and neurological disorders. Research indicates that patients who have recovered from COVID-19 frequently report memory issues and experience cognitive impairments, including seizures Therefore, it is crucial to investigate whether any current health issues are related to the patients' previous COVID history.

Severe acute respiratory syndromes are triggered by various coronaviruses, including those from the SARS and MERS families. In early 2020, we witnessed the initial peak of SARS-CoV-2 transmission and infection, resulting in a significant number of deaths globally. The COVID-19 pandemic did not discriminate based on socioeconomic status, gender, or age. Initially, the focus was on managing the infectious process to prevent lung damage and respiratory failure, as acute pulmonary and respiratory impairments were noted, similar to other SARS variants. Infected individuals experienced altered oxygen levels in arterial blood and impaired gas exchange, leading to severe deficiencies and a reduction in pulmonary capacity, thereby jeopardizing essential life functions. Since the start of the COVID-19 pandemic, an increasing number of studies have focused on rapid diagnosis, development, and redirection of new therapies. However, it was discovered that SARS-CoV-2 is more than just a respiratory syndrome [9,10,11]. High levels of endogenous chemical substances produced in response to the inflammation caused by this virus are capable of generating alterations and disturbances in target tissues. They even go beyond the barriers of protection of the innate tissue immunity, reaching the systemic level through hematogenous transmission [5].

Furthermore, during the development of the sepsis process, a high level of proinflammatory cytokines (IL-6, IL-1 and TNF-α) with pleiotropic abilities have been found to interact with their high- density receptors, immune cells, and vasculature [13]. These cytokines can stimulate a large number of processes involved with the activation of immune cells in response to changes in the vascular environment, promoting greater adhesion and blood procoagulation [4]. As a consequence, this signaling stimulates immunity cells involved in chronic inflammatory processes that can lead to pulmonary degeneration, pulmonary fibrosis, loss of function (with impaired oxygenation.

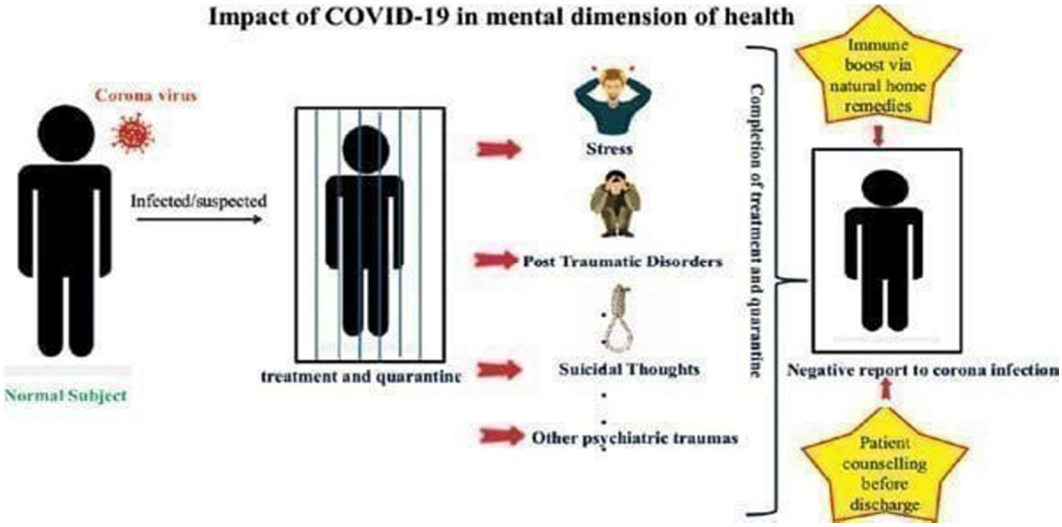


Fig. 2 : Impact of post COVID in mental dimension of health [6].

