

**THE CHANGING INDIA  
AMIDST COVID-19  
CATASTROPHE**

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# The Changing India Amidst COVID-19 Catastrophe

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## Foreword

The Editors of this book Dr. Kulwinder Kaur and Dr. Lalita K. Sharma has experience of 35 years and 11 years respectively, in the field of teaching and research, and has done wonderful work on “Social Issues”. They have contributed to the measures to be taken for improving the social and economic life of people. The outcome of the book shows that besides fighting with COVID-19, we also have to learn new things to survive in NEW NORMAL. This edited book has added significant value in focusing on the aspect contents of improving education at all levels in specific and social life in general. The editors have taken special efforts on their study in considering the impact of COVID-19 on various aspects and sectors of Indian Economy. This is really a tough job, and I appreciate the editors in the selection of the chapters from various reputed institutes and authors. They have successfully completed this work with an outcome of suggesting different solutions and ideas to deal with this death-defying situation.

This book has been divided into two parts. Part-I deals with the impact of COVID-19 on various levels of education i.e. Primary, Secondary, Senior Secondary, College and University level. It covers the teaching learning changes and tools used during COVID-19 for teaching, learning and assessments. This part is presented in nineteen chapters. Part-II demonstrates the impact of COVID-19 on various sectors of Indian Economy. This part covers the impact of COVID-19 on health, transport, stock market, employment & wages, banking & financial services, GDP, industrial production, inflation, poverty, transport & tourism, India’s exports & global trade, investment, public debt, small businesses, policy response by the government, NBFCs, power distribution companies, labourers & workers and farmers & agricultural sector under various chapters. This part consists of twenty chapters. At the end of the chapters postures on COVID-19 have been presented that explains the causes and remedies to avoid the spread of COVID-19.

The bibliographic references are systematic and appropriate. In general I feel that the book is useful as it possesses excellent background information and understanding in depth relating to the COVID-19. This book will prove to be helpful for educationists, policy makers and researchers for making policies and rules.

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## Preface

Where the tiny invisible virus brought the world to a standstill, what kept us going is the desire to overcome this pandemic. Emerging as one of the most widespread epidemics in the history of mankind, it has created a situation of health and economic emergency. The world which celebrated globalisation for years now looks down at it as the reason for widespread virus. Being highly disruptive in nature, affecting the lives of millions, the pandemic will leave its dark patches in the columns of history. From compelling to change the way humans used to live in COVID-19 times to requiring a rapid enhancement in the health care facilities, the virus has significantly affected all the spheres of human life, be it social, economic, financial or political. The virus has brought tough challenges to individuals and governments around the world to sustain lives and livelihood.

Undoubtedly, the world is in the middle of a crisis but education knows no leaps and bounds. Through this compilation of scholarly articles, we aim to bring in focus the impact of the COVID-19 on the lives and livelihood of people, and on the various sectors of the economy. Further the aim is to highlight the innovative ideas to overcome this pandemic and minimize its ill impacts.

As every coin has two sides, this pandemic also has two sides. Although the whole world is battling the pandemic but better sides of it are not to be overlooked. Even though this novel virus has been claiming all the sad news for months but reality in its totality is not that abysmal. Wildlife is experiencing a greener version, the environment is rejuvenating and even the human lives are getting to see their latent skills. It is still unknown how this crisis will unfold and the foreseeable future sees no end to it. Humans have been witnessing the challenges since ever, but time and again humans have shown their supremacy and virtue to combat the worst of anything. It is believed that humans will sail through this difficult time too.

## *ACKNOWLEDGEMENT*

*Every mature person in professional life is keenly aware of his/her sense of indebtedness to many people, who have motivated and influenced his/her intellectual development ordinarily. This feeling is formally expressed in gestures of acknowledgement. Our endeavor shall be incomplete without the acknowledgement of these who have helped us in carrying out this study. We would like to convey our feelings of gratitude to all those who have in any manner helped us in completing this edited book. Their valuable guidance and wise direction has enabled us to complete this work in a systematic and smooth manner, obeying the norms of scholastic research.*

*First of all, we bow our head in reverence to the **God almighty**, for providing us with this opportunity to work with the intelligentsia and enabling us to reach far beyond our own, restricted ambit of thought and action and has been made this endeavour successful.*

*We extend our heartiest gratitude and indebtedness towards **all authors** for their immense interest, judicious guidance and continuous encouragement throughout this work, which help us in completing the work of book in a systematic manner.*

*We are also grateful to **Mr. Arshdeep Singh**, Student, University Of Delhi, for his continuous support in various stages of this book.*

*Last and most importantly, we again thank The Almighty God for answering our prayers by providing the finance, the strength, wisdom and knowledge that enabled us to start and conclude this book.*

*Once again our sincere thanks to all.*

**Dr. Kulwinder Kaur**

**Dr. Lalita Kumari**



## Contents

<b>Sr. No</b>	<b>Chapter Title/Author</b>	<b>Page No.</b>
1.	<b>Education in Covid-19 Scenario - Challenges and Opportunities in India</b> Dr. Kulwinder Kaur	1-4
2.	<b>Impact of Covid-19 On Students and Teachers</b> Dr. Lalita K. Sharma & Shaina Bhandari	5-12
3.	<b>Impact of Coronavirus on Education</b> Dr. Sonali Zankar Patil	13-18
4.	<b>Covid-19: from Thinking Digital to Being Digital in the Education Sector</b> Dr PVN Malleswara Rao & Kancheti Venkata Lakshmi	19-23
5.	<b>Impact of Corona Crisis on Online Teaching and Learning Methods</b> Dr. R. N. Kalpana Devi	24-27
6.	<b>Covid 19 and its Impact on Indian Education</b> Bijoy Sarak	28-34
7.	<b>Impact of Corona Crisis on Education Sector</b> Sukhpreet Kaur and Kirandeep Kaur	35-41
8.	<b>Effect on Education System due to the Outbreak of Covid-19</b> Dr. Yogita Jiwane	42-44
9.	<b>Impact of Covid-19 Pandemic on E-Learning in Indian School Education</b> Nilesh Bhaskarrao Likhar	45-49
10.	<b>Study of Ancient Indian Education System to Get Clues for Improvements in Science Education amid Covid-19 Pandemic</b> Dr. Amit Kumar	50-55
11.	<b>Educational Disruptions Caused by Covid-19</b> Dr. Anil Kumar Teotia	56-61
12.	<b>Covid-19: Sudden Shift of Education to E-Mode and the Problems Faced by the Teachers and Students at Secondary Level</b> Abdul Rakib, Munmi Saikia & Supriya Mazumdar	62-68
13.	<b>Impact on Corona Crisis on Online Learning</b> Somwanshi Sachin B. & Somwanshi Snehal S.	69-75
14.	<b>Covid-19 and Online Assessment Tools for Teachers</b> Munmi Saikia	76-82
15.	<b>Revamping Education System During Covid-19 Disease</b> Dr. Nidhi Mishra	83-86
16.	<b>Online Learning Through Gamification during Covid-19</b> M. Nallakurumban	87-89
17.	<b>Suggestive Study for Indian Universities during Covid-19 Pandemic</b> Dr. Amit Kumar	90-95
18.	<b>Covid-19 Pandemic: Challenges and Possibilities of E-Learning at Higher Education Level</b> Noyonika Khatoniyar	96-100
19.	<b>Covid-19 Outbreak and Edification: Challenges and Trends in Higher Education of India</b> Arup Bhowmik	101-108
20.	<b>Mental Health and Life Style of University Students during Lockdown Period of Covid-19 Pandemic</b> Dr. N. Pramod Kumar	109-118



21.	<b>Covid-19 Lockdown and its Impact on the Lifestyle of People in Assam</b> Supriya Mazumdar	119-125
22.	<b>Adapting to Mental Health Challenges during Covid-19 Pandemic</b> Dr. Sonali Zankar Patil	126-131
23.	<b>Covid-19: Coronavirus Epidemic and its Global Mental Health Consequences</b> Varinder Kumar	132-138
24.	<b>Impact of Corona Crisis on Women</b> Kirandeep Kaur & Sukhpreet Kaur	139-143
25.	<b>Indian Start-Ups amidst Covid-19 Pandemic- The Challenges Ahead</b> Dr. Swapan Sarkar	144-150
26.	<b>Impact of Invisible Threat on the Indian Economy</b> Diksha Lalwani & Arshdeep Singh	151-163
27.	<b>Impact of Covid-19 on Different Sectors of Indian Economy</b> N. Aishwarya & Rama Rani	164-171
28.	<b>Impact of Covid-19 on Various Sectors of Indian Economy</b> Abhishek S	172-175
29.	<b>Impact of Covid-19 on India Economy</b> Dr. Swapan Sarkar	176-183
30.	<b>Public Distribution System- A Ray of Hope during Covid-19</b> Rupinder Sampla	184-188
31.	<b>Impact of Coronavirus on Environment</b> Dr. Sonali Zankar Patil	189-193
32.	<b>Reframing our Priorities in Water Resource Management during Covid-19</b> Dr. Muraree Lal Meena	194-199
33.	<b>A Role of “Silent Carriers” during the Covid-19 Era</b> Vikram R. Jadhav, J. S. Aher & Arun M. Bhagare	200-202
34.	<b>Novel Covid 19: Review on the Role of Proteomics in Treatment</b> Dr. Sonali Zankar Patil	203-207
35.	<b>Building Resilience of Children during Covid-19 Pandemic: It’s Importance and some Measures to be Taken</b> Mrinal Boruah	208-212
36.	<b>Asymptomatic Transmission of Covid-19: A Case Study of Corona Survival</b> Surbhi Mahendru	213-217
37.	<b>Defeating Covid-19: A Case Study of a Punjab Police Officer</b> Ketki Bhabra & Dr. Vikram Sandhu	218-220
38.	<b>Strategies to Combat Covid-19</b> Dr. Vikram Sandhu & Dr. Heena Atwal	221-223
39.	<b>Strategies to Strengthen Immunity Naturally</b> Dr. Lalita K. Sharma	224-233
	<b>Postures</b>	
1.	<b>Impact of Covid-19 on Lifestyle</b> Paramveer Singh	234
2.	<b>How to Reduce Mental Stress During Lockdown</b> Dr. Lalita K. Sharma	235
3.	<b>Mental Health and Coping During Covid-19</b> Dr. Lalita K. Sharma	236
4.	<b>Everyday Foods to Boost Immunity During Covid-19</b> Dr. Lalita K. Sharma	237

# CHAPTER 1

## EDUCATION IN COVID-19 SCENARIO - CHALLENGES AND OPPORTUNITIES IN INDIA

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### **ABSTRACT**

The Covid-19 has struck as a nightmare to the world. Spreading over to almost all the countries it has caused huge disruptions in the lives and work of the people. The education sector has been hit hard due to the closure of schools and colleges in order to contain the spread of virus. Lives of students can not be put into risk but at the same time learning cannot be compromised. Thus, bringing a tough task for the authorities to come up with constructive solutions to avoid obstruction in the provision of education. There are various challenges to successfully provide the education to all the students as different students face different challenges, and the absence of physical classroom based study could highly affect the learning outcome.

**Keywords:** *Education, Covid-19, Challenges, Opportunities, India*

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## **1.0 INTRODUCTION**

The spread of novel coronavirus has caused a state of health emergency all around the world. Millions of people have been affected and are struggling to fight the disease. Having no cure yet, it has created a situation of panic, compelling the authorities to resort to lockdowns in order to contain the spread. This has brought disruptive changes in all the spheres of life and work, necessitating new ways and methods of doing things in order to cope up with the present situation. Owing to the restrictions on the extent of social gathering, the schools and colleges have been closed in India, significantly impacting the education sector. Learning couldn't be compromised even at the times of crisis as it guides the lives of students. This has lead to many schools and colleges switching over to online mode for conducting classes using conferencing apps like Google Meet, Zoom , Webex etc.. This shift in approach to impart knowledge has its limitations and this paper intends to bring to light various challenges faced by the education sector in ensuring provision of education to all. Further, various responses and steps taken by the educators and government are discussed.

## **2.0 CHALLENGES**

### **2.1 Lack of Resources and Digital Infrastructure**

Major challenge for providing education through online mode is the lack of digital infrastructure in the country especially in rural areas, where internet penetration is low and where electricity is a major concern. Also in some areas the high speed connectivity is not

provided as in J&K which is still on 2G. The online classes require good quality connection for seamless delivery of lessons. Also where the connectivity is possible people may not have adequate financial resources to afford the smart devices to access the online classes. Parents are finding it difficult to provide their children with smartphones. Likewise some schools and colleges may lack adequate resources to facilitate such provision of classes. This has led to creation of a digital divide in the country.

## **2.2 Lack of Knowledge in using the Technology**

The shift to online mode requires some basic knowledge of the digital technology. To some people this may be a totally new thing and they find it difficult to use the technology. As there is no provision of computer knowledge in the primary education in some areas, especially in rural, the students would find it difficult if their parents also don't possess its knowledge. Also some teachers as well may find it difficult to take classes who are stranger to digital technology and not well versed with digital tools and apps.

## **2.3 Less Efficient Delivery of Lessons**

Some subjects like mathematics require one to one interaction with the students to clear their doubts. Less interactive classrooms would not be able to deliver good learning results. It may be difficult for a teacher to know how well the lessons have been delivered. Also, practical subjects like chemistry require access to labs for students to conduct experiments. Therefore, it is doubtful for the online classrooms to become a good alternative to physical classrooms in such cases.

## **2.4 Lack of Control over Students**

The online classrooms do not provide sufficient control over the students. The teacher may not be able to know whether the students are actually studying or just logging in to show their presence. Some students may become irregular in attending the classes. Some may create nuisance by logging in with pseudo names.

## **2.5 Lack of Access to Study Material**

The materials for study like books, notes, and other reference material may not be available online. Students in the universities that get free access to various online journals and papers in college libraries wouldn't be able to access them at home because some journals are highly expensive.

## **2.6 Inability to Conduct Examinations and Evaluate Learning Outcome**

The Pandemic emerged at the time when examinations of schools, colleges, universities and professional and competitive examinations were to be held. While State governments have allowed promotion of school children, and universities have allowed the

same for lower and intermediate year students, examinations for the final year students and various national level examinations have to be postponed till the situation gets controlled. The large scale conduct of these examinations may not be feasible through online mode as not all the students may have access to the medium and also some universities and colleges may lack adequate facilities. Students have to wait for their degrees and jobs.

### **2.7 Challenge to Retain Students**

This is a major challenge as students from the poor background may drop out from the schools and join some work in order to support their families in this time of crisis and may never enroll back. Many poor parents send their children to government schools in order to get them free mid day meals. The government's initiative for free elementary education for all may lose progress if such situation remains.

### **2.8 Challenge of Providing Education to Students with Special Needs**

The present crisis has made it hard for the children/people with disabilities to avail education. Customised educational resources suiting the specific special needs may not be available making it hard for these students to acquire knowledge.

These are some of the challenges to provision and acquisition of education but every challenge comes with an opportunity. The present situation requires innovative ways to overcome the challenges. Various initiatives have been taken by the educators and government for providing access to education at present times, that are discussed below.

## **3.0 OPPORTUNITIES, INITIATIVES AND RESPONSES**

### **3.1 Broadcasting of educational contents through Radio and TV channels**

The **All India Radio** and **Doordarshan** have started various programs to provide syllabus based content in different states. Both of these platforms have wide reach in India, children from rural areas where internet connectivity or digital infrastructure is inadequate and those from poor background can access these platforms without having a need for a separate digital device to access information.

### **3.2 Online Learning Platforms**

Online learning platforms like **ePathshala**, **DIKSHA**, **National Repository of Open Educational Resources** can be accessed. They have all the content and study material for school education based on NCERT's syllabus in both audio and visual form.

### **3.3 Education in Rural Areas**

Educators in some places are reaching out to students in rural areas to provide them with resources or take their classes by creating small groups and teaching them in batches while ensuring social distancing and taking all the precautions.

### **3.4 Webinars and Faculty Development Programs**

Colleges and universities are conducting online webinars and faculty development programs on various relevant topics helping the students and teachers to enhance their knowledge and skills.

### **4.0 CONCLUSION**

The pandemic has affected all the aspects of lives. Education sector, being no exception to it, is also facing unprecedented challenges which will have profound implication on the social and economic future of the country. From lack of digital infrastructure to the lack of procedure for evaluation of the students, the sector is constantly facing various challenges. With the aim of keeping the learning process efficient, various initiatives have been taken in the form of e-learning platforms. This is the time to start building a digitally enabled environment throughout the country for provision of essential services like education. There is a lot to see what this pandemic has in store for the mankind and how it will unfold in the future but it is evident that it will change the way knowledge is exchanged/imparted.

## CHAPTER 2

### IMPACT OF COVID-19 ON STUDENTS AND TEACHERS

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#### **ABSTRACT**

The novel coronavirus, also known as COVID-19, has spread rapidly across the world in 2020. Actions to restrict the dissemination of the COVID-19 virus amongst Government of India have led to the widespread closing of schools, colleges and other educational establishments. According to the MHRD, health authorities have been recommending "preventive and precautionary" steps to ensure full protection for students and staff. The MHRD suggested virtual schools so that the learners will not mentally fall behind. The outbreak took a lot of hurdles like poverty, unemployment, social pressure and Education deficiencies. MHRD have launched various online courses and apps as well. The paper aims at report the recent consequences of the COVID-19 pandemic for student and staff. The authors illustrate the effects of the pandemic on student, staff, and recent passouts in India. Some suitable measures have also been suggested to cope with the most perilous situation.

**Keywords:** *Students, teachers, COVID-19*

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#### **1.0 INTRODUCTION**

The new coronavirus and its disease were known after the outbreak began in Wuhan, China, in December 2019. Coronavirus is rapidly spreading around the world, reaching every continent except Antarctica. As of March 2, there have been more than 80,000 cases reported in China, and more than 8,700 cases reported outside of mainland China in 64 countries, according to the World Health Organization. Large outbreaks have been reported in South Korea, Italy, and Iran, and there are a growing number of cases in Europe and the United States. Coronavirus pandemic has significantly affected all the sectors of the economy including oil and gas, electricity, automobiles, transport, aviation, agriculture, business & retail, etc. We can't ignore that hardly a sector would remain unaffected by the crisis. The impact may be more or less. Same is with the education sector in India. Let us find out the impact of coronavirus on education in India with some possible solutions. UNESCO is supporting countries in their efforts to mitigate the immediate impact of school closures, particularly for more vulnerable and disadvantaged communities, and to facilitate the continuity of education for all through remote learning. The UNESCO report estimates that the coronavirus pandemic will adversely impact over 290 million students across 22 countries. The UNESCO estimates that about 32 crores students are affected in India, including those in schools and colleges (Gupta Sudakshina, 2020)

School education offers critical schooling and as school leave, the potential for growth and advancement for children and young adults are robbed. Those limitations for impoverished learners who continue to have less educational resources outside education are severe (UNESCO, 2020 and Tanveer, 2020). As educational institutes are closed, caregivers like parents, guardian and family members sometimes are requested to foster children's learning at parent's house and might even fail to execute the plan. That also especially applies to parents with reduced knowledge and tools. University dropout rates begin to rise due to all the problem of assuring that almost all learners return to school until closings terminate. This may be particularly valid for extended closures. Marginalized, at-risk, or abandoned children are more inclined to not leave school when closures are finished, and the impact may be a life-long limitation through missed chances (Baker, 2020; Kim, 2020).

