iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** III **Month of publication:** March 2022

DOI: https://doi.org/10.22214/ijraset.2022.40973

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 10 Issue III Mar 2022- Available at www.ijraset.com

India on the Edge of III Wave: COVID-19

Payal Patel[1], Dr. Mehul P. Barot[2]
[1]*Research Scholar,* [2]*Associate Professor, Department of Computer Engineering, LDRP-ITR, KSV University*

Abstract: ***COVID-19, a virus that is said to have originated in Wuhan, China, has a genuine effect on almost the entire world's population. The Health Organization (WHO) has called it a global pandemic due to the complications that this particular health epidemic has created all over the world. Because of continual alterations in the virus's genetic components, the pandemic has returned in numerous waves. Many lives could have been saved if we had been able to forecast the form and timing of these waves sooner. Following the second wave, India is expected to experience the third wave. At this moment, there is no way of knowing when it will happen or how big it will be. We must be prepared for the third wave, although the exact date is unknown. We must prepare and be prepared for it. In India, the potential and size of a third wave are projected to be extremely hazardous and damaging. We'll talk about the consequences and safeguards in the article.***
Index Terms: COVID-19, Masking, Pandemic Waves, SARS-CoV2, Vaccination.

I. INTRODUCTION

The Coronavirus pandemic has resulted in a shocking loss of human life around the world, bringing general health, food systems, and the world of work to the ultimate test. According to a study published by the World Health Organization (WHO) on December 20th, 2021, the latest Coronavirus outbreak has infected more than 275,017,427 killed over 5,370,457 people in more than 200 countries worldwide [14].

India remains the world's second-worst-affected region, with 14th-worst-hit countries by current reports [12]. According to the Union Ministry of Health, approximately 1.38 billion Covid-19 vaccine doses have been administered.

Everyone is affected by the sickness since it is spreading so quickly and widely. Scientists have warned everyone, including ministers that the third wave of coronavirus may have already emerged and begun in Britain, England, resulting in three weeks of restriction and lockdown.

Experts, on the other hand, have already begun making preparations for the third wave of Covid-19, which is expected to strike India next year. They also said and cautioned that the third wave will have a greater impact on children. As India continues to fight with the second wave of Covid-19 infection and pandemic, we are left with many unanswered questions about the deadly virus. One such debate is whether the third wave of Coronavirus in India would primarily affect youngsters. Experts also cautioned that the third wave would be particularly harmful to children. The third wave is expected to arrive this year or early next year [1].

II. OVERVIEW OF COVID-19

One clear concern is that the international bodies formed in the post - War Period refused to fulfil their prescribed duty to defend humanity. And as late as January 30, 2020, the Director-General of the World Health Organization (WHO) claimed categorically that a clinical emergency occurred. However, he claimed that he was opposed to trade or travel limits on flights from Wuhan and other Chinese cities to the rest of the planet. The best way to avoid a replay is for the world to perform a comprehensive and unbiased international inquiry into the medical causes of COVID-19 and, as a result, the reasons for its rapid spread [9].

Besides the previous two World Wars, this time the fight is with an unknown adversary who can strike at any time and from anywhere. In Walt Kelly's strip commemorating the observance of the primary Earth Day's concept of the environmental situation on April 22, 1970, Pogo the possum opined, "We have encountered the enemy, and he's us."

Half a century later, the idea is much more important in the ongoing conflict, because it is we, the people of the earth, who are to blame for the COVID-19's rise and global spread.

As a result, it is up to us to cooperate in order to find a solution, even though we must do so while wearing masks and going about our daily lives for the near future.

“The virus, now known as SARS-CoV-2, first emerged in Wuhan, middle China, in December 2019, sparking the worst infectious disease epidemic since the 1918-1919 flu pandemic.

Our investigations concluded that the outbreak was unquestionably caused by an animal. It most definitely came from bats and found its way to people from an unseen go-between creature in an unknown location.