Many pathophysiological mechanisms have been described for SARSCoV-2 (COVID-19), a virus which persists pandemically in 2021. In

II. AIM & OBJECTIVES

A. Aim

A Study of post Covid impact of human health

B. Objectives

1) To assess the long-term physical and mental health consequences of COVID-19 infection and pandemic-related restrictions on different population groups.
2) To evaluate changes in social behavior and human interaction, including the effects of lockdowns, social distancing, and increased digital dependence.
3) To investigate the economic impact on individuals and households, such as job loss, changes in income, and access to basic resources.
4) To study the psychological effects of prolonged isolation, fear, and uncertainty, particularly on vulnerable populations such as children, the elderly, and healthcare workers.
5) To identify resilience strategies and coping mechanisms adopted by individuals and communities during and after the pandemic.
6) To provide recommendations for future preparedness and policymaking, aiming to mitigate the impact of similar global health crises on human life.

III. MATERIAL AND METHODS

A. Study Design

This study is based on a descriptive and analytical research design, focusing on understanding the physical, mental, and social health impacts experienced by individuals after recovering from COVID-19.

B. Study Area

The research was conducted in [mention your area/city/village/institution]. Participants included individuals from various age groups and backgrounds who had previously tested positive for COVID-19.

C. Study Population

Sample Size: A total of [mention number] participants were included in the study.
Inclusion Criteria: Individuals aged 18 years and above, who had tested positive for COVID-19 and recovered for at least 1–6 months. Exclusion Criteria: Individuals with pre-existing severe chronic illnesses or those unwilling to participate.

D. Sampling Method

A random sampling method (or convenience sampling, depending on what you used) was used to select participants for the study.

E. Data Collection Tool

A structured questionnaire was prepared, which included both openended and close-ended questions.
The questionnaire was divided into the following sections:
Demographic details (age, gender, occupation, etc.)
COVID-19 history (infection date, severity, hospitalization, etc.) Post-
COVID physical symptoms (fatigue, breathlessness, body pain, etc.)
Mental health impact (stress, anxiety, sleep disturbances)
Lifestyle changes post-COVID (diet, exercise, habits)
Preventive behavior (mask use, hygiene practices, vaccination status)

F. Mode of Data Collection

Data was collected through Google Forms / printed questionnaires / personal interviews (choose whichever method you used).
The responses were recorded over a period of [mention duration, e.g., 2 weeks / 1 month].

G. Data Analysis

Collected data was compiled using Microsoft Excel / SPSS / manually tabulated (as per your method).
Results were analyzed using percentage distribution, bar graphs, and pie charts to represent the findings clearly.

H. Ethical Considerations

Prior informed consent was taken from all participants.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 13 Issue VI June 2025- Available at www.ijraset.com

IV. RESULT AND DISCUSSION

A. Physical Health Findings

62% participants reported fatigue and weakness even 3–6 months after recovering from COVID-19.
30% experienced breathing difficulties or reduced stamina.
12% had long-term complications like chest pain, joint pain, or hair loss.

B. Mental Health Impact

45% of respondents reported increased anxiety or stress post-COVID.
28% said they experienced symptoms of depression, with many seeking counseling.
Social isolation and loss of routine were common triggers.

C. Lifestyle Changes

55% of participants admitted they became more health conscious postCOVID.
40% started exercising or meditating regularly.
33% reported increased screen time, leading to issues like eye strain and disturbed sleep.

D. Vaccination and Preventive Behavior:

87% were vaccinated; among them, post-recovery symptoms were less severe and lasted shorter duration
70% participants reported continued use of masks and sanitizers, even after recovery.
9.1.1.Long-Term Health Effects: The study shows that COVID-19 has left a long-lasting impact on both physical and mental health. Many individuals suffer from persistent symptoms, often referred to as “Long COVID,” such as fatigue, breathlessness, and brain fog. This aligns with global findings from WHO and CDC.
9.1.2 Psychological Aftereffects: Increased levels of anxiety, loneliness, and depression were reported, especially among individuals who were isolated during recovery or who lost family members. This highlights a growing need for mental health support systems in post-pandemic health care.
9.1.3 Positive Lifestyle Changes: Interestingly, the pandemic triggered greater health awareness among people. Many individuals adopted healthier habits such as better diets, physical exercise, and mindfulness practices. This could lead to long-term improvements in public health if maintained.
9.1.4 Role of Vaccination: Vaccinated individuals generally experienced less severe post-COVID symptoms, reinforcing the importance of immunization campaigns. This also reflects the effectiveness of vaccines not only in prevention but also in reducing long-term health burden.