The future impacts of school closing and the reliance on distance learning are not discussed at this point in federal legislation (Furfaro et al., 2020 and Tanveer, 2020). After all, it is right to say that Class delays have a detrimental effect on academic performance for the pupils (Akther, 2020). Earlier this week, Saudi Arabia launched an online education program when it suspended universities around the Country over coronavirus issues, although students including academics ran into problems transitioning to a digital educational environment. Blackboard Learn, its name of the multinational interactive site, has already been leading on Saudi Twitter in past few days. Most university students often worried concerning certain area's weak connectivity, trouble log in to the network and taking courses, including lack of resources to access reports or perhaps even comprehend certain mentors (Obaid, 2020). This year's situation has already sparked the sense of irony of undergraduates as they swamped multiple social media platforms with memes, because many people on Twitter mentioned it. Researchers have recorded some awkward incidents that happened during lectures—with students going to sleep, loudly eating lunch, or debating with a peer when researchers failed to silence the headsets on their machines. Government Policy intends to facilitate improved schooling by remote learning approaches by starting a new commission to insure that virtual schools work under the commission's distance learning approaches (Draycott, 2020 and Tanveer, 2020).

## **2.0 Research Design**

### **2.1 Need of the Study**

It is suggested that student and teachers are at an increased risk for anxiety due to COVID-19 as coronavirus has changes the life style totally. So there is a great need to study the problems caused by coronavirus to students and teachers community.

## **2.2 Scope of Study**

The paper intends to highlight the impact of COVID-19 on Indian education sector.

## **2.3 Study Objectives**

This article will enlighten how everyone involved is in a state of confusion and the different groups in the said sector including students, teachers, and management are struggling with the impact Covid19 had on them.

## **2.4 Source and Methodology**

For the present study, a thorough review of the existing empirical literature has been conducted. Articles published in various online databases and search engines such as Social Science Research Network (SSRN) and Google Scholar were reviewed. In addition, an attempt was made to trace references cited in published articles.

## **3.0 DATA ANALYSIS, CONCLUSION AND RECOMMENDATIONS**

Speaking of the education sector which is considered to be on a new high every progressing year has come to a halt.

First a list of all the changes the institutes have introduced to fight the situation:

- Closing of the premises
- Online education
- Cancellation/ postponement of the examination
- Long state of uncertainty
- Constantly changing guidelines by the regulating body

In the following paragraphs impact of COVID-19 on various sections of education community has been discussed.

### **3.1 PRIMARY EDUCATION**

#### **3.1.1 Pressure and Serious Toll on the Kids' Health**

For primary education, online classes from pre-nursery to 7th grade have been introduced where every day for 3 hours students are taught and doubts are being discussed. It is believed that online education will become a new trend. but is it the right trend to be set? Well, not really! Sitting in front of a computer for hours together is taking a serious toll on these kids's health.

#### **3.1.2 Pressure on Parents**

Even after the official government announcement of not charging anything apart from tuition fees, parents are being constantly harassed and pushed for complete payment. In the light of this issue and as a result of a court suite a council is being formed which is authorized



to decide the duration and the course syllabus students will be taught during this pandemic. Various topics and subject alterations have been introduced and implemented in this regard.

### **3.2 Anxiety among Students due to Postponement of Exams**

In months of May-June-July the busiest for all educational institutes, be it entrance exams, final examinations for schools or universities have all gone in silence. Most examinations and admissions have been pushed forward for uncertain time duration. Secondary pass outs are still waiting for a way to enroll and get their life started and back on track, and for the recent graduates' internships and jobs is still a mystery. These nationwide closures are impacting over 91% of the worlds' student population. Several other countries have implemented localized closures impacting millions of additional learners.

#### **3.2.1 Anxiety among Candidates of Competitive Exams**

The Ministry of Human Resource Development has decided to postpone entrance exams including JNU, UGC, NET and IGNOU PhD and several others keeping in mind the lockdown. As many as 45 lakh students preparing for major competitive examinations scheduled over the next three months are stranded as the nationwide lockdown have upset the examination calendar by at least a month. JEE (Advanced), JEE (Main), NEET, UGC-NET, CSIR UGC-NET and Indian Council of Agricultural Research (ICAR) AIEEA scheduled in April, May and June have been affected by the lockdown.

### **3.3 WITHERING GROWTH OF STUDENTS OF BACKWARD REGION**

When online education is spoken about, people tend to forget that India is still a developing country, and the gap between rich and poor, and urban and rural is deeper than a well. The modern technologically advanced kids have complete access to smart phones, laptops, tabs, and whatnot, which is still a dream for people in countryside areas including Asansol, West Bengal, or Azamgarh or Ballia or Gonda which most of us have not even heard of. The situation is very different when one looks at rural colleges and universities. Many students in rural areas may not have access to smart phones or computers. Even if they do, the net connectivity may not be as high as in urban areas. In any case, many students of the most elite institutions, the IITs, are not able to have access to online classes from their homes due to these reasons. Therefore some if not all of the universities, and some of the colleges have started online classes.

The same can be said about other higher educational institutions, be they governmental, government-aided or autonomous. Private institutions normally draw students from affluent urban classes, and hence do not face problems in dealing with this

unprecedented situation. So, when I say Digital Education is just for the rich, or it is inaccessible by at least 60% of India which we proudly call "Digital India" won't be wrong

### **3.4 PRESSURE ON STAFF MEMBERS**

Other considerations from staff members who can't be neglected, Substitutes, and Adhoc teachers who hold a major percentage when it comes to total staff have all been laid off without pay and any notice. It is easy to consider their role as minimal or less important, it is impossible to function without any human resources especially when children's education is at stake.

It was estimated in the year 2018, from 2021 Ph.D. would be compulsory for any university lecturer. But with how things have taken a new route it seems most of the pre decided rules which are either implemented or were in the pipeline will need a re-discussion. Online teaching is also challenge for teachers because they have to deal with all students same way in online learning. Therefore, not only businessmen or start-ups in India have opted for an online platform like Zoom App to stay connected with their employees who are working from their homes but also the educational institutions have opted for different digital platforms to facilitate learning for their students.

### **3.5 INCREASING UNEMPLOYMENT (Especially for Passouts)**

With a major setback on the paying capacity of most companies and the massive amount of layoffs have cut down the job opportunities to half. Let's take some of the biggest companies for this example, OYO hotels, Air BNB, Infosys, Cognizant which are the employers of a major chunk of fresh graduates or postgraduates are on the verge of closure.

- i. A recent study suggests prestigious institutes including IIM, Christ university where placements and hefty packages are guaranteed are not different with only 4 out of 10 students getting their dream opportunity.
- ii. IIM Raipur had introduced a small business internship program for all their MBA second semester students, most of them lost this opportunity and left with non-paid internships which they had to find all over again.
- iii. OYO which is already shut down in Japan has fired all the junior staff, with nothing when it comes to income, India is not far following the same steps of Japan. AirBNB owner went live on 21st June 2020 hinting in it closing, officially stating "It took me 15 years to build it and not even 5 months to end."

### **3.6 NEW INTRODUCTIONS**

Of course, this is the worst time, but making plans and efforts for survival is all that we can do. As Geeta says, "karam ker fal ki chinta mat kar" is what we practice and preach every day.

- i. Colleges have made virtual internships compulsory
- ii. Students have a better idea today of the career line they want to choose
- iii. Forming of organized government-approved community
- iv. Strategic division and deduction of the syllabus
- v. Multiple up-gradation programs for Teacher- skill development
- vi. Opportunities generated by universities and colleges for teachers to learn more new things by organizing FDPs, MDPs and other online courses so that stress level of teachers can also be reduced and they can learn new learning and research methods for NEW NORMAL.

### **4.0 CONCLUSION**

In the light of how the world had to shut down amidst the fear of a painful death, no sector is left unaffected. Even though people are adapting to the new lifestyle changes, the education sector remains on a standstill. Online classes or e learning are not capable of substituting physical classroom lectures. The former is very seldom able to generate the interaction that is needed in a class. Moreover, the teachers' body language communication, which is a part and parcel of the classroom lectures and is imperative for their success, is also missing in online classes. The use of technology will not only lead to more discrimination, but also will create some practical problems. It will also lack the desired interaction in the class. Like most sectors, educational institutes are still struggling to find a way to cope with this 'new normal'.

### **5.0 RECOMMENDATIONS**

Various suggestions like online classes may be a possibility for the ones living in cities, small schools and colleges are still in dark on how to restart education. We can't ignore that at this time of crisis effective educational practice is needed for the capacity-building of young minds. Teachers and student should be trained so that teaching and learning can be effective. The Central Government and State need to take some measures to ensure the overall progress in the country. Time never waits, this tough time will also pass. Till then stay safe, stay at home!

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## CHAPTER 3

### IMPACT OF CORONAVIRUS ON EDUCATION

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#### **ABSTRACT**

The coronavirus SARS-CoV-2 causes a fatal disease, COVID-19 with a casualty rate between 2-3%. It has made devastation as it has inundated the entire world, being announced a pandemic by the WHO. Against the backdrop of such a pandemic, it is obvious that the education sector will suffer in all the countries like many other sectors. In this time of emergency, a balanced and viable educational practice is what is required for the capacity-building of young minds. It will create abilities that will drive their employability, profitability, wellbeing, and prosperity in the decades to come, and guarantee the overall progress of Countries.

**Keywords:** *Coronavirus, SARS-CoV-2*

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#### **1.0 INTRODUCTION**

The COVID-19 pandemic has influenced educational systems around the world, prompting the near-total closures of schools, colleges and universities. Most governments around the globe have temporarily closed educational institutions in an attempt to contain the spread of COVID-19. Starting at 7 June 2020, around 1.725 billion students are as of now affected because of school terminations in light of the pandemic. As per UNICEF monitoring, 134 nations are as of now executing across the nation closures and 38 are implementing local closures, affecting about 98.5 percent of the world's student population. 39 nations' schools are as of now open.

School terminations impact not only students, teachers, and families however have far-reaching economic and societal consequences. School terminations because of the pandemic have revealed insight into different social and financial issues, including understudy obligation, computerized/ digital learning, food uncertainty, and homelessness, as well as access to childcare, health services, housing, internet, and disability services. The effect was increasingly serious for disadvantaged kids and their families, causing intruded on learning, compromised nutrition, childcare problems, resulting monetary expense to families who couldn't work.

In light of school closures, UNESCO suggested the utilization of distance learning programs and open educational applications and platforms that schools and teachers can use to reach learners remotely and limit the disruption of education.

School closures because of the COVID-19 pandemic have revealed an insight into various issues influencing access to education, just as more extensive financial issues. As of June 2020, in excess of 400 million children and youth are not going to class due to impermanent or uncertain nation wide school closures commanded by governments in an attempt to slow the spread of COVID-19. As of June,2020 almost 90% of the world's students were affected by closures.Even when school closures are temporary, it conveys high social and economic expenses. The disturbances they cause influence individuals across communities, however their effect may be progressively extreme.

## **2.0 IMPACT ON FORMAL EDUCATION**

Formal education tends to refer to schools, universities, colleges and training institutions. Most of information gathered on the quantity of understudies and students affected by COVID-19 has been determined dependent on the closure of formal education systems. The UNESCO Institute for Statistics gives figures on understudies affected by COVID-19 comparing to the quantity of students enlisted at pre-primary, primary, lower-secondary, and upper-secondary levels of education [ISCED levels 0 to 3], as well as at tertiary education levels [ISCED levels 5 to 8].

### **2.1 Early childhood education**

Early childhood educational programs are typically intended for youngsters beneath the age of 3 and may allude to preschools, nursery schools, kindergartens, and some day care programs. While many primary and secondary schools have closed around the world due to COVID-19, measures impacting early childhood educational programs have varied. In certain nations and domains for example in Australia preschools and day cares are viewed as vital administrations and have not closed in tandem with broader school closure measures.

### **2.2 Primary**

Primary or elementary education ordinarily comprises of the initial four to seven years of formal education. Kindergarten is the first time children participate in formal education. The interference of formal education during this evaluation will result a 67% loss of literacy ability in kindergarten youngsters.

### **2.3 Secondary**

The International Baccalaureate Organization (IBO) dropped the assessments for its Diploma Program and Career-related Program candidates scheduled between 30 April and 22 May 2020, apparently influencing in excess of 200,000 students worldwide. The IBO expressed that it would grant applicants their confirmations or endorsements dependent on

"their coursework" and "the established assessment expertise, rigor, and quality control already built into the programme.

## **2.4 Tertiary (higher)**

Tertiary education, otherwise called higher education, alludes to the non-compulsory educational levels that follow completion of secondary school or high school. Tertiary education is regularly taken to incorporate undergraduate and postgraduate education, as well as vocational education and training. Individuals who complete tertiary education generally receive endorsements, diplomas, or scholastic degrees.

## **2.5 Undergraduate education**

Undergraduate education is education directed after secondary education and before post-graduate education, for which the student is typically awarded a bachelor's degree. Understudies enrolled in higher education programmes at schools, colleges, and community colleges are frequently alluded to as "college students". The closure of schools and colleges has widespread implications for students, faculty, administrators, and the institutions themselves.

Few of the Colleges and universities have been called upon to issue refunds to students for the cost of tuition and room and board. The pandemic circumstance emerged due to Covid 19 has affected in negative as well as in positive way.

## **3.0 NEGATIVE IMPACT IN EDUCATION DUE TO COVID-19**

### **3.1 Unintended strain on medicinal services system**

Women make up almost 70% of the health care workforce, presenting them to a more risk of infection. They regularly can't go to work as a result of childcare obligations that result from school closures. This implies numerous clinical experts are not at the facilities where they are most needed during a health crisis.

### **3.2 Distance learning**

Online learning has become a critical lifeline for education, as institutions try to minimize the potential for community transmission. Technology can empower faculties and students to access specialized materials well beyond textbooks, in multiple formats and in ways that can bridge time and space.

### **3.3 Inconsistent access to technology**

Absence of access to technology or fast, dependable internet access can prevent students in rural areas and from disadvantaged families. Absence of access to technology or good internet connectivity is an obstacle to continued learning, particularly for students from disadvantaged families. In response to school closures caused by COVID-19, UNESCO



suggests the use of distance learning programmes and open educational applications and platforms that schools and educators can use to reach at students remotely and limit the disturbance of education.

To help in easing the transmission of COVID-19, several libraries have briefly shut. For understudies without internet at home, this builds the trouble of staying aware with distance learning.

### **3.4 Inconsistent access to educational resources/assets**

Absence of confinements and special cases to copyright can likewise affect the ability of students to get access to the textbooks and materials they have to study. A few initiatives were taken to grant that students and educators can approach open educational resources, or understand copyright limitations. The International Council for Open and Distance Education gave a special website to give online courses, tips for web based teaching and resources for teachers.

### **3.5 Childcare**

School terminations puts a strain on parents and guardians to provide childcare and manage distance learning while kids are out of school. Without alternatives, working guardians frequently leave children alone when schools close and this can prompt to risky behaviours, including increased influence of peer pressure and substance abuse.

### **3.6 Nutrition and food instability**

Nutrition plays a critical role in cognitive development and academic and scholarly execution for children. Many children worldwide depend on free or meals at schools. At the point when schools close, nourishment is particularly compromised for children in schools where food is provided.

### **3.7 Student learning outcomes**

School closures negatively impact student learning outcomes. Tutoring gives essential learning and when schools close, children and youth are deprived opportunities for development and improvement. The inconveniences are disproportionate for under-privileged learners who tend to have fewer educational opportunities beyond school. At the point when schools close, guardians are regularly asked to encourage the gaining from kids at home and can battle to play out this task. This is particularly valid for guardians with constrained education and assets.

Student drop-out rates tend to increase as an impact of school terminations because of the challenge of ensuring all students return to school once school closures ends. This is particularly valid for extended terminations. Disadvantaged, at-risk, or homeless children are

more probable not to come back to class after the terminations are finished, and the impact will frequently be a long lasting burden from lost opportunities.

Schools are additionally centers of social action and human interaction. At the point when schools are shut, numerous youngsters and youth miss out a great opportunity of on social contact that is fundamental in learning and development.

### **3.8 Inaccessibility to mitigation methodologies**

The impact of school closure on academic achievement has been studied in the summer months. A large number of the strategies used to prevent academic slump, for example, going to summer school, visiting libraries, as well as participating in literacy-rich summer-based activities are not available during the pandemic. Reading every day to a child, an option available while staying at home, reduced the rate of loss by 10.5%.

### **3.9 Special education services**

Expected effects of school terminations and dependence on distance learning are not addressed in federal acts of legislation at this time.

## **4.0 POSITIVE CHANGES IN EDUCATION DUE TO COVID-19**

Any change that is so disruptive is likewise prone to carry with it some new opportunities that will change the higher education system worldwide and particularly in a nation like India which is planning to bring about a planned reform in this sector.

**Some of the key areas of opportunity are the following:**

### **4.1 Increase in blended learning**

Colleges and universities will move to a model of mixed/ blended learning where both face to face delivery along with an online model will become a norm. This will require all instructors/ teachers to turn out to be more technology savvy and go through some training to bring themselves to the level that would be required. Better approaches of delivery and assessments of learning outcomes should be adopted which opens immense opportunities for a major transformation in the area of curriculum development and pedagogy.

### **4.2 Learning the management systems to be the new standard/ norm**

An incredible opportunity will open up for those organizations that have been creating and fortifying learning the executive's management systems for use by universities and colleges. This can possibly develop at a quick pace however should will have to be priced appropriately for use by all institutions.

### **4.3 Improvement in learning material**

There is an incredible opportunity for colleges and universities to begin improving the quality of the learning material that is utilized in the teaching and learning process. Since

mixed/ blended learning will be the new configuration of learning there will be a push to discover better approaches to structure and convey quality content particularly because to the fact that the use of learning management systems will bring about more openness and transparency in academics.

#### **1.4 Ascend in collaborative work**

The teaching community to a large extent has been much insulated and more so in a few country. There is another opportunity where collaborative teaching and learning can take on new forms and can even be monetized. Employees/educators can convey online courses to even students from competing foundations. Joint efforts can likewise occur among faculty/teachers across the nation to benefit from each other.

#### **4.5 Impact on local economies**

In the some of the countries, schools and colleges work as "mini-cities" which create noteworthy income for urban areas, states, and districts. Small towns which rely on college students to support the local economy and provide labour to local businesses are especially impacted by school closures and the exodus of students from campus.

#### **5.0 CONCLUSION**

It is safe to state that the current pandemic won't just influence the economy unfavorably, yet it will likewise affect the education sector adversely. Effectively, one and a half months is lost. Nobody is certain to what extent it will take for the education sector to come out of the irregular circumstance prevailing in the country at present. Also, education system is particularly vulnerable since mass gathering can't be avoided in our classrooms. Online classes are no substitutes for classroom lectures for a variety of reasons.

The digital divide will only leads to discrimination and practical classes based on laboratories cannot be held online. Giving guidelines for numerical courses like mathematical courses is additionally troublesome during online. The connection between the teachers and the students is a vital part of teaching and can't be reproduced in online classes. Research has been seriously hampered because of the lockdown, and henceforth the sooner normalcy returns, the better. At last, it is expected that there will be a gigantic ascent in teleconferencing opportunities which can also have a negative impact on the travel. Countless scholarly gatherings, seminars and conferences will move online and there is a likelihood that some new form of an online conferencing platform will emerge as a business model.