©IJRASET: All Rights are Reserved

Pandemics have historically been sparked by such "zoonotic" infections. However, we are also attempting to validate the precise sequence of events that lead to the latest pandemic. To date, no SARS-CoV-2 has been detected in bats in the Hubei region or in wild life around China," said a WHO team member.

The beta corona virus, which causes MERS-CoV and SARS, is a bat-borne virus. Civets mediated the virus's spread to cave-dwelling horseshoe bats in Yunnan province, according to Chinese scientists. A virus that induced extreme respiratory distress syndrome caused 8,098 cases in southern China between November 2002 and July 2003, with 774 deaths recorded in 17 countries (9.6% fatality rate), with the majority of cases in mainland China and Hong Kong . Since 2004, there have been no reports of severe acute respiratory syndrome (SARS) recorded worldwide. As a result, respiratory disease and COVID-19 outbreaks were first discovered in China. The corona viruses HCoV-229E, -NL63, -OC43, and -HKU1 occur in the human population on a daily basis, causing respiratory infections in adults and children all over the world.

Coronavirus 2 (SARS-CoV-2) is the third coronavirus to cause a pandemic in humans in the last 20 years. This term is often used in this paper because of its similarities to the SARS-CoV virus, which caused the natural catastrophe in 2003 and is now known as "SARS-CoV-1."

Coronaviruses are a type of single-stranded RNA virus that affects humans. They are one of the most common viruses. SARS-CoV-2 is the seventh coronavirus to infect humans; SARS-CoV-1, MERS-COV, and SARS-CoV-2 are also extremely infectious [8].

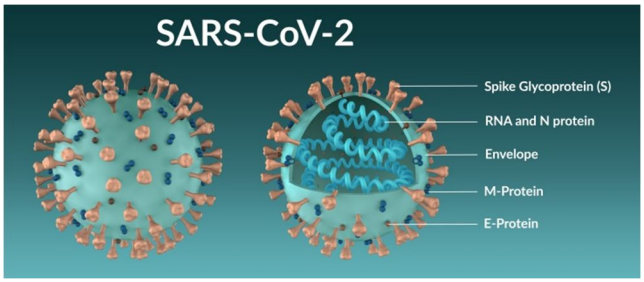


Fig 1: Structure of SARS-CoV-2 [27]

SARS-CoV-2 is an RNA virus. Its SARS is fibre RNA. The polarity of this virus is positive-sense ((+) ssRNA). RNA viruses have terribly high mutation rates. This can be one reason why it's tough to form effective vaccines to stop diseases caused by RNA viruses [10].

III. COVID-19 EFFECT ON YOUNGSTERS

Well Done Boy Marbaniang, a 15-year-old from Shillong, India, was sent to the hospital with a fever, cough, and breathing problems in September 2020. Marbaniang was placed on non-invasive breathing and given intravenous fluids almost once, but he died barely five and a half hours later. He was the first kid in Meghalaya to die of covid-19. Around 22% of total infections through to August were in under 18s. The northeastern state had the highest case fatality rate (8.3%) in India. Covid-19 has devastated India's already inadequate health system [22]. It has resulted in more than 430000 deaths, including 1500 children [11].

In India, data on hospitalizations and fatalities among infected youngsters is limited, and it's questionable if the official figures are accurate. Only a few states, like Karnataka, Tamil Nadu, and Kerala, have released figures of infections and deaths sorted by age, and the union ministry of health and family welfare does not maintain a publicly accessible centralized database. According to medical officials in Jaipur, Rajasthan's capital, 10.7% of local cases between January and July 2021 were in individuals under the age of 20, with a rise in April and May.