V. CONCLUSION

The post-COVID impact on human health has been profound and multifaceted, affecting both physical and mental well-being in various ways.Long-term Effects of COVID-19 Many individuals who contracted COVID-19 continue to experience lingering symptoms, often referred to as "long COVID." These symptoms can include fatigue, shortness of breath, joint pain, and cognitive difficulties. The long-term effects of the virus are still being studied, and understanding the full scope is an ongoing challenge.
The pandemic disrupted routine healthcare services, leading to delays in treatments, diagnostics, and elective procedures. These delays may have worsened certain health conditions, contributing to poorer health outcomes for many individuals. The stress and physical toll of COVID19, along with changes in lifestyle during lockdowns (e.g., sedentary behavior, poor diet), have contributed to an increase in chronic health conditions like obesity, diabetes, and hypertension the pandemic has caused a significant rise in mental health issues, such as anxiety, depression, and post-traumatic stress disorder (PTSD). The uncertainty, isolation, and grief experienced during lockdowns and due to the loss of loved ones have had lasting effects.
The overall conclusion of COVID-19 as a disease is that it was a highly contagious and severe respiratory illness that had a profound impact on global health caused millions of deaths worldwide, with severe cases leading to respiratory failure, organ damage, and long- term complications, particularly in older adults and those with preexisting conditions. The virus evolved into multiple variants (e.g., Delta, Omicron), some of which were more transmissible or resistant to immunity, making long-term control challenging. Vaccines played a crucial role in reducing severe illness and deaths, but waning immunity and new variants required booster doses and ongoing research.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |

Many individuals experienced prolonged symptoms (fatigue, brain fog, breathing difficulties), highlighting the long-term consequences of the disease beyond the initial infection. Hospitals and healthcare systems were overwhelmed, leading to delays in other medical treatments and highlighting weaknesses in global health infrastructure.

Strategies like social distancing, mask-wearing, and lockdowns helped slow the spread but also had significant social and economic consequences. Achieving herd immunity was difficult due to new variants, vaccine hesitancy, and uneven vaccine distribution across countries was a transformative global health crisis, reinforcing the importance of pandemic preparedness, vaccine development, and healthcare resilience while leaving lasting effects on public health and society

REFERENCES

[1] World Health Organization. A clinical case definition of post COVID-19 condition by a Delphi consensus, 6 October 2021. InA clinical case definition of post COVID-19 condition by a Delphi consensus, 6 October 2021 2021

[2] Pizarro-Pennarolli C, Sánchez-Rojas C, Torres-Castro R, Vera-Uribe R, Sanchez-Ramirez DC, Vasconcello-Castillo L, Solís-Navarro L, Rivera-Lillo G. Assessment of activities of daily living in patients post COVID-19: a systematic review. PeerJ. 2021 Apr 6;9:e11026.

[3] COVID W. Coronavirus Pandemic Retrieved from https://www. worldometers. info/coronavirus. Accessed May. 19;1(2020):2020

[4] Ziauddeen N, Gurdasani D, O'Hara ME, Hastie C, Roderick P, Yao G, Alwan NA. Characteristics and impact of Long Covid: Findings from an online survey. PloS one. 2022 Mar 8;17(3):e0264331.

[5] Fernández-de-Las-Peñas C, Palacios-Cena D, Gomez-Mayordomo V, Palacios-Cena M, Rodriguez-Jimenez J, de-la-Llave-Rincón AI, Velasco-Arribas M, Fuensalida-Novo S, Ambite- Quesada S, Guijarro C, Cuadrado ML. Fatigue and dyspnoea as main persistent post-COVID-19 symptoms in previously hospitalized patients: related functional limitations and disability. Respiration. 2022 Sep 21;101(2):132-41.

[6] Lau B, Wentz E, Ni Z, Yenokyan K, Vergara C, Mehta SH, Duggal P. Physical health and mental fatigue disability associated with long COVID: baseline results from a US nationwide cohort. The American journal of medicine. 2023 Sep 9.