**CHAPTER 4**  
**COVID-19: FROM THINKING DIGITAL TO BEING DIGITAL IN THE**  
**EDUCATION SECTOR**

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**ABSTRACT**

COVID-19 has shaken the world and impacted all most every sector in the country. The speed of the spread of the epidemic, the closure of higher education institutions and the transition to online teaching was so swift. The pandemic has significantly disrupted the education sector as well, which is a critical determinant of a country's economic future. In this time of crisis, a well-rounded and effective educational practice is what is needed for the capacity-building of young minds. It is very much essential to introduce digital teaching tools to conduct online classes. This article describes the impact on present education system and need or inevitable condition to introduce the digital teaching tools to conduct online classes.

*Key Words: COVID-19, young minds, digital teaching*

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**1.0 IMPACT OF COVID-19 ON TEACHING AND LEARNING**

Not only India, all most all the countries in the world was shaken due to recent pandemic Covid-19. It is impacting almost every sector of the economy. In view of this, the education sector is no exception. Schools, colleges, and institutes are close even, and students are at home with the least contact with friends. Everything is happening in virtual conference, with no physical movement. State governments in India have deferred or dropped examinations to all levels of students.

Indeed, even graded tests like GRE, SATs, GMAT, ACT, EMCET etc are on a delay, and the fate of students hang in a critical state and nobody knows when the situation control.

The interference in the education system due to the continuous COVID-19 is a reminder that there is a necessity for transformation. For over the years, we have been talking about digital transformation but were in some undefined future. These nationwide closures are impacting over 91% of the world student population. According to the newspapers, The UNESCO report estimates that the Coronavirus pandemic will adversely impact over 290 million students across 22 countries. The UNESCO estimates that about 32 crores students

are affected in India, including those in schools and colleges. It is the right time to shift from thinking digital to being digital.

## **2.0 FROM THINKING DIGITAL TO BEING DIGITAL**

The shift to digital learning is troublesome because no one was ready until the COVID-19 took hold. The real factors of the 21st century have changed the way we deliver/access information, share knowledge, and ease learning. The COVID-19 pandemic and its resultant impact on our lives have raised the need to adopt innovative ways of getting education services at all levels. The advanced technologies have the ability to plan, manage, and support digital transformation needs for the education society. It helps institutions move their focus away from traditional learning models to adopt digital. It motivates immersive learning experiences, future-ready staff, and strategic outcomes. Many a great digital education tools have been created with the purpose of giving autonomy to the student, improving the administration of academic processes, encouraging collaboration, and facilitating communication between teachers and learners. This research paper recommends digital tools for classroom which foster responsibility, relationships, and respect, and can be used by teachers and students for smooth conduction of online class in this pandemic situation.

### **2.1 Socrative**

It is very popular classroom app for fun, effective engagement and on-the-fly assessments. It is designed by a group of entrepreneurs and engineers passionate about education. Socrative is a system that allows teachers to create exercises or educational games which students can solve using mobile devices, whether smart phones, laptops, or tablets. Teachers can see the results of the activities and, depending on these, modify the subsequent lessons in order to make them more personalized. Immediate feedback is a vital part of the learning process. Socrative gives just that for the classroom or office an efficient way to monitor and evaluate learning that saves time for teachers while delivering fun and engaging interactions for learners. Quickly assess student understanding with prepared activities or on-the-fly questions, then adjust your teaching based on the results. From quizzes to polls, create whatever type of activity suits your needs. Shuffle questions, run your activity anonymously, provide instant feedback...etc. Socrative quizzes are easy to create and download. Create your own and use them as many times as you need. Since they are graded automatically in real time, you will spend less time grading assignments and more time catering to the needs of your group. Socrative apps are available for download on all major digital devices and platforms. It can be used on smart phones, tablets, laptops, and computers.

## **2.2 Kahoot**

Kahoot! is an educational platform and its is based on games and questions. Through this tool, teachers can create questionnaires, discussions, or surveys that required for academic lessons. The material is projected in the classroom and questions are answered by students while playing and learning at the same time. Kahoot! promotes game-based learning, which increases student engagement and creates a dynamic, social, and fun educational environment. Students can login into the website with the pin provided by their teacher and do their activities with time bound. Kahoot app is available for download on all major digital devices and platforms. Users can use Socrative on smart phones, tablets, laptops, and computers.

## **2.3 Edmodo**

Edmodo is an educational tool that connects teachers and students in a virtual conference. It is assimilated into a social network. In this one, teachers can create online collaborative groups, administer and provide educational materials, measure student performance, and communicate with parents, among other functions. Edmodo has more than 34 million users who connect to create a learning process that is more enriching, personalized, and aligned with the opportunities brought by technology and the digital environment. It is very easy to send messages, share class materials, and make learning accessible anywhere. It saves our time by bringing all classroom tools together. This app is available for download on all major digital devices and platforms. Users can use Edmodo on smart phones, tablets, laptops, and computers.

## **2.4 Animoto**

Animoto is another digital tool for students and teachers in education. Video is one of the most engaging mediums of the modern day which is why you should definitely incorporate it into your classroom. Animoto is one of the digital tools for classroom that can be used by both teachers and students for educational purposes. Animoto helps you create animated videos easily. You can create photo slideshows, stitch various videos together, add text and more images to come up with a truly engaging video in the end. It is a digital tool that allows creating high-quality videos in a short time and from any mobile device, inspiring students and helping improve academic lessons. The Animoto interface is friendly and practical, allowing teachers to create audiovisual content that adapts to educational needs. This app is available for download on all major digital devices and platforms. Users can use Animoto app on smart phones, tablets, laptops, and desktop.

## 2.5 TED-Ed

TED-Ed is an educational platform that allows creating educational lessons with the collaboration of teachers, students, animators generally people who want to expand knowledge and good ideas. This website allows democratizing access to information, both for teachers and students. Here, people can have an active participation in the learning process of others. Once you open the page, you will have three categories on the screen. Categories are created based on the field user belong to. Students, teachers and parents have their own categories to login into their domain. This app is available for download on all major digital devices and platforms. Users can use TED-Ed app on smart phones, tablets, laptops, and desktop.

## 2.6 Padlet

Padlet is a tool which suits for the whole class to use. It is a digital pin board that allows participants both students and teachers contribute by pinning different images, videos, text files, links, and more. Digital tools for classroom like Padlet motivate students to work together and brainstorm like a team. Users can customize the background to a corkboard, blackboard, wood, sand, and many more options, the layout to a grid, stream, or freeform, as well as control who has access to the board. **Padlet** is an application to create an online bulletin board that you can use to display information for any topic. There are 8 layouts to choose among. Read about the various layout options here. Easily create an account and build a new board. It is **free** to sign up. However, you can only make three **Padlets** before you need to upgrade to a monthly or yearly subscription. This app is available for download on all major digital devices and platforms. Users can use Padlet app on smart phones, tablets, laptops, and desktop.

## 2.7 Quizlet / Quizlet Live

Quizlet provides a platform for students and teachers to create and share their own learning materials, including flashcards and diagrams. Quizlet Live is the free in-class quiz game, produced by Quizlet that can then bring these learning materials to life. In this engaging and interactive game, students must all contribute, stay focused and communicate well to win. Quizlet consistently receives excellent reviews and is a great way to bring study notes to into the 21st century. Help every student confidently learn anything, no matter what they're striving to achieve. Using Quizlet's free study sets, study modes and in-class game, you can instantly create a more engaged classroom.

## **2.8 Google Classroom**

Google Classroom is a powerful community based social tool for learning. It allows students to post questions and receive answers from their teachers and fellow students.

Furthermore, teachers can post intriguing questions and lesson materials for review at home. It can also be integrated with other Google products such as Google Forms, which can be a great way to get feedback from students. Classroom is free for schools and included with sign up for G Suite for Education. Like all Google for Education tools, Classroom meets high security standards. With simple setup and integration with G Suite for Education, Classroom streamlines repetitive tasks and makes it easy to focus on what teachers do best: teaching. With Classroom, teachers and students can sign in from any computer or mobile device to access class assignments, course materials, and feedback. Educators can track student progress to know where and when to give extra feedback. With simplified workflows, more energy can be focused on giving students constructive, personalized recommendations.

## **3.0 CONCLUSION**

All of the above mentioned tools are recommended for online teaching in this pandemic crisis. The good part is that users can try them all for free, and then pick the one that best fits for quizzing and assessment requirements. Technology is a friend of education and there is no reason to fight this trend. The mind set has to shift from being thinking to being digital to introduce online assessment tools.

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# CHAPTER 5

## IMPACT OF CORONA CRISIS ON ONLINE TEACHING AND LEARNING METHODS

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### **ABSTRACT**

The surge of corona over the globe has affected various sectors alike. The Merchandise of commerce, science, industry, finance, digital communities, IT professionals, the chain of agriculture, food stores and groceries were the totally shut down during this pandemic. Apart from these the problem faced by the educational institutions was the worst ever seen phenomena. The challenges faced by the teacher-student community remain a major crisis where the inquisitive mind of the learners has to be channelized by the guidance of the teacher. The initial lockdown and the dilution of process could bring back all sectors but the primary, secondary schools and colleges closed indefinitely posing a threat to the parents, students and academicians. The affliction of pandemic was rapidly increasing from the month of March which was the crucial year for the terminal exams to evaluate the students based on their skill. The systematic approach of decades of practice could not be implemented and the announcement of nonconductive of examination and the promotion of students to the next year or grade created havoc. The Traditional chalk and talk method of usage could no longer be handy and the teachers have to get updated on the Online teaching methodologies and have been intimidated to teach through Virtual Learning Environment or blended method. The various meeting apps and the gaming apps were a great support to the New Learning of the New Normal as the tagline. The aim of the paper is to share the various methods used by teachers in Online Teaching and learning methods in the period of pandemic.

*Keywords: Blended method, New Normal, Virtual Learning, Systematic approach*

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### **1.0 INTRODUCTION**

The era of New Normal has just begun amidst the chaos created due to Covid-19. It has made the people to believe in them and be survivors of the challenges posed by Coronavirus . The teaching and learning technologies have under gone a sea change and it tells us to make the effective use of applications to understand the attitudinal changes in the student. It is truth that has to bear in mind that technology can never replace a teacher but an updated knowledge of online tools with technology enriched teachers can make a difference. The top hundred universities have started online classes from the month of May and everywhere we can see the webinar been conducted on various topics to make the intuitive learners participate and get the benefit out of it. Nowadays 90% of learning happens online with synchronous and asynchronous methods with the e- learning models and content preparation.

The challenge for the teacher is to plan , prepare and choose the delivery part using **Zoom app or Cisco Webex app or Google meet** with 100 participants as a classroom of 40

minutes and screen share the slides of the particular topic and teach them. They have to create the material to take the classes with proper equipment like laptop, mike, video and headphones. The problem is the students are digital native and do not learn as intended by the teacher. The schedule of time table and the discipline to login for class should be made as a habit till the problem gets resolved. The workshop series was conducted by JNU-WETOMs to empower teaching / learning through online skill development by teacher volunteers was an eye opener to many teachers who try to accommodate themselves in a virtual class. The workshop has started from April till July enlightening the latest online modes and methods benefiting teachers like me with various applications and hands on session absolutely free of cost.

The academician has to go through the etiquettes of the online methods which is tricky and goes through the psychological changes. The teachers have to mutually learn and share their experiences to their colleagues. The study reveals that the young teachers of thirty –forty age group can get along with the online education in an easy way whereas the senior teachers in the latter age group takes a bold step to learn the digital tools to equip themselves to teaching. The teacher has to self learned and experiment as which learning platform can be involved in teaching her/his subject. The **SOLE-Self Organized Learning Environment** has a slide share where the learning can happen at two places at the same time. The online **app Padlet** is very useful and facilitate for future learning. This app emphasis a great for sharing ideas, add links, upload files, images and also move to their files and arrange them. It is very convenient to use and can also be used in Google Classroom.

The effective digital resource helps the teacher in classroom management. It is better for the teacher to access it before taking it for a trial class or dry run. Unless the teacher is confident with the process of the using the tool, the teaching-learning cannot happen. Some of the apps are purchased by the schools or colleges which gives a free access for the teachers to take it. Some of them are free accessible and can be used for taking private classes or tutoring. The Low text tools are there for the teachers to reasonably make use in an efficient manner.

To teach a language tool even Google map in the android phone can be used to teach the directions, If conditionals and to express alternative ideas. The strict mode of teaching should be modified to a lighter vein or humourous way as far the students are concerned they also exposed to new set of learning tools and has to get accustomed to it. The teacher could not monitor the students as in classroom and hence the students are instructed to make use of chat box and interact effectively. The teacher has to check whether the students are using proper login name and roll no given to them. The teacher has an uncertainty to handle

the students as the sympathy and empathy will be lacking. There is neither connectivity nor bonding among the teacher and the student. The online teaching is a common platform to share the knowledge and the teacher feels that the familiarity, the personal touch is missing.

The social challenges include telling the parents the importance of online teaching during this pandemic. The school children and the parents are much aware of the teaching online process. But it is the higher secondary and undergraduate teachers or professors have to engage activity more constructively. The teachers can animate their lesson through **plotagon.com** and create video to make the students attentive. The teacher has to doubly put their effort as in usual classroom. This blended or flipped class room has more restrictions as there is little of body language used to grab the attention. The teacher has a weird feeling as all transmission to be done through voice or PPT or verbal content. The teacher's social behavior change as it is from home they have to take class and the privacy or professional aspects get affected. Though the online teaching has been in practice a decade ago, it is lockdown due to pandemic has made the teachers to learn the equipment functioning and connecting the classroom through virtual learning environment. Teachers literally have to learn the compatibility of the network and bandwidth issues. Sometimes there may be a low audio or video feed may be blurring or delay in transmission, there is absolutely no need to get panic as the participants are students and so they can understand the effort made by the staff members or teachers.

The solution for the smooth online teaching and learning can happen when the teacher and student adapt new strategies, planned lectures and create your own modules, command over language and subject. The attention of millennial student is 30seconds and more than there is lot of distractions. The students are good at multi tasking and at given time can learn the terms easily. The teacher is not the only source of information for today's learner; there is lot of learning via online. The assessment can be done through **Google form** in the form of MCQs or also through **Kahoot app** for the quiz activity to instill fun activity in the classroom. The add-ons as polls and quizzes instigate the activeness. Online classes have bridged the social gap and have given universal access to education in India. The key barrier is lack of awareness in using the online apps and methods. The impact of Coronavirus break down and the effect of lockdown have created intense interest in teachers learning skills and teaching methods in online mode. There is a simultaneous give and take in the teaching and learning process, the more the teacher learn online tools and methods the process can be effective in teaching.

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## CHAPTER 6

### COVID 19 AND ITS IMPACT ON INDIAN EDUCATION

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#### 1.0 INTRODUCTION

Covid19 or Coronavirus has given a dangerous impact on human at this era of 2019-20. On March 11, 2020 World Health Organisation (WHO) declared Covid-19 as a pandemic. Covid-19 has affected more than 4.5 million peoples worldwide (WHO) (Bhat, 2020). The disease is said to spread through droplets of saliva or discharge from the nose of an infected person, particularly when he/she sneezes or coughs. Though the human Coronavirus es have been recognized now for many years, the lack of immunity to the identified new strain, there is a large portion of the population susceptible to it (Bhat, 2020). Countries across the world have introduced several measures to prevent the spread of the epidemic. Most countries have introduced travel restrictions, both inward and outward. Social distancing, self-isolation, or quarantine, work from home are encouraged and enforced among the people with the view to reduce the spread of the COVID-19 virus among the younger and adult populations, schools, universities, and colleges are temporarily closed in most of these countries. In the middle of their academic session, education across the world has been hit particularly hard. These schools and universities have either cancelled or postponed all campus activities and events. In India also, the schools and colleges have been completely closed since the second week of March. Classes were conducted online to complete the remaining part of the curriculum. The assessments too were completed online, devising individual methods and approaches.

Annual exams have either been postponed or cancelled. Few of the colleges experimented with open book exams. And there is still uncertainty about the reopening of the schools and colleges. Admissions have yet to be completed for the next academic year. All these have caused a tremendous level of stress affecting the learning and psychological health of the students. With no immediate solution visible till now to stop the outbreak of Covid-19, the closure of the schools and universities will likely be further extended. These will not only have a short-term impact on the continuity of learning for these young learners but also engender far-reaching economic and societal consequences. The next full semester will likely be "virtual" as campuses will continue to be locked down, and the schools and universities

will have to resort to online teaching. The structure of schooling and learning, including teaching and assessment methodologies, was the first to be affected by these closures. With the view to limit the disruption of education, UNESCO recommended distance learning programs for the schools and teachers to reach learners remotely through open education applications and platforms. Faculty members are thus transitioning to online teaching platforms. The crisis has accelerated the adoption of digital technology. The centuries-old chalk–talk teaching model is now being transformed to the one driven by technology (Mehta, 2020).

## **2.0 IMPACT ON TEACHERS**

Due to the dilemma of lockdown and to maintain the social distancing, the authorities have instructed the teaching fraternity to take their classes online. During this pandemic, it is very tough to prepare and deliver the quality lectures to the students and the situation gets worse when the teaching is online as most of the teachers have not been trained for the effective use of web resources for teaching. Additionally, the teachers who are specialized in conventional teaching found it more difficult to cope with online methods. Moreover, the level of frustration during this pandemic would be on the higher side for the old-aged and psychologically-disordered teachers as they are more vulnerable to contamination. The liability of online classes will further intensify the stress as they are not comfortable in using electronic gadgets and online resources. Above all, some of the students are not serious in online teaching as the teachers have negligible control over students in online teaching. Additionally, the teachers residing in the remote areas are more frustrated and depressed because due to unavailability or poor internet connection, they are not able to complete their tasks. Most of the adhoc and contractual teachers of different colleges and universities are also worried about their job and salary. The teachers employed in small-scale institutes don't get the proper salary and to manage the daily needs of their family they normally indulge in extra works like tuition or part-time job (evening shifts). This pandemic has shut down all the sources of their income. Additionally, the level of stress and frustration is on the peak for the guest lecturers as they were paid on the basis of the lectures taken per day. The interruption in research activities during this outbreak is also being a reason of stress for the teaching community. Due to the lockdown of colleges, universities the teachers and students (particularly Science faculty) are not able to use the facilities of their laboratories. Moreover, most of the teachers are not able to access online journals as they have institutional web access only (Gautam & Sarma, 2020). Another step taken to prevent the spread of the discussed epidemics is the closure of educational institutes in various states. Nevertheless, the

setback was that the closure included only the holidays declared to students and not to the faculty members. This decision of withholding the teachers back on the job has created a lot of psychological impacts on the morale of the teachers. The teaching community is trying to question back as how are they safe from the pandemic disease if not the students and on the other hand few educational institutes are mulling to terminate a few teachers for saving the money. Teachers irrespective of being in private or government institutes all over highly disappointed with the inhumane behaviour with them compared to the industries and companies giving a work-from-home facility to their employees (Bhat, 2020).

### **3.0 IMPACT ON STUDENTS**

This pandemic has also significantly affected the mental state of the students. They are also in the dilemma of being infected with this unfortunate pandemic virus. It is not easy to every student to access high-speed Internet, Wi-Fi, and/or to required online facilities. This leads to issues with attendance and participation in online sessions. Students are also cut off from university libraries, workshops, and laboratories. It was thus felt that the online mode of education offers a poor learning environment in general. The teacher misses out on the much-required feedback that face-to-face teaching offers that helps her constantly review, revise, and improve the course delivery for the students to remain in sync. Substantial learning is lost as the scope for interactions, debates, open discussions, and casual conversations with the students get reduced on the online platform. Students ask fewer questions online. In the absence of the classroom, the student misses out on learning new skills, peer reviews, and life experiences (Mehta, 2020).