Only 2% of the cases were symptomatic, according to Narottam Sharma, the chief medical health officer. Jenny Swett, a pediatrician at Shillong's Ganesh Das Institute for Maternity Care and Children, says she's observed more moderately to seriously unwell children with covid-19 this year, with the majority of them suffering from respiratory symptoms and acute diarrhea. She believes the increase in mortality (2.7% in August) is due to delays (of up to seven days) in children being brought in for treatment, owing to parents' and caregivers' unbelief about Covid and vaccinations [4]. Even when their children test positive, some parents resist therapy, according to Swett. "They believe that Covid does not exist; that it is a fabrication. Parents have released their children in certain circumstances, despite our advice to maintain them in isolation wards." [20]

The majority of published data show that children with covid-19 infection are typically asymptomatic or slightly symptomatic, and that mortality from multisystem inflammatory syndrome (MIS-C), which is linked to covid-19 infection, is very rare [13].

©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 10 Issue III Mar 2022- Available at www.ijraset.com

IV. FIRST AND SECOND WAVE

On March 25, 2020, the federal government ordered a national lockdown during the first wave. The outcome indicated a well-managed infection rate, and the Indian strategy was praised across the world. Despite the fact that some European nations implemented lockdown in various forms, there appears to be a lack of cooperation between multiple health organizations and the government in India in the second wave [7].

Because of the COVID-19 epidemic, everything came to a halt in 2020. Schools and colleges were closed, isolating children from their teachers and friends; healthcare workers provided services in threatening environments; daily wage workers were thrown into precarious employment situations; an increase in domestic violence and child marriage cases; an economic blow resulting in an incalculable recession and an increased level of mental health crisis [6].

Coronavirus cases in India began to rise again in the first week of March, about six months after the first wave peaked in September 2020, signaling the advent of the second wave of the pandemic in the country [18].

The ICMR DG concluded that there is no significant difference in the way different age groups have been affected by Covid-19 in the first and second waves, which hit India in 2020 and 2021, respectively [16].

According to Dr Balram Bhargava, director-general of the Indian Council of Medical Research (ICMR), the senior population remains more vulnerable in the second wave of Covid-19 this year, while the number of younger people testing positive for coronavirus has only increased somewhat [16].

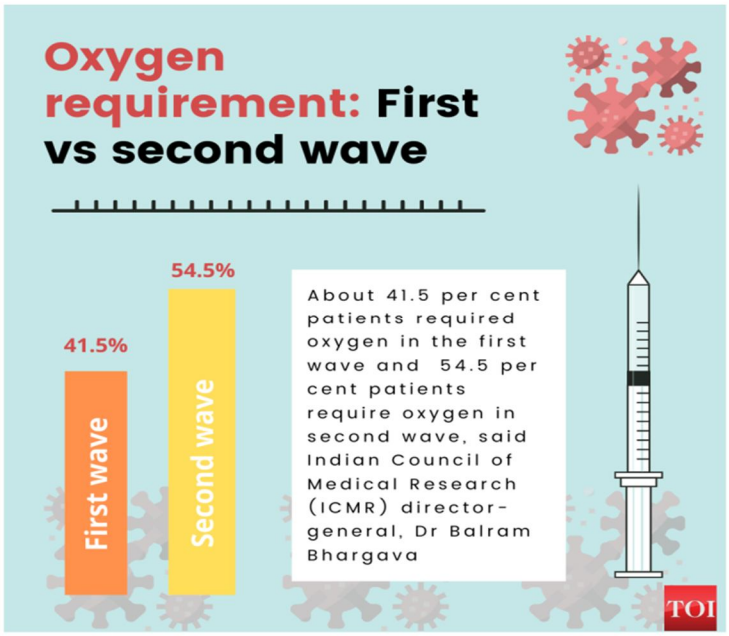


Fig 2: Oxygen requirement in first vs second wave [15]

"More than 70% of patients in both waves are over 40 years old, with a little greater number of younger patients," Dr. Bhargava said, citing a study of 1,885 second-wave patients and 7,600 first-wave patients. While the oxygen requirement in the second wave is larger, the ventilator requirement is not, according to Dr. Bhargava.