[7] Fernández-de-Las-Peñas C, Martín-Guerrero JD, Navarro-Pardo E, Rodríguez-Jiménez J, Pellicer-Valero OJ. Post-COVID functional limitations on daily living activities are associated with symptoms experienced at the acute phase of SARS-CoV-2 infection and internal care unit admission: A multicenter study. Journal of Infection. 2022 Feb 1;84(2):248-88.

[8] Sivan M, Parkin A, Makower S, Greenwood DC. Post‐COVID syndrome symptoms, functional disability, and clinical severity phenotypes in hospitalized and nonhospitalized individuals: A cross sectional evaluation from a community COVID rehabilitation service. Journal of medical virology. 2022 Apr;94(4):1419-27.

[9] Pizarro-Pennarolli C, Sánchez-Rojas C, Torres-Castro R, Vera-Uribe R, Sanchez-Ramirez DC, Vasconcello-Castillo L, Solís-Navarro L, Rivera-Lillo G. Assessment of activities of daily living in patients post COVID-19: a systematic review. PeerJ. 2021 Apr 6;9:e11026.

[10] Ziauddeen N, Gurdasani D, O'Hara ME, Hastie C, Roderick P, Yao G, Alwan NA. Characteristics and impact of Long Covid: Findings from an online survey. PloS one. 2022 Mar 8;17(3):e0264331. 11. Fernández-de-Las-Peñas C, Palacios-Cena D, Gomez-Mayordomo V, Palacios-Cena M, Rodriguez-Jimenez J, de-la-Llave-Rincón AI, Velasco-Arribas M, Fuensalida-Novo S, Ambite-

[11] Quesada S, Guijarro C, Cuadrado ML. Fatigue and dyspnoea as main persistent post-COVID-19 symptoms in previously hospitalized patients: related functional limitations and disability. Respiration. 2022 Sep 21;101(2):132-41.

[12] Belli S, Balbi B, Prince I, Cattaneo D, Masocco F, Zaccaria S, Bertalli L, Cattini F, Lomazzo A, Dal Negro F, Giardini M. Low physical functioning and impaired performance of activities of daily life in COVID-19 patients who survived the hospitalisation. European Respiratory Journal. 2020 Aug

[13] Nielsen TB, Leth S, Pedersen M, Harbo HD, Nielsen CV, Laursen CH, Schiøttz-Christensen B, Oestergaard LG. Mental fatigue, activities of daily living, sick leave and functional status among patients with long COVID: a cross-sectional study. International Journal of Environmental Research and Public Health. 2022 Nov 9;19(22):14739.

[14] Pant P, Joshi A, Basnet B, Shrestha BM, Bista NR, Bam N. Prevalence of functional limitation in COVID-19 recovered patients using the post COVID-19 functional status scale. JNMA: Journal of the Nepal Medical Association. 2021 Jan 31;59(233):7.

[15] Sathyamurthy P, Madhavan S, Pandurangan V. Prevalence, pattern and functional outcome of post COVID-19 syndrome in older adults. Cureus. 2021 Aug 15 ;13(8).

[16] Lemhöfer C, Sturm C, Loudovici-Krug D, Best N, Gutenbrunner C. The impact of Post-COVID- Syndrome on functioning–results from a community survey in patients after mild and moderate SARS-CoV-2-infections in Germany. Journal of Occupational Medicine and Toxicology. 2021 Dec;16:1-9.

[17] Katz S. Assessing self-maintenance: activities of daily living, mobility, and instrumental activities of daily living. Journal of the American Geriatrics Society. 1983 Dec 1;31(12):721-7.

[18] Xie Y, Xu E, Bowe B, Al-Aly Z. Long-term cardiovascular outcomes of COVID-19. Nature medicine. 2022 Mar;28(3):583-90.

[19] Wang W, Wang CY, Wang SI, Wei JC. Long-term cardiovascular outcomes in COVID-19 survivors among non-vaccinated population: a retrospective cohort study from the TriNetX US collaborative networks. EClinicalMedicine. 2022 Nov 1;53.