The massive transmission of the fake news over social sites (Whatsapp, Twitter, Facebook) and media has created chaos and stressful atmosphere for the students. The scary atmosphere is affecting the concentration level and the learning ability of the students. The training students (MCA/MBA/B.Tech) who have joined their internship in different companies are not able to get the hand-on experience of the live projects. Some of the research scholars (Life and Applied Sciences) who have been carrying out their experiments in their institutional labs for the last couple of weeks and were about to finish their studies feel more frustrated as they have to re-conduct their experiments due to this lockdown. Furthermore, different kinds of examinations have been postponed due to this virus and there is complete uncertainty about the examination policies i.e. how and when it will be conducted. In addition to the regular examination, most of the competitive examination has also been aborted or postponed for which students were preparing for the last couple of months or even a year. The postponement of the examinations is also causing frustration and

stress among the students. These different kinds of tensions disrupt the sleep time of the students which eventually decreases the body's immunity and hence makes them more susceptible to infection. Some of the students have taken educational loan for their higher studies in abroad. The restricted transmission has delayed their joining process however; the cycle of monthly instalments is going on. Therefore, there will be an excessive financial burden on the students which will indirectly be a cause of stress or anxiety among them. Some of the researchers who have got the opportunity of post doctorate fellowship in different International universities are under tremendous pressure about their future. Several such scholars are under high financial burden as most of them have resigned their current jobs for this fellowship. The long prevalence of this pandemic may create different types of psychological disorders among teachers and students. The consequences of this pandemic can be worsened for psychologically weak students and teachers. Finally, this pandemic has taught us that the subject of online teaching needs to be incorporated at the primary and higher level of education. Additionally, all educational institutes need to periodically organize the workshops related to the use of online learning and teaching. Likewise, a short course on stress management needs to be mandatory for all the students so that they can beat the stress in similar catastrophic events. Above all, there is a need to be relaxed and have a sound sleep to avoid the bad consequences of this menacing environment (Gautam & Sarmah, 2020)

#### **4.0 IMPACT ON ACADEMIC RESEARCH**

Covid-19 has both negative and positive impacts on research. If we take the negative side, it has made impossible for researchers to travel and work together with others nationally and internationally. Some joint research work or project work are made complicated to complete. Some scientific laboratory testing/research work could not be conducted. If we look at the positive side, academicians got much time to improve their theoretical research work. Academicians got acquainted with technological methods and improved their research. Webinars and e-conferences became normal methods for sharing expertise among students and academicians around the globe with similar issues. They could get much time to concentrate on professional development by doing research and to improve knowledge by sharing ideas through webinars and e-conferences. They enhanced their technical skill and could get the scope for publishing articles in journals, publishing books in this free time.

#### **5.0 IMPACT ON THE EDUCATIONAL ASSESSMENT SYSTEM**

Most of the external examinations have been postponed and almost all the internal assessments have been cancelled. The cancellation of assessments has negative impact on



students' learning. Many institutions have been managing the internal assessments through online mode using different digital tools but the postponement of the external assessments, has a direct impact on the educational and occupational future of students' life. This uncertainty has created anxiety among students as they are stuck in the same grade/class without promotion. Similarly, many students who had appeared final/board examinations would suffer a lot as by the time they get their certificates, it might be too late for them to apply for the forthcoming academic year in other countries due to lockdown.

## **6.0 IMPACT ON EMPLOYMENT OPPORTUNITIES**

Entrance tests and job recruitments got cancelled which created negative impact with a great challenge in the life of a student of higher education. The Indians who have been doing their jobs abroad became upset of their job withdrawal also. In India, there is no recruitment in Government sector and fresh graduates are in pressure of fearing withdrawal of job offers from corporate sectors because of the pandemic situation. Many students may lose their jobs from India and overseas. The pass out students may not get their job outside India due to various restrictions caused by Covid-19. All these facts imply towards increase of unemployment rate due to this pandemic. With increase of unemployment situation, the interest for education may gradually decrease as people struggle for food rather than education (Jena 2020).

## **7.0 IMPACT ON DROPOUT RATES**

According to UNESCO, approximately 0.32 billion students in India have been affected by school closures due to the Covid-19 pandemic (UNESCO 2020). Of these, almost 84% reside in rural areas while 70% attend government schools. As of 2015, the average dropout rate across secondary schools in India was 17.06% with higher numbers for rural areas (NUEPA 2016). Past evidence suggests that short term disruptions in schooling often lead to permanent dropouts among the poor. One reason for this is the loss of parents' employment for which child labour is leveraged as a substitute. The inevitable economic backlash of the lockdown is likely to reduce the earning capacity for many poor households and may increase the opportunity cost of sending children to school, especially in rural India. As a result, children may be pushed into the labour market. Dropout rates are likely to be even more severe for girls who are often left out of household resource allocation decisions. Girls may also be required to undertake additional household responsibilities as parents increase their own labour hours to cope with economic distress. Similarly, these economic shocks are likely to have a greater impact on children from communities that are marginalized on the basis of their caste, tribe and religion, and already experience higher

dropout rates (NUEPA 2016). Dropping out, in turn, may lead to increases in child marriages, domestic violence, early pregnancies and a plethora of other development issues. Without school fee waivers in the interim, dropout rates are likely to get further exacerbated as educational expenses become unaffordable for many. Although some states governments such as those of Haryana, Punjab, Uttar Pradesh, Himachal Pradesh and Jharkhand tried to initiate waivers for tuition and other school expenses during the lockdown period, private schools were unwilling to implement these measures (Alvi and Gupta, 2020).

## **8.0 IMPACT ON INEQUALITY AND DISPARITY**

A key step taken by some educational institutions to ensure continuation of curriculum has been to shift lectures online, requiring both students and teachers to use personal home computers and reliable internet. If school and university examinations happen as scheduled, without compensatory classes, it is likely to disadvantage students who cannot access these computer and network resources. However, postponement of examinations can cause a delay for students in entering the job market. The discourse on education during the lockdown period has been essentially focused on online or televised learning. A number of Indian states including Mizoram, West Bengal and Kashmir have implemented daily televised lectures as the Human Resource Development (education) Ministry ties up with television service providers to allocate specific channels for this purpose. However, these measures preclude the rural and urban poor with limited or no access to electricity and network resources. Moreover, online classes are being facilitated largely for students who attend urban private schools, and already out perform government school students on most indicators of learning. The higher use of online learning platforms by private schools will increase this disparity (Alvi and Gupta, 2020).

## **9.0 CONCLUSION**

The outbreak of Covid-19 has compelled lockdown in every sector including education. The institutions got closed with cease of educational activities and created many challenges for the stake holders. So, the various activities like admission, examinations, entrance tests, competitive examinations conducted by various boards/schools/colleges/universities are postponed. The students of pre primary and primary stage were not concern about online activities therefore it has a great impact on them about their education by sitting at home. Many entrance tests for higher study got cancelled which created a great challenge in the life of a student of higher education. The primary challenge was to continue teaching learning process when students, faculties and staff could no longer be physically present on the campuses. The obvious solution for the institutions was to depend online teaching

learning. However, within a relatively short time, educational institutions have been able to provide support to the students through online modes. Covid-19 has accelerated adoption of digital technologies to deliver education. It encouraged all teachers and students to become more technology savvy. The educational institutions have started conducting orientation programmes, induction meetings and counselling classes with the help of different e-conferencing tools like Google Meet, Jio meet, Skype, Youtube live, Facebook live, WebEx etc. to provide support services to the students. This initiative has taken to create an effective virtual environment of teaching learning and to create motivation among students for online activities. The teachers and students improved the use of electronic media for sharing information by making use of WhatsApp, Google drive, Telegram, Twitter etc. They have been sharing important documents with the group members and creating online local repository also.

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## CHAPTER 7

### IMPACT OF CORONA CRISIS ON EDUCATION SECTOR

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#### ABSTRACT

The covid-19 pandemic is quintessential adaptive and transformative challenge to education system. Covid-19 as forced school or universities to suspend physical classrooms and shift to online classes. In India while this transition has been smooth for most private universities, the public ones are still adapting. This viewpoint offers guidance to teachers, institutional heads and official on addressing the crisis. As per present situation, there is an uncertainty when schools and colleges will reopen. So provided online education system. Online education is conducted in two ways. The first is through the use of recorded classes, the second one is via live online classes. Conducted as webinars or zoom sessions. E-learning tools has been helping the learning to study at home. The use of technology will not only need to more discrimination but also will create some practical problems.

**Keywords:** *Education sector, Govt. policies and plans, Teaching Learning Process*

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#### 1.0 INTRODUCTION

The Coronavirus causes a deadly diseases, covid-19 with a fatality rate between 2-3 percent. It has created havoc as it has engulfed the whole world. Being declared pandemic by the WHO. Lockdowns that have been imposed in almost all countries to save the citizens. Against the backdrop of such a pandemic, it is obvious that the education sector will suffer in all the countries like many others sectors. The Indian education system has been badly affected by the entry of the disease and also because of social distancing measures that were taken to prevent the spread of the disease. Online classes are not capable of substituting classroom lectures. The former is very seldom able to generate the interaction that is needed in a class. Moreover, the teachers body language, which is a part and parcel of the classroom lectures and is imperative for their success, is also missing in online classes.

#### 2.0 IMPACT OF CORONA CRISIS ON PRIVATE EDUCATION SECTOR

##### 2.1 From point of view of school and colleges.

- i. **Increase burden of study:** Due to pandemic covid-19 all public places and all sectors are closed. So there all school and colleges are also closed. During this schools provide distance learning that lead to more work burden for teachers and learners. So this badly affected to private education sector.

- ii. **Educators overwhelmed and unsupported to do their jobs well:** The impact of corona crisis on educator lead to unsupported to do their jobs. Because they can't manage his work in home with proper manner.
- iii. **Not provide quality teaching:** With impact of corona institutions forced to provide online learning. There not interact with students physically so not provide the quality teaching.
- iv. **Not easy access to internet:** Private institutions required to costly equipments for teach online classes. There every students have no all facilities . sometimes arise internet connection problems that cause of bad effect on study of students.
- v. **Time consuming teaching:** Distance learning is a time consuming process because it take lots of time for prepare recorded classes and via live classes. Many students can not attend the live classes. so their queries increased that waste the time of institution educator.
- vi. **Lack of awareness about digital technology:** School and colleges education level increased by increased level of class so there require the digital technology recourses. But many teacher and learners have no knowledge about this technology which create the problems for students and teacher.
- vii. **Complaints of parents regarding study material:** Due to covid 19 parents are forced to teach their children at home so many parents not aware about study material. They have no knowledge about mobile applications and PC, laptops. so they complaint
- viii. **Stress and anxiety level:** With impact of corona in public increase the stress and anxiety level. So school staff and college staff feel stressed with lockdown in homes by their work load.
- ix. **Not applied adequate methods of teaching:** Due to corona teachers not understand how they teach to students with effective method. Distance learning effective by live classes but clash time of classes of one parent having more children so it is not proof of adequate method.
- x. **Discrimination:** The impact of corona on education sector create discrimination among private and public sector of education. Because private schools required more funds for maintain their institutions. But school fee charges are very less compare to before covid-19.
- xi. **Practical problems:** With distance learning not provides classroom study so there no chance of practical study does in labs regarding science subjects and experiments.

- xii. **Uncertainty about future:** Due to corona uncertainty about future regarding education sector. So uncertainty about school in future reopens.
- xiii. **Not properly teach skilled courses:** During COVID 19 distance learning skilled courses are mostly effected. Because here no another way for teach these course. So this coursed students suffered by it.
- xiv. **Not apply Government:** Policies in proper schedule private sector make their own policies regarding fee structure and teaching policies. Because they have no another option for bear their own expenses. So private education sector not apply govt. policies and plans.
- xv. **Left school by students due to financial problem:** With impact of corona number students in private education sector decreased due to financial problem. Many parents are poor so they can't afford fee in during lockdown.
- xvi. **Most effected pre-nursery and primary classes:** Distance learning is tough situation for childhood children which studied in pre nursery and primary classes. Because they need to very caring environment for learning .so parents face difficult situation for study their children.
- xvii. **Students not attend sports events:** By distance learning students not attend sports events. They do not participate in any sports. So this badly effect his health and physical fitness.

## 2.2 From point of view of learners

- i. **Passive learning:** Students not actively participate in distance learning .so they not worried about regarding his examinations. They don't take seriously his study and future career.
- ii. **Lack of awareness about Coronavirus :** Learners have no proper knowledge about disease of covid-19.so they don't take precautions regarding this pandemic covid-19. They do not maintain social distance.
- iii. **Lack of knowledge about digital technology:** Students are not aware about digital technology regarding learning by use of applications on mobile phones. Many leaner's parents are not educated so they think use of mobiles phones not appropriate for students study.
- iv. **Not able to work effectively from home:** By distance learning learners study from his home. But many families are not normal at home. That environment badly effect learner's study. So they not able to work effectively from home.

- v. **8 hours work increased to 24 hours:** Learners working hours increased from 8 hour to 24 hours. Students write homework from mobile phones from photos or using educations sites. This lead to increase burden of learners of study.
- vi. **Problems due use of internet:** More use of internet create problems for learners e.g change their interest for unnecessary activities. They addicts of playing games watch movies.
- vii. **Frustration:** During lockdown learners are frustrated from homes and family members. They want to change for something new. They not interested in study in locks in homes with long time.
- viii. **Bad effect on Mental health:** Due to covid-19 fear of disease among learners. They no interact with their friends and not play physical activities. they suffer from physical health issues so also fear of mental health issue.
- ix. **No time for themselves for entertainment:** Learners all time busy in study at home by distance learning. In left time they help his parents. So they have no time for themselves for their entertainment.
- x. **Requirement of private tuition:** By distance learning learners not able to solve all queries at home so they need to private tuition. For this they bear extra charges for study which is not afford by poor parents.

### 2.3 From point of view teachers

- i. **Over Burden:** Due to Covid-19 teachers teach to students from home. So, work burden increase because distance learning is time consuming process. Teachers have no time for their own life and his family. Female teacher required time for his parents and children. So they feel all time overburden.
- ii. **Health Issues:** Teachers suffered by health issues during Covid-19 by distance learning because they forced for more work at home from time period before Covid-19. Female teachers have own health issues regarding pregnancy and his childhood.
- iii. **Not afford educational resources:** All teachers are not afford all education resources according to learners condition. Many teachers have financial problem, so they not buy expensive tools for online teaching.
- iv. **No time for their own life:** Due to Covid-19 teachers have no time for their personal life. Many teachers are aged so they do not bear over burden and some newly married teachers have no time for own life.
- v. **Bearing Domestic violence:** Some teachers bear domestic violence in his family regarding if any member drunkard or his partner not support them.

- vi. **Fear about their profession:** With impact of corona crisis professions of people in dangerous. In schools and colleges staff received just fifty percent of his salary. so there is risk about their profession of teachers.

### 3.0 IMPACT OF CORONA CRISIS ON PUBLIC EDUCATION SECTOR

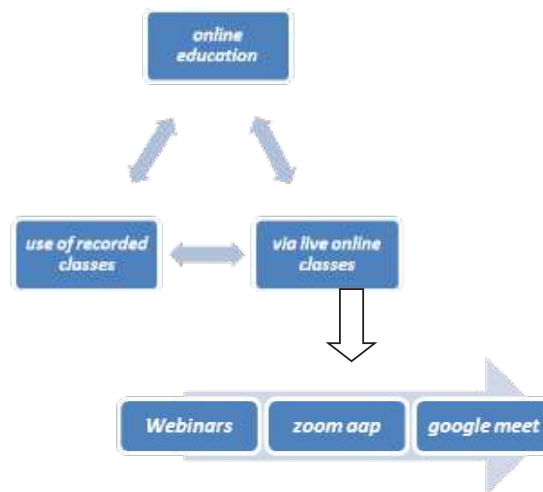
- i. **Required knowledge about digital technology:** In public education sector required the high digital technology awareness. But teachers not prepared for it. So this create many problems for education sector for satisfy the learners.
- ii. **Not according to human capacity:** Distance learning for teachers and learners not according to capacity of them. There are many complicated barriers to teach the students according to human requirements with paying capacity.
- iii. **Government bear their salaries of teachers without earn income:** Due to lockdown government bears all public expense e.g. teachers salary without income from any recourses. So, Covid-19 mostly effected to public education sector.
- iv. **Parents are not afford the learning material:** During in lockdown business of all people suffer from financial crisis so, very poor families studies their children in public education sector. There for they can't afford learning material to their children.
- v. **Uncertainty about future govt. policies for school:** The impact of corona crisis on future government policies and grants. There for uncertainty of government regarding education sector. So, there no chances of any growth and development of public education sector.
- vi. **Reduced level of students learning ability:** Due to lockdown mostly parents are irritated and their children are bore their routine work in home by distance leering with effect of Covid-19 reduce the level of students leering ability.
- vii. **Interruptions in final examinations:** In school and colleges examinations of students of not conduct during Covid-19 and postponed for conduct after 2 and 3 months. But after that court decisions school exams not conducted and promoted students in higher class on basis of last examination performance. In colleges just conducted final examination.
- viii. **Due to corona students undisciplined:** Due to Covid-19 students all time spend at their homes with mobile phones. They forget schools rules and discipline. So, this situation badly effect to the students and made them in disciplined.



#### 4.0 TEACHING LEARNING PROCESS-FROM POINT OF VIEW OF LEARNERS

- i. **Online classes are not substituting class room lecture:** In era of Covid-19 provide online classes to students their just provide study material not provide other activities and body language learning so online classes not substituting classroom lecture.
- ii. **Protection and safety of children harder to safeguard:** In use of mobile phones for study for distance learning not protection and safety of children. Because during the study students using another social applications and excess use of social media harder to safeguard to children.
- iii. **No easy to access to internet:** Many learner not aware about how to access internet for online learning their need of guidance and supervision of parents for access internet for learning without any interruption.
- iv. **High priced study material:** Learner from poor family can't afford high price study material for effect learning so good students suffer from this situation. They bear loss of his study to score good marks.

#### 4.1 From point of view of teacher Online education is conducted in two ways



- i. **Body language is part of teacher's teaching:** During distance learning teacher not teach with body language so, online classes are not effected for average students. By using gesture provide effective learning in classrooms that not provide in distance learning.
- ii. **Not follow adequate method of teaching:** With same pattern teach by teachers in online classes so teacher and learner have no extra new activity and challenges. So, teacher do not understand how follow adequate method of teaching.

- iii. **No time for prepare study material:** During this period teacher provide just limited bookish knowledge to learner because teacher suffers by heavy work load and they have no time for additional study material for extra creativities.
- iv. **No scope for extra ordinary activities:** With impact of corona crisis students do not participate in any sports events, celebration, exhibitions, and experimental studies. So, students do not gain extra knowledge about these extra ordinary activities.

## 5.0 CONCLUSION

At the end we know that due to Coronavirus pandemic the government temporarily closed schools and colleges. The Covid-19 pandemic is a huge challenge to education systems. Private and public education sectors disrupted which impact the country's economic future. Before lockdown 40% people just use internet connection with impact of Covid-19 only 60% used internet connection. It means still not 100% people use internet. Extended school classes not only cause loss of learning in the short term, but also diminish human capital and economic opportunities for children and youth over the long term.