VK Paul is a member of the Aayog in charge of health. When comparing the ages of patients in the first and second waves, Paul stated that "basically there is no change." [16]

Remdesivir, according to VK Paul, should only be used on hospitalized patients in moderate stages of sickness who are on oxygen, and not at home.

In a June 2021 study, the Lancet covid-19 Commission India Task Force discovered a 2.4% death rate among 2600 children under the age of ten who were hospitalized with covid-19. The majority of the youngsters who died had comorbidities (asthma, gastrointestinal conditions, diabetes, or neuro-disabilities). There is no indication that youngsters are more vulnerable to the delta form, according to studies conducted in India and elsewhere. According to the All India Institute of Medical Sciences (AIIMS), 55.7 percent of children aged 2 to 17 had signs of the virus in their blood samples, compared to 63.5 percent of adults [2].

©IJRASET: All Rights are Reserved

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue III Mar 2022- Available at www.ijraset.com

V. NEW VARIANT: OMICRON

On the basis of recommendations from WHO's Technical Advisory Group on Virus Evolution, WHO identified the variation B.1.1.529 as a variant of concern (VOC) on November 26, 2021. Omicron is the name given to the variation [23].

The Omicron variation is a highly divergent variety with a large number of mutations, including 26-32 in the spike protein, some of which are alarming and may be linked to immunological escape potential and increased transmissibility. Human infections with this strain have been documented in 63 countries across all six WHO regions as of December 9, 2021. As additional evidence becomes available, our current knowledge of the Omicron variety is likely to alter.

Because cases in South Africa are growing faster than projected and the variation has an unusual number of mutations, the worldwide response to Omicron has been swifter and more severe than for earlier variants. Scientists raced to determine if Omicron will offer a larger challenge to vaccinations and medicines than its predecessors as soon as its genomic sequence was release.

"It's really a new beast," says Richard J. Webby, an influenza expert at St. Jude Graduate School of Biomedical Sciences. "That has set off warning bells." [3].

VI. SYMPTOMS OF OMICRON IN PATIENTS

Most symptoms of the Omicron variant differ from those of COVID-19. Doctors have described the symptoms on several times, and among them are slight fever, weariness, a "scratchy" throat, and "plenty of body aches." [26].

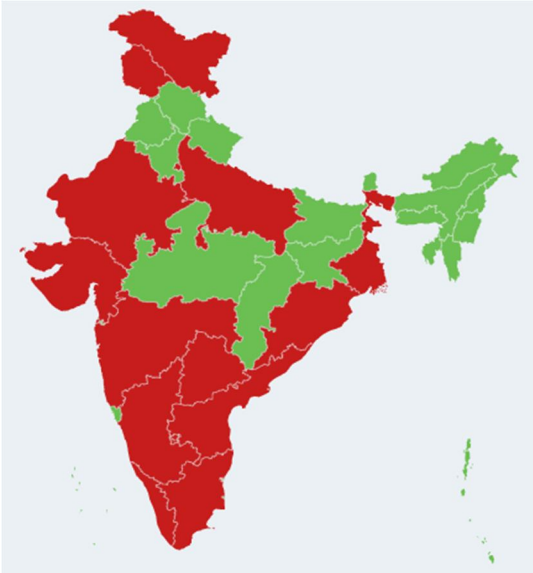


Fig 3: States with omicron mark red [24]