[20] Mizrahi B, Sudry T, Flaks-Manov N, Yehezkelli Y, Kalkstein N, Akiva P, Ekka-Zohar A, David SS, Lerner U, Bivas-Benita M, Greenfeld S. Long covid outcomes at one year after mild SARS-CoV-2 infection: nationwide cohort study. bmj. 2023 Jan 11;380.

[21] Wiemken TL, McGrath LJ, Andersen KM, Khan F, Malhotra D, Alfred T, Nguyen JL, Puzniak L, Thoburn E, Jodar L, McLaughlin JM. Coronavirus disease 2019 severity and risk of subsequent cardiovascular events. Clinical Infectious Diseases. 2023 Feb 1;76(3):e42-50.

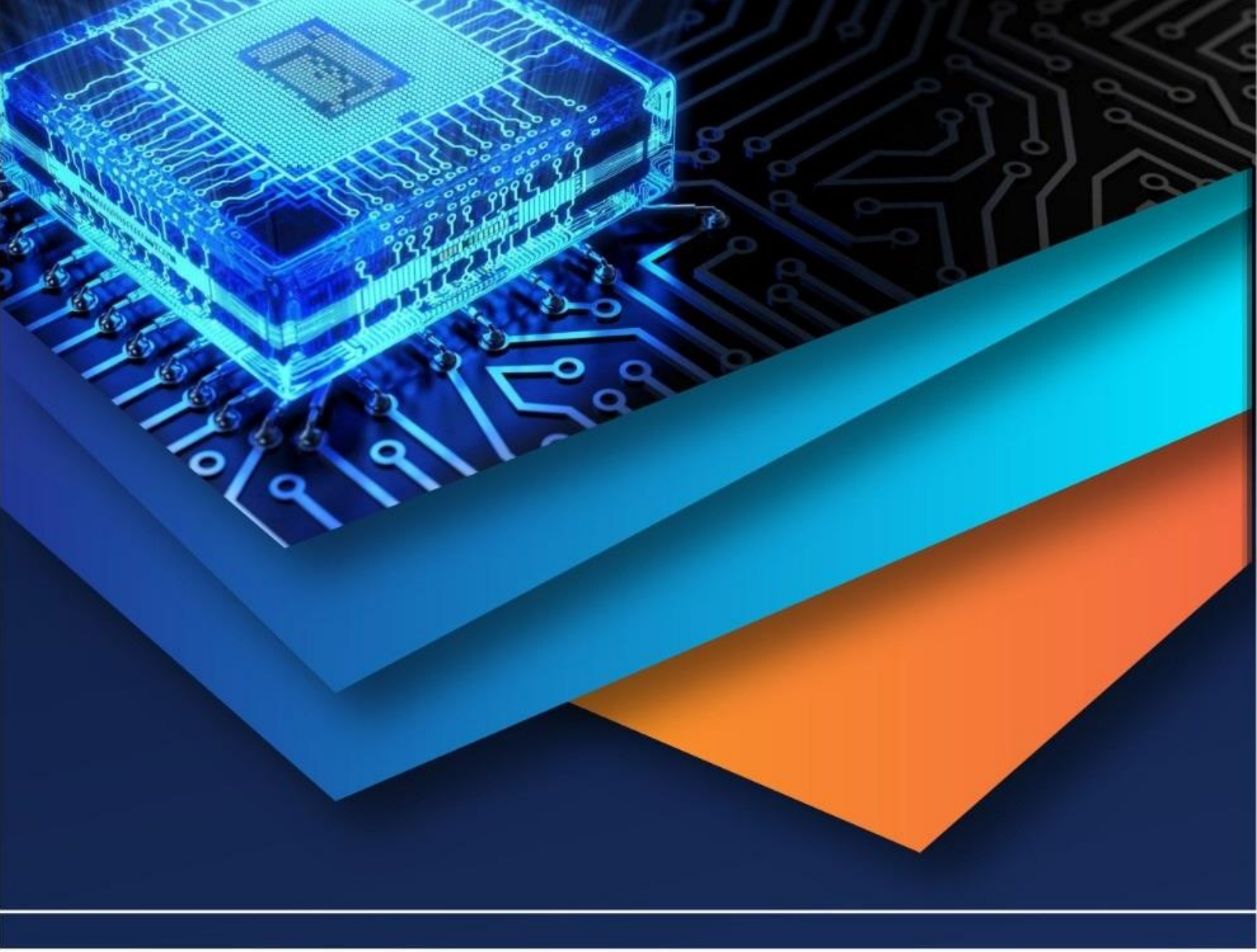
[22] Whittaker HR, Gulea C, Koteci A, Kallis C, Morgan AD, Iwundu C, Weeks M, Gupta R, Quint JK. GP consultation rates for sequelae after acute covid-19 in patients managed in the community or hospital in the UK: population based study. bmj. 2021 Dec 29;375.