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## CHAPTER 8

### EFFECT ON EDUCATION SYSTEM DUE TO THE OUTBREAK OF COVID-19

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#### **ABSTRACT**

The outbreak of Coronavirus disease (COVID-19) has been declared as pandemic all over the world. And the virus has now spread to many countries and territories. A lot of things about the virus still remain unknown. We do know that it is transmitted through direct contact with respiratory droplets of an infected person (generated through coughing and sneezing). While COVID-19 continues to spread it is important that communities take action to prevent further transmission, reduce the impacts of the outbreak and support control measures. The protection of children and educational facilities is particularly important. Precautions are necessary to prevent the spread of COVID-19 in social areas. However, it is important to remember that COVID-19 does not differentiate between borders, ethnicities, disability status, age or gender. Education settings should continue to be welcoming, respectful, inclusive, and supportive environments to all. Measures taken by schools can prevent the entry and spread of COVID-19 by students and staff that may have been exposed to the virus, while minimizing disruption and protecting students and staff from discrimination.

*Keywords: Education System, Outbreak of COVID-19*

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#### **1.0 INTRODUCTION**

The outbreak of COVID-19 has caused a conspicuous impact the education system all over the world. From the first stages of Lockdown online studies are getting more essential than ever. The studies, seminars, tests, examination etc. The cycle of the world running in the reverse gear. Everyone is at home and being extremely careful and conscious to protect themselves from the pandemic caused by the Coronavirus. We notice the education system has been completely changed. This kind of crises has caused pandemonium as well as the education system to bend at its knees. These changes in the life are being faced by everyone today. The system has yet to find the solution to the current scenario. Although the education system is finding new ways to get back on track, many educationalists are trying to find better options of teaching the students since a large fraction of students suffer abrupting internet servers. But it seems they are out of their options. We find there is no better alternative than online teaching.

There are many apps which have been developed for online teaching. The online education is not as effective as manual studies because the explanation of topics can sometimes be obscure due to the awful internet connectivity. The experts are trying their best to find beneficent methods to teach the students online. If the teaching can only be conducted online then it should be carried out in such a manner that the students can feel as if the

teachings are in their usual classes. The manual classes are more exciting than the online classes since the students are much more attentive in the manual classes.

Due to the current scenario many teachers are getting their chance to make themselves comfortable to technology and online education. The strength and growth lies in the faculty and the nature of the institute. The faculties need to change their mundane teaching methods and adapt to evolving technology-centred teaching. The faculties should establish themselves as “competent” educators who can deliver the students exceptional education. To establish such, the faculties are required to be active in research publications in order to gain experience skills in online teaching. In that way, the physical learning institutes become virtual institutes.

## **2.0 ADVANTAGE**

There are probably many more advantages to Internet-based classes, but I think you get the idea. The point is that we live in an ever-changing world that is ripe with new possibility.

- i.** The developed ability to learn new information or a new skill whenever you want and offer far greater opportunities for education than ever before.
- ii.** The scope and reach of education broadens to far at the end that ever imagined. Online classes via Skype, zoom etc. are really helpful for everyone especially children as they are benefited with same intention of learning that they ever were before the lock down started.
- iii.** The Teachers too have a way of teaching and communicating with their students online, and share knowledge. Due to the pace at which the online classes are being conducted the students are able to give some time to learning even though they are actually not going to the place where it is taught by the teachers.
- iv.** Not just the studies but various other extra-curricular activities including exercise, music, motivational speaking, author talks and all other possible activities are being conducted online.
- v.** This is another way to interact with everyone even when they are far away from each other and enables flexible communication.
- vi.** Many of the people from various parts of the state, country or even the world can participate in these online platforms either by hosting the talks or being a part of it.

## **3.0 DISADVANTAGE**

- i.** The basic resources needed are proper Wi-Fi connection, an invite or an account in one of the online platforms and a digital device such as a phone or laptop.

- ii. One can even communicate and talk with their family, friends or relatives who are in different parts of the country or the world.
- iii. At one time a number of people get into the meeting then there may be a few connection problems in one of their houses but it affects the whole meeting.
- iv. When something has to be done together by everyone in the meeting for example singing together then the sounds are really hard to distinguish and everyone's voice is not clearly heard. More so the teacher finds it hard to teach new lessons as it is hard to comprehend whatever they are saying. There are both advantages and disadvantages to this method of teaching and learning but in these lock down times they are truly vital in as they are easy and beneficial forms of virtual communication.
- v. Sometimes even the video is not clear due to some internet issues. The video really doesn't matter but sometimes if the video has some explanation by showing on the board or practically then if the video is not clear then there is confusion in understanding what the person is explain.

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# CHAPTER 9

## IMPACT OF COVID-19 PANDEMIC ON E-LEARNING IN INDIAN SCHOOL EDUCATION

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### ABSTRACT

This paper attempts to highlights the impact of COVID-19 in Indian school education. E-learning is playing very important role in the present COVID-19 pandemic lockdown. It has power to change the teaching-learning methods in the education system. Currently, the nation battles with issues like broken education system, cancelling exams, regularity in students' study and lack of hands-on practical experience, lack of quality educators. The proper use of e-learning supports the teacher for skillful teaching experience. Some suggestions are given to improve the use of e-learning in Indian school education for better teaching learning experience. While there are many challenges and disadvantages of using e-learning in education but the main objective of the paper is to focus the advantages of e-learning so that we can use e-learning tools properly and perfectly.

*Key words- e-learning, Indian school education, classroom teaching*

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### 1.0 INTRODUCTION

The impact of COVID-19 has shaken the world to its core. The Governments around the world have temporarily closed educational institutions in an attempt to contain the spread of the COVID-19 pandemic. In India too, the government as a part of the nationwide lockdown has closed all educational institutions, as a consequence of which, learners ranging from school going children to postgraduate students, are affected.

Therefore, the government has come up with e-learning program. Remote learning seems a viable solution to students during this time as they offer convenient, on -the- go and affordable access to lessons. E-learning also comes as an interesting and interactive alternative as compared to classroom teaching.

More importantly, it has also brought towards the digital education in India to the center stage. A complete revolution in the way we learn today has been brought about by Technology. Each student gets in contact with a world-class education, which is not easy to impart by the traditional white chalk and blackboard method of teaching. This new learning is more interesting, personalized and enjoyable.

Digital learning has many advantages in itself like digital learning has no physical boundaries, it has more learning engagement experience rather than the traditional learning, it is also cost-effective and students get to learn in the confines of their comfort zone.

Globally, online education has met with some success. In the case of India, we still have a long way to go before digital learning is seen as mainstream education, because students living in urban area have the facilities to opt for digital education, however, rural area students do not have the required infrastructure nor are financially strong to avail the resources required for digital education.

With so many different ways to define e-learning and the educational approaches that can be taken in these learning environments, many colleges and extra curriculum activity classes have started making use of the technology.

## 2.0 ADVANTAGES

- i. **Efficiency:** E-learning is a very simplest way to deliver lessons. Use of videos, sharing of resource links, serving assessment tests can all be done at the click of a button. Additionally, the lectures can be recorded and shared for reference with a wide range of audiences. It also allows for a much larger set of children to be taught.
- ii. **Affordability:** E-learning is far more affordable as compared to physical learning. E-learning primarily eliminates 2 major cost points – real estate and transportation. The course or study material is all available online and you can access it as many times as you want.
- iii. **Less absenteeism:** There are fewer chances of students missing out on classes, as they can access easily anytime from the comfort of their home.
- iv. **Increased Access & Reach:** E-learning can happen in any place, as long as there is a device and connectivity. A physical class requires the student to come to school but in this mode, the student can access lessons sitting anywhere in the world.
- v. **Encourages shy kids:** We have seen that many children who are usually withdrawn in a class environment, open up in the online classes. They are far more forthcoming with their questions and participation. This could be because of a comfortable home environment.
- vi. **It's cheaper:** Your users can learn with any device that is connected to the Internet. There's no need to rent a building or pay for expensive utility bills that are required to provide students with a learning facility. In addition, students and teachers will no longer commute to class, thereby saving them money as well!
- vii. **It takes less time:** Not only does eliminating the need to commute save money, but it also saves everyone time. Moreover, the teacher or trainer doesn't need to give the same class repeatedly to different groups of students. He or she only needs to prepare the content once and then share it with different groups at any time necessary.

- viii. **It allows for self-paced learning:** Students or trainees can take courses from their own devices anytime and anywhere. So, those who don't have time for traditional classes can learn online when they have the time.
- ix. **It's modern:** Most people today prefer to consume content using the Internet. The very fact that you are reading this article online is proof of that! We now use the Internet to read the news, watch our favorite TV shows, chat with friends, book appointments, shop, and so much more.

### 3.0 BENEFITS OF E-LEARNING

- i. **Effective learning material sharing:** Through the e-Learning System, teachers can share the learning material in the virtual classes. They can upload various types of documents, e-books, videos, or others and they can set the time when those documents can be accessed.
- ii. **Monitored students' activity:** All students' activities in their virtual class are well-recorded as well. For example, when the learning process begins and the teachers instruct them to read certain documents, the system will note whether they open the documents as per the instruction.
- iii. **Effective learning evaluation:** Through the same system, teachers can assess the learning process through various types of tests such as quizzes, chapter tests, or final exams. Moreover, the tests can also take in many forms. It is quite flexible in fact. Teachers can opt for multiple choices, fill in the blank, true/false, image matching, sequences, or more. They can also attach other media such as images, videos, or voice recording.
- iv. **Holistic students' performance reporting:** After completing the learning process and test, the system can automatically generate reports of the students' development. It encompasses many aspects such as their punctuality, presence, task completion and quality, and test results.
- v. **Involving parents' role:** The School Management System provides a portal for parents that can be accessed from anywhere. It is multifunctional. Not only can they have invoices and notification for parents' meetings, but also, they can review their children's performance with additional notes from the teachers. Therefore, both teachers and parents can cooperate to provide their children with the most effective learning process at home.

### 4.0 DISADVANTAGES

Following are the disadvantages of e-learning school education in India.



- i. **It takes self-discipline:** While experience has shown that online students are forced to become more self-disciplined, those that remain unengaged could be a challenge as their activities cannot be monitored in class.
- ii. **Plagiarism:** Keeping in mind that your students are using a computer and not being monitored at all times, they could potentially plagiarize essays and other assignments.
- iii. **Cheating:** Along similar lines, it can be easier for students to cheat on online exams.
- iv. **Isolation:** Since students don't have to be physically present in a classroom, it might be more difficult (or nearly impossible) for them to get in touch with other learners.
- v. **Online student feedback is limited:** E-Learning, on the other hand, still tends to struggle with student feedback. Students completing regular assessments become dissatisfied when they experience a lack of personalized feedback
- vi. **Lack of communicational skill development in online students:** Due to the lack of face-to-face communication between peers, students and teachers in an online setting, the students might find that they are unable to work effectively in a team setting.

## 5.0 CHALLENGES

- i. **Not appropriate for all:** E-learning which requires a child to sit in front of a device and understand the lesson, may not be suited to all learning styles.
- ii. **Focus Deficit:** Some students tend to lose focus for a longer period during virtual lectures. Boredom occurs easily as there is a lack of face to face interaction.
- iii. **Technology issues:** While internet penetration has grown over the past 12 months in India, the current infrastructure, especially in smaller towns, can pose a problem. Any break in the data connectivity can cause a lack of continuity in the learning for the child.
- iv. **Teacher training:** Teachers need to invest more time in aligning themselves with the latest technology updates to ensure they can conduct their online classes seamlessly.
- v. **Manage Screen time:** Health hazards of staring at a screen continuously for hours

## 6.0 SUGGESTIONS

From the above discussion following suggestions are suggested for proper implementation of e-learning in Indian School education

- i. Ideas should be clear in of use of e-learning in school education.
- ii. Training must be provided to teachers and students to utilize e-learning education.
- iii. Compulsory training needed to teachers for the e-learning process. Also, campaign should be conducted to increase e-learning literacy among society.

- iv. There is need of practice to conduct e-learning classes smoothly whenever problems arise like COVID-19 pandemic.
- v. Research is important to prepare for the appropriate study material of e-learning for each class.

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## CHAPTER 10

### STUDY OF ANCIENT INDIAN EDUCATION SYSTEM TO GET CLUES FOR IMPROVEMENTS IN SCIENCE EDUCATION AMID COVID-19 PANDEMIC

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#### ABSTRACT

This is the crucial point in time as the world struggle to combat pandemic caused by the Coronavirus. One of the major affected areas is education which seems to have lost the continuum due to sudden worldwide shutdown. The future looks ambiguous, unimaginable, and challenging for all education fraternity. The ancient value for the Indian education system gets the top position in terms of its diversity, relevance, significance, experience, history, contents, etc. It is full of qualities that are never found in any education system in modern times anywhere in the world. The unique contributions in the field of education by the oldest civilized Indian society need to be re-explored at this crucial juncture. The objective of this paper is to get answers for new questions that are raised in the current pandemic situation by studying ancient practices in India through relevant literature available online. The focus of study is science education which suffered a lot at present due to its inability to learn by doing experimentations. The science education got special place in ancient Indian education which is somewhat forgotten in recent times due to blind modernization. This is also due to our tendency to follow western culture. The suggestions framed by taking clues from history of education in India and the conclusions drawn to give a roadmap ahead.

**Keywords:** *Ancient Indian education, science education, Covid-19, future roadmap*

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#### 1.0 INTRODUCTION

The institutions of learning are the backbone of civilization that play an important role in human social-economic development. The historical journey of India in higher education is known to have rooted since ancient *Vedic* time. Both formal and informal ways of teaching-learning were adopted during ancient times. The ancient formal ways of learning generally, categorized as *Brahminical* and *Buddhist*. These categories aim different goals altogether at a different period, therefore they shouldn't be elaborated together. In *Brahminical* system learners have to spend 25 years of age at the place of learning then they were free to join the family but in the *Buddhist* system after completion of education students were never to return to parent's home to achieve salvation with purity in character. British rulers had destroyed the indigenous education systems and created a new class which is still followed in India in matching with the world. The Indian higher education system is the largest education sector in the world, just following China and the USA, however, the excellence is lacking. Recently,

national policy on education is on the edge of implementation to achieve the objectives farmed to get excellence in higher education.

The current pandemic caused by Covid-19 disease has shaken the world especially the education sector where continuum for teaching-learning suffered a break. The present conditions suggest, no near remedy as cases of Covid-19 are on accelerated increase trends, nationwide lockdown steadily withdrawn and there is no medical solution soon. At this point in time, we need to re-visit our own classical systems of teaching-learning to gain insight into problems and explore the possible solutions for this. This paper discusses the ancient *Brahminical* system of education in today's perspective and suggests the future roadmap to combat the current pandemic situation prevailing the higher education in sciences.

## **2.0 SYSTEM OF EDUCATION: HISTORIC REVIEW**

*Rigveda* is accepted as earliest work of all Indo-European languages, as Max Muller said in his quote "*one thing is certain namely that, there is nothing more primitive more ancient than the hymns of Rigveda, whether in India or the whole Aryan world.*" *Rigveda* depicts the age history of Indian culture in terms of 1017 hymns. The adopted system and methodology for education had been explained in *Rigveda Samhita* with the objectives to get remarkable outputs with wider cultural gains. According to *Rigveda Samhita*, *Rishis* (seers) were the visionary persons manifested by self-born Brahma, who practice austerities. There is a mention of *seven Rishi*, who raise the knowledge by the power of austerity (*Tapasya*).

*Rishi* practice *tapas* to gain the positions of knowledge from lowest to highest, then dissert that knowledge for the purposeful objective in society. *Tapas* is then, explained to be practice in various forms, like

1. Austerities whereby ascetic becomes invincible
2. Scarifies to attain heavens
3. Penances of the highest order by yoga to conquest heaven

*Veda* defines the state of austerity as *samadhi* i.e. by detaching their soul from their bodies and achieve the afflatus. The highest knowledge levels achieved by *Rishi* so that they could act as a teacher, guide, philosopher, *etc.* The knowledge so gained might be preserved in the form of writings text or dissert to his son so that that knowledge becomes the family property. Such families then run the *Vedic* schools wherein people take admission to get learning. Learners get admitted to these schools through a ceremony called *Upanayana*. These ancient *Vedic* schools are also known as *gurukul* or *ashram*, were the residential places managed by families of sagas, generally named after the saga who own it. These learning

centers were situated in forest areas with natural surroundings and away from cities and populations. There is a mention of women's education too during the early Vedic period. The prominent women Vedic scholars include Maitreyi, Gargi, Apala, Vishwambhara, and Lopamudra. In gurukuls teachers and learners live together and help each other in the daily maintenance of ashrams. It helps the learners to learn a disciplined way of life while realizing the inner strength. Rigveda also illustrates the relationship between the teachers and taught. It also dictates the classmates (who learn the same *Sastra*) might be in equal possession of their senses, but inequality in terms of speed of understanding. The learners were required to celibacy and the decent conduct was taken at supreme importance. The atmosphere of *gurukul* was known to be such that it makes strong relations between guru and *shishya* while pursuing the teaching-learning procedures. In the ancient era, scholars imparted education orally known as *stuti*, and learners practice the same by *smriti* then learners draw their inferences from lessons they learned by *manana*. At last complete comprehension of truth and its uses in life during *nidhyasana*. The caste systems also followed wherein *brahmins* teach only *kshatriyas* and lower caste boys learn their family trade by their own families at home. The textual description of knowledge (initially on palm leaves, the bark of trees, etc.) added a new paradigm shift in ancient teaching-learning and contributed immensely to human civilization in India.

One of the prominent ancient learning centers in India is Takshashila (or Taxila) which was based on religious teaching of Buddhism for several centuries. Indian glowing account of civilization, Ramayan indicates this place founded by Bharat, son of Kaikayi and younger brother of Ram who rules this city through two of his sons, Taksha in Takshasila and Pushkala in Pushkalawati in the Gandhara province. In Mahabharat, the same city was said to be conquered by King Janamjaya of Hastinapur. European invader Alexander regarded this region of eminence as the greatest of all cities between Indus and Jhelum (Hydaspes). Takshashila was known to get established in 700 BC. The famous teachers that belong to this institution were Panini, Kautilya (Chanakya) – minister of Chandragupta Maurya, and Charaka – the medical teacher with a great reputation to date. Education flourished all over the Indian continent in the first millennium – Nalanda University, Vikarmshila University, to name a few written centers of learning. Every university had a specialization in a particular field, for instance, Takshashila was famous for medical education while Nalanda was for astronomy. Nalanda's university contribution may be driven by the fact that it leads to the invention of zero, decimal system, and original Pythagoras theorem. Students up to 10000 at its peak learned simultaneously at Nalanda University and many learners were foreigners.

The religious teachings were the specialty of Vikarmshila University, Varanashi. Till 18th century India practiced the classical ancient's ways of teaching-learning. After that, in the Mughal reign, it got Islamic influence and the present education system is just the replica of the British education system that got embedded during colonial time.