Total Omicron cases in India till Dec 22 2021- 124

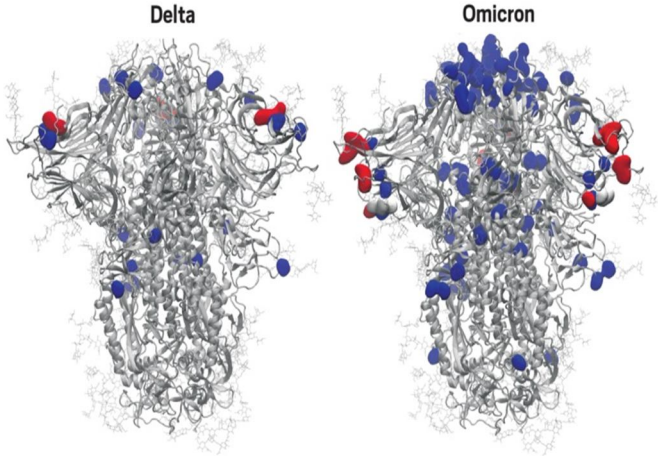


Fig 4: Delta and omicron comparison [10]

©IJRASET: All Rights are Reserved

There have been no reports of loss of smell or taste, and some people have reported appetite loss, according to the UK's ZOE Symptoms Study app.

The novel coronavirus variant Omicron has been found to be less likely to elicit characteristic COVID-19 symptoms [27].

Dr Angelique Coetzee, Chairperson of the South African Medical Association, previously stated that the individuals identified with the Omicron had showed no evidence of loss of smell or taste. Furthermore, no incidences of a stuffy, blocked nose or a very high temperature have been reported among Omicron-infected individuals [27].

Professor Tim Spector, the director of the UK's ZOE Covid study app, also stated that symptoms such as fever, cough, and loss of smell are now considered "minorities." "The majority of folks don't have traditional symptoms," he says [27].

An RT-PCR test is the most accurate approach to establish whether you have the common cold, flu, or COVID-19 [27].

Professor Spector advises everyone experiencing cold symptoms to get tested for COVID-19 in order to prevent the virus from spreading further. It's also a good idea to stay at home until you figure out what's wrong. Self-quarantine is the next step in ensuring the safety of others around you [27].

The harsh winters have also increased the number of common cold cases in India. However, the concurrent surge in COVID-19 cases in the country might indicate that your cold symptoms are more serious than they appear [27].

VII. VACCINATION FOR OMICRON

An early efficacy trial in Britain demonstrated that the Oxford-AstraZeneca vaccine exhibited no capacity to stop omicron infection six months after immunization [15]. This injection, known as Covishield, was given to 90% of India's vaccinated people; it was also widely used across much of Sub-Saharan Africa, where COVAX, the global COVID immunization programme, provided 67 million doses to 44 countries.

The Russian Sputnik vaccine, which is widely used in Africa and Latin America, will give equally low protection against omicron, according to researchers [15].

Unvaccinated patients are more likely to develop 'severe' symptoms than those who have been vaccinated, according to South African doctor Angelique Coetzee [27].

COVID-19 vaccinations, as far as we know, do not protect you against catching the virus, but doctors believe they can help you avoid serious infections [27]. Despite the fact that the extensively altered Omicron version is thought to elude vaccination protection, it is the only option to avoid COVID-related problems.

“Booster, in my opinion, is a necessity. Your degree of protection declines after two doses of any immunization, especially after 3 to 6 months [24]. If you get a third dosage or a booster, your chances of getting a serious illness and being hospitalized decrease.” said Director of ILBS Delhi, Dr. SK Sarin.

Dr Rajendra Rao, India's chief public health officer (CPCI), has stated that the number of illnesses associated to the Omicron version of Covid-19 in the country may be under control. If it exceeds the critical limit, there will be broad community transmission and a full-fledged third wave. The other hypothesis is a large number of spontaneous illnesses caused by the Delta variant during the second wave and a jump in vaccination coverage in the second half of the year [17].

Dr. Rao believes that, in addition to hybrid immunity, India may have an edge over South Africa, which has seen a significant increase in the number of Covid-19 cases due to the Omicron form.

South Africa has a completely vaccinated population of 26% (32 % have had at least one shot), whereas India has a fully vaccinated population of 39.7%. (60% with at least one dose). The combination of hybrid protection from the Delta variant with a whole-virion vaccination like Covaxin may result in a milder third wave in India.