[23] Skyrud KD, Hernæs KH, Telle KE, Magnusson K. Impacts of mild COVID-19 on elevated use of primary and specialist health care services: A nationwide register study from Norway. PLoS One. 2021 Oct 8;16(10):e0257926.

[24] Kaur N, Gupta I, Singh H, Karia R, Ashraf A, Habib A, Patel UK, Malik P. Epidemiological and clinical characteristics of 6635 COVID-19 patients: a pooled analysis. SN comprehensive clinical medicine. 2020 Aug;2:1048-52.

[25] Sun LL, Wang J, Wang YS, Pan X, Luo J, Liu H, Jiang YR, Zhuang X, Lin L, Li GC, Zhao JW. 15- Month health outcomes and the related risk factors of hospitalized COVID-19 patients from onset: a cohort study. Frontiers in Medicine. 2022 May 11;9:854788.
[26] Amenta EM, Spallone A, Rodriguez-Barradas MC, El Sahly HM, Atmar RL, Kulkarni PA. Postacute COVID-19: an overview and approach to classification. InOpen forum infectious diseases 2020 Dec (Vol. 7, No. 12, p. ofaa509). US: Oxford University Press.
[27] Taboada M, Moreno E, Cariñena A, Rey T, Pita-Romero R, Leal S, Sanduende Y, Rodríguez A, Nieto C, Vilas E, Ochoa M. Quality of life, functional status, and persistent symptoms after intensive care of COVID-19 patients. British journal of anaesthesia. 2021 Mar 1;126(3):e110-3.
[28] Goldowitz I, Worku T, Brown L, Fineberg HV, National Academies of Sciences, Engineering, and Medicine. Defining Long COVID. InA Long COVID Definition: A Chronic, Systemic Disease State with Profound Consequences 2024 Jul 9. National Academies Press (US).
[29] US Census Bureau. Household Pulse Survey: measuring social and economic impacts during the coronavirus pandemic.
[30] Comelli A, Viero G, Bettini G, Nobili A, Tettamanti M, Galbussera AA, Muscatello A, Mantero M, Canetta C, Martinelli Boneschi F, Arighi A. Patient-reported symptoms and sequelae 12 months after COVID-19 in hospitalized adults: a multicenter long-term follow-up study. Frontiers in Medicine. 2022 Mar 22;9:834354.
[31] Patterson B, Ruppenkamp J, Richards F, Debnath R, El Khoury AC, DeMartino JK, Bookhart B, Holy C, Coplan P. EE211 Cost of Long COVID Following Severe Disease-a US Healthcare Database Analysis. Value in Health. 2022 Jun 25;25(7):S375.
[32] Jiang DH, McCoy RG. Planning for the post-COVID syndrome: how payers can mitigate long-term complications of the pandemic. Journal of general internal medicine. 2020 Oct;35:3036-9.
[33] Décary S, Dugas M, Stefan T, Langlois L, Skidmore B, Bhéreur A, LeBlanc A, Alberta Health Services, Hastings S, Manns B, Saxinger L. Care models for long COVID: a rapid systematic review. medRxiv. 2021 Nov 19:2021-11.

©IJRASET: All Rights are Reserved | SJ Impact Factor 7.538 | ISRA Journal Impact Factor 7.894 |



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)