### **3.0 CURRENT COVID-19 PANDEMIC: REVIEW FOR SCIENCE EDUCATION**

The world health organization (WHO) on June 1, 2020, reveals that there is a severe disruption of medical services even for noncommunicable diseases in 155 countries due to communicable pandemic caused by Covid-19. The focus of the world, today is to combat the Covid-19 pandemic so health care staff partially or fully reassigned to support Covid-19. The new guidelines are suggested by WHO to maintain the essential services only. Unfortunately, education seems to be kept under non-essential service as there is no agenda for this among the policymakers. The situation is critical as the globally confirmed cases about to cross seventy lakhs and death number is going to touch four lakh. These figures are still on an increasing trend, hence we have to take care of the current pandemic and make the roadmap for the future. The education sector, however, needs to be discussed in detail as it is essential to avoid any vacuum in the teaching-learning process. Especial efforts must be made towards science education as it requires learning through experimentation and group projects. The higher education (UG & PG level) in sciences and engineering is done through live practical and practice sessions. It is the most essential part of learning as concepts need to be learned by observing the live physical phenomenon. Under new guidelines, where all have to maintain the social distance and multiple touches on physical objects have to be avoided, teaching in sciences looks far from possible. We need to devise new ways of teaching-learning to accomplish this task. Even though institutions for higher education making some temporary solutions like avoiding contact hours, online teaching, suspension of examination, *etc.* A long term plan is needed to combat the present situation as there looks no short time medical solution available for the current pandemic. We also need to make changes in the system of education, such that other pandemics like this one don't affect learning as it affected this time.

### **4.0 SUGGESTED ROADMAP FOR SCIENCE EDUCATION**

At this juncture, we have to make long term decisions as to what we should do next to meet the requirements of science education. The ancient knowledge and practices may be explored for a possible solution. Some of these are described below.

- i. There is no proper training for teachers as such especially in the higher education sector. The orientation, refresher, and induction programs are generally done after

someone gets into the profession. As Rigveda depicts we must train teachers first thoroughly, in such a way that they take teaching-learning as an integral part for them. Knowledge sharing is an especial skill that needs to be developed before someone comes into the teaching profession.

- ii. Oral dictations may be required to combat the situation of no-touch on books. Therefore teachers should devise new pedagogy to meet this requirement *i.e.* students may not refer to any book or only one-two books that they may purchase. The visit to the library needs to be avoided as it involves public gathering and sharing.
- iii. Sciences were taught through imaginative storytelling (fairy tale) in ancient India. The same practice may be done in today's world. We may devise the new contents thereby creating case studies to impart knowledge in the field of sciences. It may help in making learners understand the physical phenomenon without real instruments and gadgets.
- iv. The debate among learners was used to create problem-solving as it leads to innovation and creativity. In modern science education, too group learning is done through projects. In a similar line, such practices must be encouraged.
- v. The long term plan might be a pursuit that specialized campus of learning may be created amid natural surrounding away from cities for higher education. It will mitigate the problems of community transfer of diseases such as Covid-19.
- vi. The ancient learning differentiated learners in terms of their interest and background. A similar mechanism may be adopted and learning may not be done at the same pace for all learners of same age groups. Self-pace learning may be encouraged.
- vii. The recent curriculum revival in India had put a uniform curriculum all across the country. This is in contrast to ancient time learning where the learner-centric approach was adopted rather than the institutional one. In today's situation, ancient practices of making learner-centric pedagogy are required.
- viii. To give better attention to learners the teacher to student ratio should be reduced as was the practice in ancient times.
- ix. The ancient gurukul had a tradition of not asking fees for education rather rich people voluntarily donated the things as gurudakshina. A similar mechanism needs to be created where the financial burden gets alleviated from poor parents.
- x. The use of high-end technologies, such as artificial intelligence & augmented reality, may be done to meet the real-time learning through virtual learning. In the sciences, it

may be more helpful as modeling and simulations of real-time experiments may be done through this route.

## **5.0 CONCLUSION**

The present study makes a series of suggestions after a literature review of ancient practices of education in India. It is further suggested, to use a proper amalgamation of recent technologies and ancient practices to combat the present crisis situation in the education sector.

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## CHAPTER 11

### EDUCATIONAL DISRUPTIONS CAUSED BY COVID-19

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#### ABSTRACT

This COVID-19 pandemic has affected all the spheres of life, including Education. This pandemic has resulted in almost total closure of schools, colleges, and universities. This is the point where the thought of studying educational disruptions came to our minds. The Indian schools are now trying to open schools on the internet. Most of the institutes are running classes online without any preparations, which is why the usefulness of online classes is debatable. Imagine for the country where Mid-day-meal is considered an incentive to children for attending school and how one can imagine that children could attend online classes using smart-devices. It is highlighted in the article that two-third of children are now at risk of decreasing achievement levels, and this period of closer and online education culture can increase the dropout rate soon. The problems in online classes are technical issues and pedagogical/instructional issues. The principals of e-pedagogy are completely ignored. Teachers have no understanding of e-pedagogy. In other words, it is just a show-off to deliver content online. It should be noted that 'just transpositions of real class to digital is not cool.'

There is a vast uncertainty of examinations among college students. The secondary and senior secondary students have already been promoted to higher grades, but the college students are suffering a lot. Some argue in favour of conducting exams while others do not. This is a very tough situation for all, so why should these students suffer alone? The complete system is to be blamed. There is no concern for the psychological and emotional well being of students. This COVID-19 pandemic is creating a large impression on our complete education system. Some suggestions have also been incorporated in the article for improving the current situation.

*Keywords: Education, Re-open school, School, COVID-19, Pandemic*

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#### 1.0 INTRODUCTION

The coronavirus pandemic is perhaps the greatest challenge faced by humans since the world was started. This virus is not looking for boundaries of the nations and states, and it has already infected 13,280,066 people and 576K deaths. The coronavirus outbreak was started in China and then spread to other parts of the world. This prompted the researchers to study the effects of this disease without further delay. World Health Organization declared it a pandemic on March 11, 2020, increasing fear and anxiety among all the general public. Till now, no vaccine or anti-dot to kill the virus has been prepared.

All the countries of the world are racing for slowing down the curve of infected patients. It includes testing and treating patients, contact tracing, restricting people's travel, and quarantining peoples. Since it is a communicable disease with no known drug treatment

available, the best way seems to work is to close down everything and practice social distancing.

The COVID-19 pandemic has affected all the spheres of life, including Education. This pandemic has resulted in almost total closure of schools, colleges, and universities. All governments have temporarily closed all the schools and other educational institutes to contain the spread of novel coronavirus, so has Indian govt.

## **2.0 CLOSED SCHOOLS BUILDINGS**

Sometime in March second/third week, all the state government and autonomous bodies had started closing down the schools, this was the temporary measure to contain the spread of the virus. In July, the lockdown and the closure of schools are still on, and we can say that this pandemic has significantly disrupted the school and higher education. This is affecting around 28.5, corers young learners in our country.

This situation gains importance in the sense that we have no plans for re-opening schools until now. In order to cover the gap in learning, now our teachers are trying to teach online. The schools are all around the country, leveraging existing platforms such as Google classroom, Zoom meetings, WhatsApp Messenger, and many more. However, for the country where Mid-day-meal is considered as an incentive for children to attend school, how can we imagine that children could attend online classes using smart-devices.

The school buildings are closed, but some schools are trying to take classes online with the available resources. The usefulness of these classes is debatable. How long would it last? It is the biggest question this time, and the answer is quite simple; that is, it is too soon to tell how long the pandemic will continue. It depends on many things, including researchers' work to learn more about the virus, their search for a treatment and a vaccine, and the public's efforts to slow the spread. However, this is a very obvious truth that this time is very devastating for the entire educational system. More than two-thirds of children are now at risk of decreasing achievement.

This period and online education culture can increase the drop out rate. Most governments are trying to put this lockdown to an end because we cannot close everything forever. How will the schools be opened is the biggest question these days.

## **3.0 POOR QUALITY OF ONLINE SUPPORT**

The thought of online education is much easier and satisfying than actually conducting classes. Teachers are not efficient in using technology. Simply replicating the traditional model of teaching through video conferencing is dangerous. The problem is not only the technical issues involved but also about the pedagogical and instructional issues.

The principals of e-pedagogy are completely ignored. Teachers have no understanding of e-pedagogy.

Further, Online classrooms are inaccessible to most of the children of the country. These classes are doing more harm than benefit; they make the gap between privileged and unprivileged wider. All the schools around Delhi are pretending to take classes online. All the universities and colleges are also pretending to deliver the content online. It would be funny to imagine that all our students are learning online with the known fact that the majority of the students belong to the lower middle class and poor class families.

It should be noted that 'just transpositions of real class to digital is not cool.' This pandemic will have a huge effect on all of us; we need to reshape the teaching-learning strategies and school management to cope with the demanding situation.

#### **4.0 EFFECT ON DIFFERENT DOMAINS**

No social activity will be done in schools for about 6-8 months. It means no morning prayer, no group sports, no football match, no science club activity, etc. With the absence of these things, schools are likely to function in the post lockdown period. All the co-curricular activities, which are very important for children's emotional development, must have to be banned in the schools. This will affect the conative and psychomotor domain of children, and then students will experience academics.

#### **5.0 RE-OPEN SCHOOLS?**

Parents are in fear and shall continue to remain in fear until a vaccine is developed. Schools need to be more competent if they wish to retain parents' trust when it comes to being a safe campus. The idea of having a post-lock-down plan was also discussed by the HRD Minister Ramesh Pokhriyal Nishank during his interaction with education ministers of various states. During the interaction, Nishank asked states to keep a post-lockdown plan ready for schools, keeping in mind all forms of social distancing. There should be 6 feet distance (2 gaz ki duri) between two children's sitting arrangement.

Do not forget that "many students use a single washroom in schools in schools." Controlling children during lunch breaks, classroom sittings, lab work, etc. will be very difficult. Maintaining social distancing in the primary wing of the school will certainly be a hectic task. Small children sit close to each other and mingle more than older children. Primary kids are more eager to play with others than their older counterparts. So, before the re-opening of schools, we have to ensure the protocols for sanitizing the school campus, regular screening of students and staff, and banning the outsider visitors in schools.

"MHRD has tasked NCERT with formulating guidelines for schools, which are being worked on. This will include directions for various stakeholders, including school management, teachers, parents, and students." - Hrushikesh Senapathy, NCERT Director

## **6.0 UNCERTAINTY OF EXAMS**

"I wake up scrambling for newspapers these days to look for any news about my pending board exams and I am anxious about what the future has in store for me". These were the words of a 17 years old child. She further added, "Every day, I have been looking for news about the exams and entrance exam dates. I feel unfortunate that this happened during the year I was supposed to take the big college leap. I do not want my future decisions to be shaped by this very year as what I opt to study now will remain lifelong". This is the reaction and concern of our children during these days. Almost the universities and colleges are not revealing their strategies for upcoming exams/assessment procedures. The students are in tension. The COVID-19 lockdown came with a different set of concerns for class 12 students (especially), whose board exams were postponed midway following the outbreak of coronavirus, putting on hold their plans. "It has become an endless wait, and now I do not feel like studying too. Right from childhood, we are taught that board exams are too crucial and have to be focussed at least two years in advance. However, now, it is a different picture altogether" these were the exact lines of my student.

However, this issue was resolved by adopting a procedure for assessment for remaining exams (no more board exams), but this was only done for class 10 and 12. What about college students? It is a tragedy of our times that during a historic global crisis, the Centre is taking unilateral decisions on student matters without concern for their mental and emotional well-being. As they step into an uncertain future, we think that center needs to stand with youth, not against them.

This is a very tough situation for all of us, so why should these students suffer alone? The complete system is to be blamed. There is no concern for the psychological and emotional well being of students. This COVID-19 pandemic is creating a large impression on our complete education system.

## **7.0 CONCLUSION**

The coronavirus outbreak was started in China and then spread to other parts of the world. This prompted the researchers to study the effects of this disease without further delay. World Health Organization declared it a pandemic on March 11, 2020, thereby increasing fear and anxiety among all the general public. Till now, no vaccine or anti-dot to kill the virus has been prepared. This pandemic has resulted in almost total closure of schools, colleges,

and universities. All governments have temporarily closed all the schools and other educational institutes in order to contain the spread of novel coronavirus, so has Indian govt.

The school buildings are closed, but some schools are trying to take classes online with the available resources. The usefulness of these classes is debatable. Just imagine the country where Mid-day-meal is considered as an incentive for children for attending school, how we can imagine that children could attend online classes using smart-devices. Further, the thought of online education is much easier and satisfying than actually conducting classes. Teachers are not efficient in using technology, and teachers have no understanding of e-pedagogy. It should be noted that 'just transpositions of real class to digital is not cool.'

On the reopening of schools, there will be no morning prayer, no group sports, no football match, no science club activity, etc. With the absence of these things, we will see some negative impact on children. This suspension will affect the conative and psychomotor domain of children, and then students will experience an effect of academics too. Our education Minister is working on the idea of re-opening school. Some problems that will be faced during this re-opening have been discussed in this article. Finally, we have raised the issue of uncertainty of exams. Almost the universities and colleges are not revealing their strategies for upcoming exams/assessment procedures. The students are in tension. There are some pros and cons of conducting exams, and these have also been discussed in the article.

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## CHAPTER 12

### COVID-19: SUDDEN SHIFT OF EDUCATION TO E-MODE AND THE PROBLEMS FACED BY THE TEACHERS AND STUDENTS AT SECONDARY LEVEL

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#### ABSTRACT

Change is the intrinsic part of human life. It is the nature of human being to go with the flow of changes but some time various difficulties are faces to attain the certain goals. The education system is also changing day by day from the ancient period of time. Presently due to the impact of COVID-19 the whole process of education is shifted from the traditional face to face method or blended method to E-Mode of teaching learning. The present study is based on the problems faced by the teachers and learners at secondary level to cope up with the flow of present e-mode of education system in Assam. The study reveals that the secondary education is the crucial part of every students life, because in this period the students are to prepared for the higher level of education and this is the period of the change of all human development, in the present time due to the shift of education system in India it creates a class barrier among the peoples that who are from the rich economic background they got more benefits in their education and other who were belongs to the lower economic background were getting less opportunities in their education and because of this reasons the both teachers and learners get affected.

*Key words- COVID-19, teacher, student, teaching, learning, Secondary level, E-Mode*

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#### 1.0 INTRODUCTION

Within a very few months the total situation of the world has transformed due to this COVID19. As we know that due this pandemic situation of COVID-19, thousands of people have already died. For millions of others who have not caught the disease, their entire way of life has changed by it unexpectedly. The COVID-19 has resulted in shut down of all the schools, colleges and universities not only in India but the whole world. Our education system is going on a very difficult way due to this pandemic of COVID-19. And due to this both the teachers and students have suffered. Therefore the governments of India give importance on online education and Assam is no exception in this regard. When we speak about online education, it means that the total teaching learning process is depends on internet. In online learning teacher is the key source, because they convey the teaching learning materials to the learner. So, the responsibilities of the teacher towards his/her students are more and more.

When we talk about secondary education, it includes the students of adolescence period. The researchers have specifically chosen the secondary level, because this is the crucial period of life. As in this period they enter into the adolescence stage and they needs

proper guidance regarding their education and all so that they should not deviate from their path. Here teacher is the key person who facilitates teaching in this present situation.

Online learning faces many challenges ranging from learners' issues, educators' issues, and content issues. It is a challenge for institutions to engage students and make them participate in the teaching–learning process. It is a challenge for teachers to move from offline mode to online mode, changing their teaching methodologies, and managing their time. It is challenging to develop content which not only covers the curriculum but also engage the students (Kebritchi et al., 2017). Teachers are doing online classes with the help of following online platforms- Whatsapp groups, Face book, YouTube, Mail, Zoom meeting, Video conferencing.

## **2.0 SIGNIFICANCE OF THE STUDY**

The development of a country depends upon the education system of it. Therefore the governments of India give due importance on online education. The study will be very much helpful for the teachers, students and over all educational system, as the topic is totally new. And through this type of study the government will able to know the problems faced by the teachers while delivering the content as well the problems faced by the students while receiving the contents through the online mode as most of the students are from the remote areas. So, after knowing the problems of e- mode teaching –learning process the Government can take the necessary steps to remove the problem of the teachers and students. Therefore, the focus of the present study is to know the impact of sudden complete shift of teaching-learning process to e-mode due to the pandemic of COVID19 on students and teachers.

## **2.1 OBJECTIVES OF THE STUDY**

- i.** To study the problem faced by the teachers while delivering the content.
- ii.** To study the problem faced by the students while receiving the content.

## **3.0 METHODOLOGY OF THE STUDY**

We have adopted survey method and interaction (telephonic conversation) in order to collect the necessary information needed for the study. The present study employed a descriptive method. We have taken into consideration the qualitative aspects of the research study. This study is based on the primary as well as secondary data. Secondary sources of data used are (a) journals, (b) reports, (c) search engines, (d) company websites and scholarly articles, (e) research papers, and other academic publications.



#### 4.0 OBJECTIVE WISE ANALYSIS OF THE DATA

##### 4.1 To study the problem faced by the teachers while delivering the content:

- i. **Lack of infrastructure:** Lack of TLM, Arrangement of proper teaching environment is another problem of e- mode teaching – learning process. Actual teaching – learning process needs proper classroom environment. The success of teaching- learning process to a great extend depends upon the proper setting or environment of the classroom.
- ii. **Connectivity problem:** When there is a problem with your internet system, online learning is impossible. There is nothing you can do. Slow connections are even worse. In some rural areas of Assam, the most common problem is that the connectivity problem. Here the internet connection is very poor in comparison to the urban area. The teachers face the connectivity problem while connecting with students as well as parents through internet.
- iii. **Unavailability of proper electricity facilities:** Due to bad weather conditions the electricity problem is faced by everyone like the other years. Therefore because of frequent power cut of electricity the internet connection is getting slow as well as in the villages the parents couldn't able to charge their mobiles. In this regard the teachers are facing lots of problem while try to contact with students.
- iv. **Lack of interest among the students regarding study:** It is the very common problem that face by the every teacher. According to some teachers the students were not giving much interest in their studies. If the teacher give something to do at home, the student never do, only a few students giving the good performance. In one case of above when the teacher went to meet the students at home, some students were truant from home; they have the fear of giving more tasks by the teachers. These kinds of problems are faced by the teacher in the rural area.
- v. **Lack of knowledge about using e-mode:** Some teachers have facing the problem of using e-mode of education. In some places some teachers are technically not much aware; they are facing lots of problem when the system was first introduced. But latter with the help of colleagues, they are trying doing their best.
- vi. **Lack of awareness from the Parent's side:** For effective teaching learning, somehow parent's awareness is very important part of the education system. In Assam especially in rural area most of the parents are not aware for their children's study. In the stage of secondary level the students were not much mature to handle a smart

phone, but while the teachers give something to them they get chance to using the mobile phones and doing unnecessary work there.

- vii. **The age of the teacher is also a factor:** From the study it was also found that the old generation teachers are finding it difficult to adjust in the new situation suddenly. But they are trying to become professionally competent teacher by taking the help from their colleagues.