According to early studies, COVID-19 vaccinations used in most countries provide minimal or no protection against the highly pathogenic Omicron form [25]. However, it was discovered that current vaccinations appeared to offer protection against severe Omicron disease [25].

While the Pfizer and Moderna vaccinations demonstrated some efficacy in preventing Omicron infections when supplemented with a third booster dose, these two mRNA vaccines are not widely accessible in most countries [25].

According to Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases and the US President's Chief Medical Advisor, new data show that COVID-19 booster shots offer protection against the Omicron variant and that there is no need to reformulate shots for variant-specific boosters at this time [25]. In terms of India, the nation has yet to contemplate legalizing booster vaccines. However, conversations over it are still going on [25].

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

VIII. PRECAUTIONS

Corona infection can take anywhere from 2 to 14 days to manifest third wave symptoms. Various advices are presented in this document to safeguard you from the third wave of Corona [1].

1) Put on a mask that covers your mouth and nose. When putting on and taking off your mask, make sure your hands are clean [19].
2) Maintain a physical gap of at least 1 meter between yourself and others.
3) Avoid crowded or poorly ventilated areas.
4) Increase interior ventilation by opening windows.
5) Hands should be washed often.
6) Cover your mouth with a cloth when coughing.
7) If your health is already compromised, you should stay at home.
8) Avoid lungs-weakening activities such as smoking.
9) Do not leave the house unless absolutely essential work.
10) Get immunized when it's your turn. COVID-19 vaccinations that have been authorized by the World Health Organization are both safe and effective [21].

The second wave of COVID-19 witnessed an increase within the variety of youngsters infected by the virus. Kids who were till then being thought of as silent carriers were equally at risk of the virus now and showed varied symptoms. Youngsters are infected the most throughout the third Covid-19 wave, but it is merely a claim with none solid piece of proof. The Indian Academy of medical specialty (IAP) has same that it is true that youngster's square measure extremely vulnerable to infection, but the third wave of COVID-19 is unlikely to predominantly have an effect on youngsters.

IX. CONCLUSION

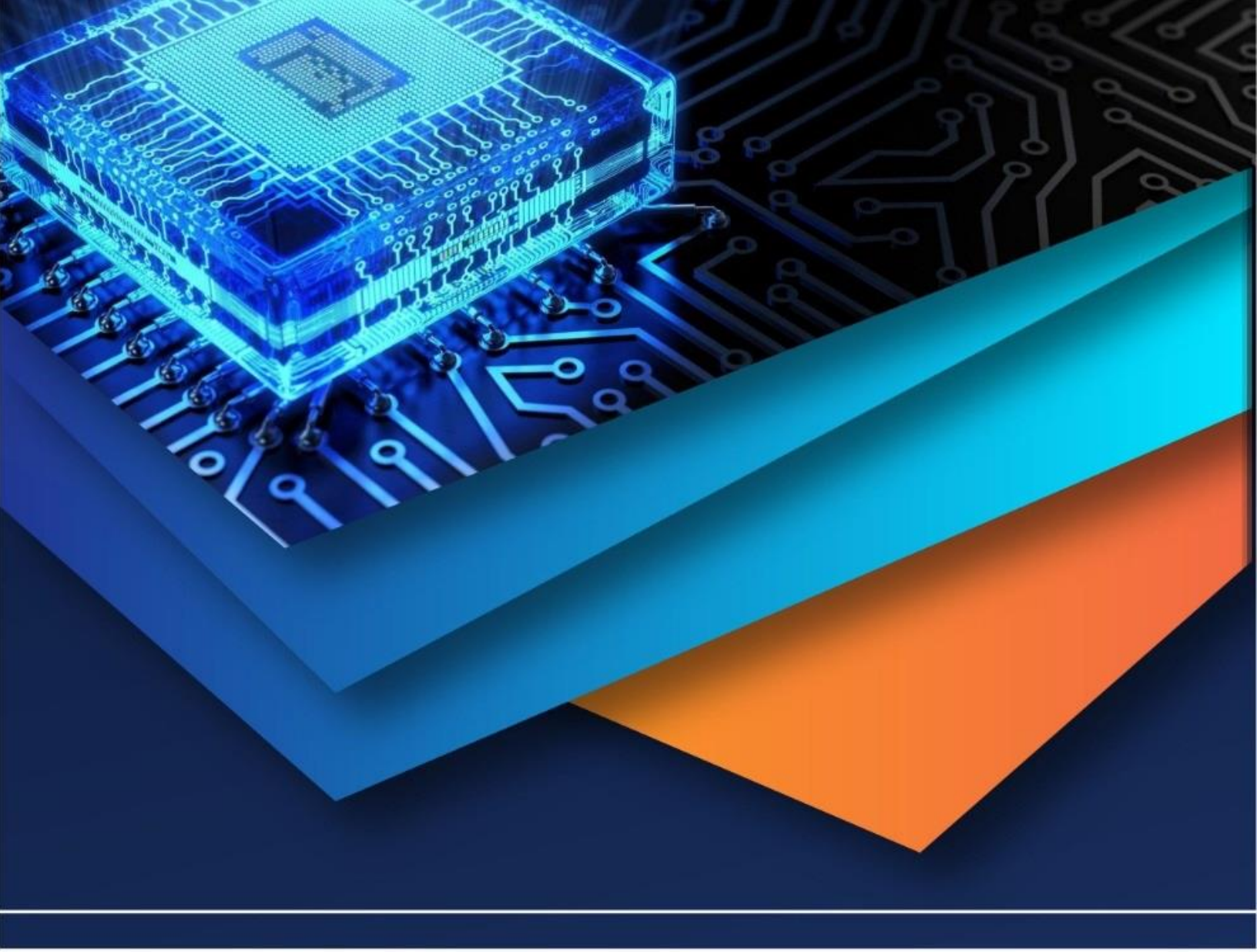
The COVID pandemic has been particularly difficult for children who have faced a crisis that is diametrically opposed to their healthy and normal development – online education, limited meetings with friends and relatives, sedentary lifestyle, psychological stress, and, more recently, the impact of the second wave. What methods do we use to care for our children? What is the best course of action? Parents must be vigilant in spotting signs so that early intervention can be more effective. The safest technique remains masking, avoiding going outside, maintaining hygiene, and social separation. It is strongly important that you develop a patient and loving relationship with your children at this vulnerable time.