#### 4.2 To study the problem faced by the students while receiving the content

- i. **Non- availability of internet:** In the rural area it's a big problem. When there is a problem with the internet system, one cannot think of online learning, simply it is impossible. There is nothing you can do. Slow connections are even worse. In the urban areas also without reliable internet access students find it difficult to participate in digital learning.
- ii. **Lack of electricity facilities:** There are some students who are from remote areas. For those students who are from remote areas they find it very difficult to do online class because of electricity problems.
- iii. **Lack of android phones, laptop:** All individual is not financially strong enough to buy laptop and android mobile phone. The phones which they have are having very poor quality because of which they are unable to do the online classes. This problem is seen not only in Assam but across the countries. For example- while 95% of students in Western countries have a computer to use their schoolwork, only 34% in India and other Asian countries do, **according to OECD** data survey. In the recent times we all must have heard of growing number of suicide cases because of the inability to have the resources required to shift to a digital platform.
- iv. **Lack of knowledge of the students towards technology-** Many students is technologically slow and not aware of many technologies. Lack of technical knowledge is becoming a barrier in making a digital educational content a successful one.
- v. **Lack of willingness of the learner to learn:** From the interaction with the students I came to know that most of the students are not interested in online classes. Sometimes student finds online teaching to be boring and unengaging. Because in the actual classroom students used to have lots of fun with their peers and teachers and all of these are missing in online mode.

- vi. **Misunderstanding of the concepts:** Sometimes due to poor connection of the internet teacher want to convey the meaning in one way but students receive it in another ways. So, it leads to the misunderstanding of the concept.
- vii. **Lack of psychological principles:** Teaching learning process is based upon the psychological principles. But what happened in online mode of learning it is totally ignored. In order to get success in teaching learning process this is very much essential.
- viii. **Individual differences are totally ignored:** As we know that no two individual are alike. All students and learners are not the same; they vary in degrees of their needs, interests, abilities, attitudes, capabilities and confidence level. Some do not feel comfortable while learning online, leading to increased frustration and confusion. And learning style of the learners are also vary from one to another but in e-mode individual differences are totally ignored.
- ix. **Responses from the students are low:** In online mode the responses of the learners are very low as there is absence of face to face learning. Students want two-way interaction which sometimes gets difficult to implement. They learn the thing better by interacting with each others.

Another reason of low response of the learner is that they are more interested to do practical thing rather than theory. Sometimes, online content is all theoretical and does not let students practice and learn effectively.

In a study, students were found to be not sufficiently prepared for balancing their work, family, and social lives with their study lives in an online learning environment. Students were also found to be poorly prepared for several e-learning competencies and academic-type competencies. Also, there is a low-level preparedness among the students concerning the usage of Learning Management Systems (Parkes et al., 2014).

## 5.0 SUGGESTIONS

Following suggestions can be given to the teacher, students and to the respective government-

- i. Teachers must be self motivated towards their profession. And they should take the initiatives of the government seriously.
- ii. The researchers should under the study related to COVID-19 as it a current problem.
- iii. Teachers and students should develop desirable and favorable attitudes towards the online teaching.

- iv. These types of studies will be very much beneficial for the teachers, students and over all educational system, as the topic is totally new.
- v. Large area can be taken for this study.
- vi. As the study is limited only to the some of the teachers and students. So, number sample can be included for the same study.
- vii. By studying this types of thing teachers are able to know the various problems faced by them while doing online classes.
- viii. Materials to the students according to the needs of the learner by taking into consider the different learning style of the learners.
- ix. Teacher should proceed according to the psychological principles of the learner.

## 6.0 CONCLUSION

The pandemic Covid-19 has thrown up unprecedented and serious issues for all of us. In the education scenario, it has led to school closure and disruption on the teaching-learning process. The whole process of teaching and learning has been shifted to the e learning mode from the traditional method. While this has opened up possibilities for distance learning, it has also reveals some challenges that stem from economic, social, digital and educational inequalities. These challenges will surely widen the educational/learning gap. In the beginning all are confused as how to tackle such situation, although online or e-learning is not a very novel concept in India but it is not used or applied by many of us. However teacher's community have done tremendously good job regarding online teaching.

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## CHAPTER 13

### IMPACT ON CORONA CRISIS ON ONLINE LEARNING

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#### **ABSTRACT**

Schools, universities and other educational institutions in India are currently based solely on traditional teaching methods, i.e. they set up traditional lectures face to face in the classroom. Although many educational elements have introduced mixed learning, many of them are still stuck in the old process. The unexpected outbreak of a deadly disease Covid-19 shook the whole humanity. The WHO declared it as a pandemic. This circumstance has dared the education system around the world and strained teachers to move to online learning suddenly. Many educational institutions that previously did not want to change the traditional educational approach had no choice but to completely change online education. Schools and colleges across the country are facing many challenges and problems while converting to online education. The article explores the challenges, importance, advantages and disadvantages associated with online learning. This article also includes the impact of corona pandemic on e-learning and Strengths, Weaknesses, Opportunities, & Threats of online learning modes in the time of crisis.

*Keywords: Covid-19, education, online learning*

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#### **1.0 INTRODUCTION**

The Corona pandemic has made a global impact and continues to hit most of the sectors, with education being one of the most affected ones. Students across the world are losing valuable time in their education during the imposed lockdown meanwhile fears of pandemic. Starting of schools, universities and other educational institutions in such a situation is like inviting the spread of communicable diseases. So this situation has forced the closure of schools, universities and other educational institutions and the students to stay at home. Educational units are struggling to find alternatives to face this challenging situation. This situation makes us realize that situational planning is an urgent need of educational institutions (Rieley J.B., 2020).

This is a situation that demands humanity and unity. We desperately need to protect and preserve our students, professors, academic staff, communities, institutions and the nation as a whole. Many arguments relate to online learning. It is said that the method of online learning is readily available and can reach even rural and remote areas. This is considered to be a relatively inexpensive method of education in terms of low cost of

transportation, accommodation and the total cost of institution-based education. Another interesting aspect of online learning is flexibility; a learner can schedule or spend time completing a course available online. Combining face-to-face teaching with technology gives birth to mixed learning and flipped classrooms; this type of learning environment can enhance the learning ability of students. Students can learn anytime and anywhere, thereby developing new skills in the process that lead to lifelong learning. The government also recognizes the increasing importance of online learning in this dynamic world. As a result, many of the traditional schools and colleges have been completely transformed into online education and are now focused on building a rigid cloud-based infrastructure that can be used even after a crisis.

## **2.0 ONLINE LEARNING IN EDUCATIONAL SERVICES**

An online learning, open learning, web-based learning, computer-mediated learning, blended learning, e-learning, have in common the ability to use a computer connected to a network. Basically, an online course implies a distance between you and your teachers. Lectures, assignments, tests are all enabled by virtual platform that offers the possibility to learn from anywhere, anytime, in any rhythm, with any means (Cojocariu et al., 2014). Online teaching can be said to be a tool that can make the teaching process more student-centered, more innovative and more flexible. Online learning is defined as learning experience in a synchronous or asynchronous environment using different devices (e.g. mobile phones, laptops, etc.) with Internet access. In this environment, students can be anywhere (independent) to learn and interact with teachers and other students (Singh & Thurman, 2019). The synchronous learning environment is structured in the sense that students attend live lectures, there are real-time interactions between educators and learners, and there is a possibility of instant feedback, whereas asynchronous learning environments are not properly structured. In such a learning environment, learning content is not available in the form of live lectures or classes; it is available at different learning systems and forums. Instant feedback and immediate response are not possible under such an environment (Littlefield J., 2018).

## **3.0 CHALLENGES IN ONLINE LEARNING**

Comparing face-to-face learning with online learning brings forth significant deficiencies in the online mode such as lack of human connect, absence of opportunities of collaborative learning, teacher supervision and the most glaring being lack of opportunities for hands-on learning in complex subjects such as science and mathematics. Besides, amid the rush of hosting online classes the best teaching practices such as addressing learners

Multiples Intelligences, VARK Learning Styles and providing a differentiated learning experience have been relegated to the backburner (Chari R., 2020).

#### **4.0 IMPORTANCE OF ONLINE LEARNING**

Incorporating school, homework, coaching or teaching classes, co-curricular and more study with a lot of entertainment is a major factor in determining a student's life cycle. But this routine has completely been disrupted - the boundaries between study time, play time and me-time having merged these days, owing to the governmental regulations.

It is very important to establish a routine for children, especially to stay at home all day, which they are not used to. The routine will keep the child engaged and the routine will have to be followed by the parents. Online courses help to do that. Now many students can not only go to online classes conducted by the school branch, but they can also stay regular if they choose to participate in some online courses from various e-learning websites.

The online environment offers unprecedented opportunities for people who would otherwise have limited access to education, as well as a new paradigm for teachers in which high quality dynamic courses can be developed. (Kannankara A., 2020)

#### **5.0 ADVANTAGES OF ONLINE LEARNING**

- i.** You are able to link the various resources in several varying formats.
- ii.** It is a very efficient way of delivering courses online.
- iii.** Due to its convenience and flexibility, the resources are available from anywhere and at any time.
- iv.** Everyone, who are part time students or are working full time, can take advantage of web-based learning.
- v.** Web-based learning promotes active and independent learning.
- vi.** As you have access to the net 24x7, you can train yourself anytime and from anywhere also.
- vii.** It is a very convenient and flexible option; above all, you don't have to depend on anyone for anything.
- viii.** Not only can you train yourself on a day to day basis, but also on weekends or whenever you have the free time to. There is no hard and fast rule.
- ix.** Through discussion boards and chats, you are able to interact with everyone online and also clear your doubts if any.
- x.** The video instructions that are provided for audio and video learning can be rewound and seen and heard again and again if you do not happen to understand the topic first time around. (Isabelle C., 2017)



## **6.0 DISADVANTAGES OF ONLINE LEARNING**

There are not many disadvantages of eLearning, the main one being that you get knowledge only on a theoretical basis and when it comes to putting to use whatever you have learnt, it may be a little different. The face-to-face learning experience is missing, which may matter to some of you (Isabelle C., 2017).

- i.** Most of the online assessments are limited to questions that are only objective in nature.
- ii.** There is also the problem of the extent of security of online learning programs.
- iii.** The authenticity of a particular student's work is also a problem as online just about anyone can do a project rather than the actual student itself.
- iv.** The assessments that are computer marked generally have a tendency of being only knowledge-based and not necessarily practicality-based.

## **7.0 SWOT ANALYSIS OF ONLINE LEARNING: DURING CORONA PANDEMIC**

In the last few years, e-learning has started gaining popularity in India. Many platforms provide affordable courses to students via Massive Open Online Courses. Still a lot of institutions in India were reluctant toward online teaching and learning. However, the challenges posed by the Coronavirus pandemic introduced everyone to a new world of online learning and remote teaching. Instructors indulged them in remote teaching via few flat forms such as Google Hangouts, Skype, Adobe Connect, Microsoft teams, and few more, though ZOOM emerged as a clear winner. Also, to conduct smooth teaching–learning programs, a list of online etiquettes was shared with students and proper instructions for attending classes were given to them (Dhawan S., 2020).

### **7.1 Strengths**

Online learning methods and processes are really strong. These strengths of the online learning modes can rescue us from these hard times. It is student centred and offers a great deal of flexibility in terms of place and time. The online learning methods enable us to customize our procedures and processes based on the needs of the learners. There are plenty of online tools available which is important for an effective and efficient learning environment. Educators can use a combo of audio, videos, and text to reach out to their students in this time of crisis to maintain a human touch to their lectures. This can help in creating a collaborative and interactive learning environment where students can give their immediate feedback, ask queries, and learn interestingly. The Anywhere-Anytime feature of e-learning is beneficial in the times of crisis-like situation, for instance, man-made disasters,

natural disasters, or pandemics such as Covid-19. Technology provides innovative and resilient solutions at times of crisis to combat disruption and helps people to communicate and even work virtually without the need of face-to-face interaction. This leads to many system changes in organizations as they adopt new technology for interacting and working (Mark G. & Semaan B., 2008).

Online learning helps to reduce the fretfulness among students due to fear of lagging behind. It also motivates through various assessments and tasks, instant feedback, which encourage the focus, performance, self confidence, habit of life-long learning and reduce stress. (Naresh B. & Rajalakshmi M., 2017)

## **7.2 Weaknesses**

Online learning has certain weaknesses in the form that it can hamper the communication between the learner and the teacher, that is, direct communication and human touch are lost. Users can face many technical difficulties that hinder and slow-down the teaching–learning process (Favale et al., 2020). Time and location flexibility, though it is the strength of online learning these aspects are fragile and create problems. Student’s nonserious behavior in terms of time and flexibility can cause a lot of problems. Some do not feel comfortable while learning online, leading to increased frustration and confusion. Inadequate compatibility between the design of the technology and component of psychology required by the learning process; and inadequate customization of learning processes can obstruct the teaching process and creates an imbalance.

Online learning is incompatible for practical courses in Higher education. E-learning provides information and training related to practical session but the learner cannot test their performance or real-time experience rather than master in envisaging. There is no use of knowing things and transferring it in unsystematic manner.

## **7.3 Opportunities**

Online learning generally has a lot of opportunities available but this time of crisis will allow online learning to boom as most academic institutions have switched to this model. Online Learning, Remote Working, and e-collaborations exploded during the outbreak of Coronavirus crisis (Favale et al., 2020). Now, academic institutions can grab this opportunity by making their teachers teach and students learn via online methodology. Student provided with internet facility has access to lot of training materials, journals, digital library, virtual training and conferences, etc. which in turn provide more relevant and updated information and equip the student as knowledgeable and efficient in the stream he chosen in the higher education. Online education not only save time but also provide opportunity for work-life

balance. It provides opportunity to pursue higher studies in spite of commitment which includes family, employment, etc. Increased opportunity in service provider of digital learning, preparation of training materials, online tutors, etc due to increase demand for e-learning. It also includes increased market share and technological development, economic development training (Clark & Mayer, 2011).

Online learning trainings can be delivered through various platforms like windows, MAC, UNIX, etc. All kind of Platform users can access higher education through E-learning so the deployment of e-learning in higher education has increased in recent time.

#### **7.4 Threats**

Exaggerating the positive role of technology creates a negative impact: the risk of being ignored by the student (Clark & Mayer, 2011), the possibility of producing an entire generation of noncritical thinkers, access to services limited technical issues; lack of adequate e-facilities (lack of internet connection, telephone transmission rate and very low bandwidth, poor ICT infrastructure) (Sharif, 2014); some difficulties of online administering.

Next to availability here comes the knowledge about the usage of computers and related technology. Due to lack of knowledge and awareness about the courses and services offered through e-learning, this method is not yet spread across the locations.

The freedom provided in e-learning affects the performance and attendance of the students. It can also affect the responsibility, discipline due to lack of face to face monitoring which in turn might leads to high dropout rates of the students.

Expenditures on e-learning educational services are not as small as they seem. There are broad categories of expenditures, such as expenditures on new technology includes covering the degree of novelty incorporated into services, transmission of information in the network, maintenance of equipment, production of materials (Venera-Mihaela Cojocariu et al. 2014).

#### **8.0 CONCLUSION**

The propensity to learn new information or skill at whatever and any place you wish offers far more prominent open doors for training than at any other time. The extension and reach of online training widens to far more noteworthy skylines than maybe ever envisioned. Assessing both the upsides and downsides of e-learning will encourage being more ready to confront the test of working in this new condition just as grasp the new open doors that it brings to the bench.

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## CHAPTER 14

### COVID-19 AND ONLINE ASSESSMENT TOOLS FOR TEACHERS

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#### 1.0 INTRODUCTION

The Corona Virus pandemic has changed the world rapidly. The world during COVID-19 has changed our lifestyle and it affects various aspects such as education, economics, transportation, industrial, etc. and it mostly affects the education system of the world. The pandemic suddenly shifted the system of education in a single night from the traditional method to the online method of Education. The whole world of education now depends on the online platform. As the pandemic has forced to close down all educational institutions, the government of India closed its all academic institutions from 16<sup>th</sup> march, 2020 and there is no certainty about when it will be reopened. Schools, teachers, families, and learners have taken on e-learning at large, where teaching is undertaken remotely and on digital platforms.

Although the pandemic brings a digital drive in the world, the parents become more anxious for their child's future and they only depend on the teachers to build their child in this situation. And for most of the teachers, it is the most challenging task. Education is largely moved online. The World Economic Forum reports a surge in the use of language apps, virtual tutoring, video conferencing tools, and online learning software in the last three months. India, too, is witnessing an e-learning boom (Sudevan, 2020).

It may be concerned as a positive side that technology has emerged as a safeguard of everyone's life especially for the students who can now access all kinds of facilities from their intuitions through online mode. And it is the hope for the developing country like India that technological enhancement can improve the quality of education

In the present era, the teachers are using various online platforms and ICT tools for teaching at various levels of Education. The government has opened various online platforms and short courses for the students as well as they conducted some faculty development programs for the concern of teacher's E-teaching development. For example, the central government of India using edtech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic. There are some other platforms including the Swayam Prabha portal, Diksha portal, E-Pathshala, E-Gyankosch, NISTHA, etc.

In pandemic of COVID-19 the teachers are using various types of online tools including Google Classroom, Google Meet, Zoom, Microsoft Team, Easy Class; Go to Meeting, Remind, Slack, etc. to provide online teaching to the students. The government also suggests taking online

examination by using various online tools; In this regard, the teachers are also responsible to take the online assessment. When we talk about assessment it includes both formative and summative assessments of the students, and it is the most important part of the education system. In this pandemic situation only with the help of online assessment tools teachers can find out the strength and weaknesses of the learner and after finding the weakness of the students, teachers can guide the students virtually to overcome that weakness. To represent this pandemic situation various types of technological tools are invented and teachers can use it while assessing the students.

This chapter deals with the importance of online Assessment for teachers and the uses of various types of online assessment tools in the process of student assessment.

## **2.0 IMPORTANCE OF ONLINE ASSESSMENT TOOLS FOR TEACHERS**

The outbreak of COVID-19 placed the education system in the doorstep. Teachers are doing their best to educate the students through using e-mode of teaching and assessment. The assessment and evaluation system is the key part of the education system and today the online tools of assessment take place in the traditional examination system where the students were present physically in the exam hall. Thus in these present days, the traditional instructions are incorporating ICT in the teaching and learning process.

As online assessment is important for teachers to evaluate the students quickly and easily, it allows improving the assessment process to a great extent. Using online tools is flexible enough and most of them are free to use as well as save the time of both teachers and students. Both summative and formative online assessment tools are useful for gather quick feedback and survey. Here there is no chance of biasness and all learners can be assessed equally.

Using online assessment tools allows minimizing the burden of both teachers and school administration. Here the test items can be presented systematically with the automatic direction of the software. The scores can provide adequate and in an equal manner. The distraction can be randomizing in case of multiple-choice questions. It is beneficial in the way that the teacher is relieved from the burden of evaluating and grading the test by automatically scored test and the test items can be tagged by the level of difficulty. Most importantly, the various online tools can perform item analyses on each test item which will help the teacher to identify the level of questions.

## **3.0 DIFFERENT ONLINE TOOLS FOR ASSESSMENT**

The online assessment is the process used to measure certain aspects of information for a set purpose where the assessment is delivered via a computer connected to a network. Most often the assessment is some type of educational test. With the emergence of the read-write web and the development of software as a service (SaaS), it is possible to design and conduct the online assessment with ease. There are many online service providers both free and paid for designing and developing online tests and quizzes. The various types of online assessment tools are discussed below:

### **3.1 Google Form**

In the present era, Google form is the most effective and essential assessment tool for assessing both formative and summative assessment. It is a free tool from Google that allows creating forms, surveys, quizzes, and others. There are total nine sorts of questions format including easy type, checklist type, multiple-choice questions, paragraph writing, short answer type, checkboxes type, chose from a box, data type, scale type, grid type, etc. the user can share the forms with others and allow others to complete the forms online. The teacher or the user get benefited through collect all responses in a spreadsheet and provide helpful summaries of the collected data with charts and graphs.