REFERENCES

[1] Dr. Amit Sharma , Dr. Santosh Kumar Verma2 , Mrs. Neha Tyagi3 , Surbhi Sharma4 , Om Prakash Yadav, "Covid The Third Wave" ,© June 2021| IJIRT | Volume 8 Issue 1 | ISSN: 2349-6002,pg- 198-200
[2] Misra P, Kant S, Guleria R, Rai SK. "Serological prevalence of SARS-CoV-2 antibody among children and young age (between age 2-17 years) group in India: An interim result from a large multi-centric population-based seroepidemiological study". medRxiv [preprint] 2021. 2021.06.15.21258880.
[3] Ryan Cross, American Chemical Society: Chemical & Engineering News, ISSN 0009-2347 , Volume 99, Issue 44, December 2, 2021
[4] Miller BL. "Science Denial and COVID Conspiracy Theories: Potential Neurological Mechanisms and Possible Responses". JAMA. 2020; 324(22):2255–2256. doi:10.1001/jama.2020.21332
[5] Stephanie Nolen, "Most of the World's Vaccines Likely Won't Prevent Infection From Omicron", Dec. 19, 2021,
[6] Promita Majumdar, "Impact of second wave covid-19 on children in India, Child Abuse & Neglect", Volume 117, 2021, 105116, ISSN 0145-2134, htts://doi.org/10.1016/j.chiabu.2021.105116
[7] Sujita Kumar Kar, Ramdas Ransing, S.M.Yasir Arafat, Vikas Menon, "Second wave of COVID-19 pandemic in India: Barriers to effective governmental response", Published: May 29, 2021 DOI: https://doi.org/10.1016/j.eclinm.2021.10091
[8] de Wit E, van Doremalen N, Falzarano D, Munster VJ. SARS and MERS: recent insights into emerging coronaviruses. Nat Rev Microbiol. 2016;14:523-34
[9] World Health Organization. WHO Coronavirus Disease (COVID-19) Dashboard | WHO Coronavirus Disease (COVID-19) Dashboard (2021). Available at: https://covid19.who.int/
[10] Osama Malik, "Structure of COVID-19 – How does it get into Human Body?" September 26, 2021 https://gofrixty.com/structure-of-covid-19/
[11] Ministry of Health and Family Welfare. Total vaccination. 2021. https://www.mohfw.gov.in
[12] World Health Organization, "COVID-19 Vaccines." World Health Organization, www.who.int/emergencies/diseases/novel-coronavirus-2019/covid-19-vaccines.
[13] National Institute of Disaster Management. "COVID-19 Third Wave Preparedness: Children's Vulnerability and Recovery". 2021. https://nidm.gov.in/PDF/pubs/TWPCVR_2021.pdf
[14] Worldometer 2021. Coronavirus. Worldometers.info https://www.worldometers.info/coronavirus/
[15] "Most vaccines unlikely to protect against..." , International New York Times, DEC 19 2021, https://www.deccanherald.com/international/most-vaccines-unlikely-to-protect-against-omicron-infections-according-to-initial-studies-1062625.html
[16] TOI, "First vs second wave of Covid-19 in India: Things you need to..." , Updated on: Apr 19, 2021, https://timesofindia.indiatimes.com/india/first-vs-second-wave-of-covid-19-in-india-things-you-need-to-know/articleshow/

[17] FE Online, "Covid-19: Omicron variant to spell full-fledged third wave…" , December 22, 2021, https://www.financialexpress.com/lifestyle/health/covid-19-omicron-variant-to-spell-full-fledged-third-wave-or-have-mild-impact-heres-what-an-expert-says/2386456/
[18] Nikita Prasad, Updated: December 01, 2021 IST https://www.ndtv.com/business/india-has-shown-4-consecutive-quarters-of-growth-in-a-once-in-century-pandemic-kv-subramanian-2631953
[19] NaijOnline, "What is The Omicron Variant, Symptoms And Prevention", December 19, 2021 https://naijonline.com/what-is-the-omicron-variant-symptoms-and-prevention/
[20] BMJ 2021; http://dx.doi.org/10.1136/bmj.n2328
[21] https://airlines-airports.com/omicron-covid-19-variant-air-travel-procedures-and-restrictions-curbs-extension-by-country/
[22] https://twitter.com/bmj_latest/status/1441375613072273419/
[23] https://www.who.int/publications/m/item/enhancing-readiness-for-omicron-(b.1.1.529)-technical-brief-and-priority-actions-for-member-states
[24] https://timesofindia.indiatimes.com/india/omicron-variant-live-updates-december-20/liveblog/88379898.cms
[25] https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/coronavirus-if-covid-19-vaccines-fail-to-prevent-an-omicron-infection-what-should-we-do-to-stay-safe/photostory/88407963.cms
[26] https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/coronavirus-if-you-experience-omicron-symptoms-how-long-should-you-wait-before-getting-tested/photostory/88412529.cms?picid=88412540
[27] https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/coronavirus-symptoms-signs-you-most-likely-have-omicron-and-not-regular-cold/photostory/88318335.cms?picid=88318352

©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)