#### **3.1.1 Benefits of Google Forms in Assessment**

- Free online tool to collect information easily and quickly.
- Google form is helpful to view the responses submitted by the student as it was given.
- The teacher can make it more interesting by putting images and videos against each question.
- Auto analysis can be done through the use of Google form (mean score, chart, graph are easily analyze)
- A teacher can use it as a means of a survey tool
- Google Forms can also be used as an exit ticket or to check student attendance.
- It is helpful to collect web-based assignments.
- Helpful for collecting information as feedback from parents and students.
- The teacher can send the form by email, integrate it into the student's website, or send the link via social networks or any other means.

### **3.2 Flubaroo**

Flubaroo is a Google Spreadsheets Add-on that helps teachers or an educator to quickly grade and analyze online assignments and assessments, as well as it is easy to share scores with students. It is the most supportive free assessment tool for teachers in making lesson plans, conduct tests, take assessments, marked the students by giving scores, give feedback, reports, and many more. It can help to auto-grade quizzes in less than one minute for the whole class and can send e-mail to each student with detailed reports of their marks. Flubaroo helps teachers to grade multiple-choice or fill-in-the-blank assessments quickly. Data provided includes the average assignment score, the average score per question, flags low-scoring questions, and grade distribution.

There is a process for individualized feedback to be sent to students. More than just a grading tool Flubaroo -

- Computes average assignment score.
- Computes average score per question, and flags low-scoring questions.
- Shows a grade distribution graph.

- Gives the option to email each student their grade, and an answer key.
- Send individualized feedback to each student

### **3.2.1 Benefits of Flubaroo in Assessment**

- This assessment tool is free and easy to use by every teacher
- It is less time-consuming.
- It is very easy to grade answer key in just one click
- It helps to make analysis and reporting quickly
- It is helpful to get scores for each student and identify students in need of extra help.
- It is helpful in quickly identify questions which a majority of the students missed.
- It is helpful for share scores with students via email or Google Drive, along with optional notes to the class and/or to each student
- Assign your own score to open-ended questions.

### **3.3 Socrative**

Socrative is the type of online tool for assessment. This is the top-rated tool through which a teacher can choose from quick questions for instant feedback, class counts, full quizzes, and questions with real-time grading. This app is suitable for formative assessment. It instantly grades, aggregate, and provide visuals of results to help the teachers to identify opportunities for further instructions.

#### **3.3.1 Benefits of Socrative for Assessment**

- This helps the teacher to not only built his/her quizzes but also to import quizzes from the store.
- It is helpful for students to see the live progress of their results.
- There is no chance of biasness from the teacher because it does not allow students to see their names on the class screen.
- Here is a provision of share quizzes with other teachers.
- It is helpful to view students' results in real-time.
- Teachers can sign in through using their Google domain.

### **3.4 Testmoz**

Testmoz is an excellent web tool that allows teachers, trainers or educators to create auto-graded tests and quizzes. This application is designed by Matt Johnson, an undergraduate student at Washington State University, Vancouver. The strength of this application lies in its simplicity and user-friendliness. Testmoz supports 4 types of questions: True/false, multiple-choice, multiple responses, and fill in the blank. Each test you create has a unique URL that you can use to edit your test later on or to share it with others. Testmoz also provides detailed reports so teachers can analyze students' scores and responses.

#### **3.4.1 Benefits of Testmoz for Assessment**

- This is simple and easy to conduct as well as understood.



- Testmoz does not require any registration
- A teacher can protect the test by using a password
- The questions can be written in a form that the administrator student can easily sign in.
- Testmoz is a good way to create multiple-choice tests because here the teacher can easily calculate the points of every student in the meantime.

### **3.5 Kahoot**

Kahoot is a free web-based program that allows teachers to pose questions to children who then respond from a selection of answers electronically on their own devices. It records the answer each child gives to a question, as well as how quickly they respond, so teachers can use the data to assess their children. There are different types of Kahoots available; quizzes, surveys, jumbles, discussions, and challenges. A Kahoot quiz is a series of questions with between two to four multiple-choice answers to choose from. Teachers can create their own quizzes, duplicate and edit others created and shared by other teachers, or simply play Kahoots created by other users. Teachers set a game to play and a game pin is created and displayed on the screen

#### **3.5.1 Benefits of Kahoot for Assessment**

- Kahoot is flexible; it can be used in various subjects.
- It is free for teachers
- Here the player doesn't have to create an account
- It can work on any device
- It is helpful to get students to engage at the beginning of the class.
- Students' engagement is very high in Kahoot because it is visual, fast-paced, and different from the average day to day quizzes.

### **3.6 Mentimeter**

Mentimeter is the easy presentation software, it is a cloud-based solution that allows the administrator to engage and interact with the target audience in real-time. It is a polling tool wherein the teacher can set the questions and the students can give their input. Pro reviewers and teachers score Mentimeter sky-high among assessment tools used in the classroom. This is pre-loaded with education templates for every classroom like a listening skills assessment, icebreakers, formative assessments, post-lecture surveys, Create quizzes and tests, operate student expectations, engage and cooperate students, and even it can run teacher training workshop (T. Gerencer, 2020).

#### **3.6.1 Benefits of Mentimeter in Assessment**

- It is easy to use.
- It enables to turn students opinions into real-time actionable data
- It is the ultimate solution to interact with the audience to add dynamics to the presentation.
- The students would feel more involved in the presentation when it has given the chance to decide an outcome.

- It can boost efficiency and effectiveness through collaboration

Besides these, there are other kinds of online assessment tools that are available for teachers who can be used in this pandemic. Researcher Tom Gerencer, 2020 describes 20 more online tools in his study for both formative and summative assessment tools for teachers. He also states that the best online assessment tools for teachers to help them to build interaction on a personal level. The other online tools are including *AnswerGarden* (use in brainstorming and classroom feedback); *Backchannel Chat* (design for educational discussion); *Chatzy* (great alternative of facebook, lets students chime in with questions); *Quizlet* (fun studying, help every student learn to anything, teacher can instantly create more engage classroom); *Quizalize* (automatically differentiate learning based on student performance); *Remind* (communication for the school, home and everywhere, send quick message to students and parents); *eSurvey Creator* (create student surveys); *Coggle* (mind mapping tool for student); *Flipgrid* (experience the magic of students voice); *The Queue* (free educational chat); *Formative* (give live assignments); *Sparkpost* (use for visual and graphics); *SurveyPlanet* (quick survey); *Lino* (virtual blackboard like sticky-note-based); *Naiku* (quiz on mobile device); *Pear Deck* (for interactive presentation); *Typeform* (create polls with graphical elements); *VoiceThread* (discussion through documents, videos, and other materials); *Zoho Survey* (mobile ready student survey); *Plickers* (formative assessment data in real time).

#### **4.0 CONCLUSION**

From the above discussion, it can be concluded that the education system is now changing from traditional to online mode. Here the teachers are the key person to promote the best education system in this pandemic of COVID-19 and it is the most challenging task for the whole system. In a country like India although it is expecting that online education brings a developed era in education but there are still many students who are deprived of present online mode. On the other hand, the teachers were struggling to cope up with the new technologies and they are now able to take all responsibilities of students through online mode of education by using various online tools. As evaluation is more important preparing the future generation of educative people these kinds of online assessment tools can help each teacher to assess the students in this pandemic.

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## CHAPTER 15

### REVAMPING EDUCATION SYSTEM DURING COVID 19 DISEASE

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#### **ABSTRACT**

The Covid 19 disease made its presence known to the world in the month of December 2019 in China. The city of Wuhan in Hubei province became first hotspot in the world for the dreaded virus called corona. With the unwelcome advent of disease in India, our country's honourable Prime Minister had to announce pan nation lockdown on 24 March 20 so as to avoid further infection. Entire nation halted. School, colleges were closed down. Government decided that education to the children should not stop in any case, hence they envisaged many programmes like Epathshala, Diksha, Atal Innovation Mission, E Adhyayan. Teachers also prepared their own e contents and uploaded on various platforms. No stones were left unturned in order to provide digital education to the children. Students also found e learning interesting and accommodating. They could access the content and modules any time and any where. However, government has to take up multi pronged strategies to ensure that digital education goes smoothly not only now but in many years to come. Such as unhindered continuity of education through government platforms like Diksha, e pathshala etc. Bridging the digital divide. Providing necessary training to teachers. Giving funds to the government schools and institutions to create their own digital platforms.

*Keywords: digital, e learning, education, revamp*

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#### **1.0 INTRODUCTION**

The dreaded and intriguing disease of Covid 19 or better known as Coronavirus made its presence known to the world in month of December 2019 in China. Corona pandemic has brought many hardships and untold agonies to the entire world. Countries have been halted and their trade, economy, education, tourism , every sector has been ruptured. India is no exception to this disease. People have been getting infected and dying. Unfortunately, India stands third in the world after USA and Brazil with its more than ten lakh Coronavirus patients.

Before the topic is investigated upon, it is worthwhile to know that what is a Coronavirus pandemic or Covid 19 disease. "Pandemic is a disease outbreak that spreads across countries or continents. It affects more people and takes more lives than an epidemic. The World Health Organization (WHO) declared COVID-19 to be a pandemic when it became clear that the illness was severe and that it was spreading quickly over a wide area." Now let us delve into the Coronavirus genesis and its attributes. Coronavirus is described by World Health Organization as , " Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the

COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people, and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness. At this time, there are no specific vaccines or treatments for COVID-19. However, there are many ongoing clinical trials evaluating potential treatments.”

Our honourable Prime Minister announced complete lockdown in the whole country on 24 March 2020. Every sector was effected. Education sector especially took a big hit as school, colleges, universities were closed indefinitely. Government soon took initiatives to continue the education process without causing any loss to the students. With more than 285 million young learners, with 1.4 million schools and more than 40,000 higher education institutions in the country, a new substitute for class room teaching had to be created.

## **2.0 GOVERNMENT INITIATIVES -E CONTENTS FOR DIGITAL EDUCATION**

Government updated and created new e contents for digital education. Policymakers ensured that students of schools, colleges are not left behind in not only completing their course but also starting up new courses if the lockdown period is extended. Dikshais one of much appreciated efforts by the ministry of human resource development. Diksha has a collection of more than 85,000 e books, all downloadable and printable. These books were uploaded with the joint endeavor of NCERT and CBSE. Apart from these e books, there are 22,000 modules. Another initiative by the government is e-pathshala. It is created by CIERT and NCERT in pursuance of the goal of ‘ National Mission on Education through ICT’. It has more than 1880 audios, 2000 videos, 700 e books, 505 Flib books, varied images, maps, question banks. Like e pathshala, there is also similar digital platform for Post Graduate students called e adhyayan. This is a digital platform which provide more than 700 e books to post graduate students and covers diverse field of subjects. Besides e books there are also videos and audios. There are also SWAYAM (Study Webs of Active Young Aspirants Minds )and MOOC ( Massive Open Online Course)courses by UGC. Students can access these courses for self learning. One can also see splurge of users in National Digital Library during Covid 19 pandemic times.

Teachers from private schools as well as government schools have been enthusiastically creating their own e content and sending it to their students. You tube has now many channels which have been started by the teachers, schools and institutes. Through apps like zoom, google classroom, microsoft team student are getting online for the virtual classes. Proper time table and period schedule has been created for online classes for the students. Assignments are being given to the students.

Coronavirus pandemic has brought before students a rapid technological change. They ought to learn skills such as creative problem solving, informed decision making and adapting to the new environment. Most of the schools, colleges are trying to continue the education through digital platform but in the end it all depends on one factor of digital accessibility. Every student do not have digital accessibility in the form of unavailability of device like computers, smart phones or cannot access internet data. Socio economically backward students are thus left behind. Unless and until, such students are provided with devices and free or low cost internet data, the digital divide may widen further in coming times.

With unexpected Coronavirus pandemic at doorstep, it was difficult for the state and central government to swiftly transition to digital education from the current traditional method of classroom teaching. Because, the focus never had been on digital or distance education. Government was faced with inadequate digital infrastructure and low output data and also teachers who were not digitally tech savvy. Private schools were swift to transition to online classes, but government school, colleges found it difficult transition. Instead they have been using mix of technologies such as online classes, low tech television, radio programmes, SMS, e mails, recorded voice programmes. The priority of the government was to reach out to as many as students rather than high quality e content or world class technology.

Apart from programmes like e pathshala, e adhyayan, Diksha, government on May 20 announced Pradhan Mantri e Vidya Initiative for Digital Education which brings all such portals to a unified platform and enable multi mode access to the students. Many state governments have created programmes in regional languages and uploaded in Diksha platform. It is worth while mentioning here, the educational programme of Chhattisgarh government called 'Padhai Tuar Dwaar' (Education at your doorstep) which has been appreciated all over the country. Similarly, Rajasthan Government's initiative of SMILE is also worth mentioning. Other states too, have been doing commendable job.

It must be remembered that alone educational technology cannot suffice, training teachers and making them digitally savvy is the need of present times. A digitally savvy teacher can only create a digitally savvy student. Government though has tried to integrate teachers and helping them to create their own e content but still teachers should be given grassroot training. Digital education is not a temporary phenomenon but it will stay here even after the end of Coronavirus pandemic.

Education system also needs to take care mental health of the students. Teachers can also play an important role in student psychological counselling. There has been some

unfortunate incidents of suicide by the students due to depression and unable to access online classes. Students. Students “may face demotivation for studies, increased pressures to learn independently, abandonment of daily routines, and potentially higher rates of dropout as direct consequences of these measure” (Gubric, Badonivic, Johri 20).

Thus, it becomes imperative to revamp the old existing traditional model of education system in India. One must come to know that digital education is here to stay. Even after the end of Coronavirus pandemic, it is highly possible that traditional classroom teaching will not be a sole medium of teaching but a blended mix of traditional and technology will be the need of the future. Students, teachers, parents all should actively participate in e -learning process. Simultaneously, policy makers need to have multipronged approach to make our education system more resilient and accommodating in such time of crises. E-learning must be made an integral part of our education system not only now, but also in future.

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# CHAPTER 16

## ONLINE LEARNING THROUGH GAMIFICATION DURING COVID-19

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### **ABSTRACT**

Technologies in education play a vital role in online teaching and learning process during COVID-19 pandemic. The mode of education has changed noticeably. The government has been severely instructing the people to ‘stay home and stay safe’. Many online platforms are giving free entrée to learn. Online learning atmosphere has enlarged the learners’ active participation with more number of online courses and classes. In this situation, online learning through the gamification techniques comes out as a significant role among the students to participate actively with gamification application which are accessible in online platform. It comprises in the input of gaming principles and techniques in online learning process. This creates a powerful crash on the students in higher education.

*Keywords: COVID-19, online learning, gamification techniques*

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### **1.0 INTRODUCTION**

The word ‘Gamification’ has become synonymous with rewards. Giving rewards to the students after any learning activities will motivate them to engage pleasantly in learning. To compare with other teaching learning methods like lecture, Gamification is a novel method that will never turn off the students. Gamification is defined as the use of “game-based mechanics, aesthetics, and game thinking to engage people, motivate action, promote learning, and solve problems” (Kapp, 2013, p. 125). E-learning in schools and colleges is already partly gamified. Any learning course can use gamification tools to kindle a student to learn, to go into site of e-learning gamification platform more often and finally, and to complete training.

There are a variety of gamification approaches and techniques are on hand in online platform. During and after gamification activities, the students can get points, prizes, badges, leader boards, scoreboards, challenges, levels and feedback (Barata et al, 2013; Kim, Rothrock, & Freivalds, 2016; Yidirim, 2017). By encouraging and motivating students through a reward based learning method, their learning skills will be boosted.

### **2.0 THE IMPORTANCE OF GAMIFICATION IN EDUCATION**

Many teachers have been involved in encouraging their students and serving them to engage e-learning process. It is used as a substitute teaching method and goes away from conventional learning methods. Basically games in education are a method of building up



social skills, team work, motivation, life experience and discipline. The chief purpose of games is entertainment, but their general applicability gave games extra functions in different aspects of daily life such as teaching and knowledge sharing in all walks of life. As a result of gamification, students can eventually attain their learning goals and creating their learning more entertainment. Gamification is one among them. Gamification is a powerful approach which is not proposed for learner fun and enjoyment. It is also an effective teaching approach that can be used to improve on student learning.

### **2.1 The reasons why we need gamification in teaching learning environment:**

It is very much attractive for students and it motivates students' engagement and participants in learning process. It enhances academic achievement of students and allows students to verify their growth

- Provides an instant response on students' activity in education
- Develops cooperation skills among students
- Increase numbers in class
- To make student focusing on meaningful learning tasks

### **2.2 Gamification apps and tools in e-learning:**

- **Kahoot!** is one of the gamification platform which is popular number with the teacher- student learning methods. This app allows videos, music and images. It is very much used to conduct quizzes and to test the objective knowledge of the students. It can be accessed easily. It is available in online and Google Play Store App.
- **Duolingo**, a language learning gamification app is to interact with people in social media.
- **Khan Academy**, a well known educational app is for learning almost all subjects.
- **Wordwall** is for learning words
- **Read & Improve beta!** is for making the learners familiar with compositional skills.
- **Gimkit** is for testing quiz activities.

With these online games and apps, the online learning has created a force to the effectual classroom. The teacher has to have a command on verbal communication and hands on training in using these online games where a trial has to be made before using the apps. Here the appreciation is in the form of emojis or chats or polls. The immediate feedback seen on the screen as a winning a cup or congratulations! makes the student to be active and brings a definitive change.

### 3.0 CONCLUSION

The result of gamification gives optimistic outcomes to students' learning. It should be largely applied in teaching and learning process by teachers or lecturers. Future studies require framing syllabus on gamification from early childhood education, as it is effectively conducted for higher education students. We are also on the move to create, convey and adapt ourselves to the new learning strata. As a popular saying during this COVID -19 is that people have to live with it and learn to face it, similarly the students have to learn whatever be the situation and it is always fun to learn through gamification in online platform.

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# CHAPTER 17

## SUGGESTIVE STUDY FOR INDIAN UNIVERSITIES DURING COVID-19 PANDEMIC

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### ABSTRACT

The invincible attitude of human civilization recently beaten up by Covid-19 pandemic that put the world on stand-still lockdown. This time is to review the current status and decide the future roadmap to meet the normal conditions. But what normal we are looking at, that remains to be to answer. People are already in search of defining new normal in all fields of operation all over the world. The education field is among the worst affected areas during this pandemic as all institutions are shut and the future still looks uncertain as the number of positive Corona cases is on the increasing trend. There are some announcements from Govt. of India about the start of the education sector but no concrete decision as yet which suggests the lack of confidence among policymakers. The institutions of higher education need to explore future roadmap in consultation with all stakeholders. The future roadmap is so very important that it will act as a backbone for India's growth and decide its global position. This article is written with the objectives to present possible new normal for universities and institutions of higher education in nation-building for post Corona time. The suggestions are discussed as the future roadmap that may be taken to combat the present pandemic situation.

*Keywords: Indian Universities, COVID-19 Pandemic*

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### 1.0 REVIEW ON CURRENT STATUS

This is the testing time for the country and world, as we are under pandemic conditions arisen due to the spread of the Covid-19 virus. Since November 2019, virus-spread through passengers all across the globe visiting Wuhan, China. History states that every pandemic crises put a deep impact, especially in developing countries. Education is the worst affected area as teaching-learning requires a continuous process, which could not be halted. Ever continuous process of education is now, disturbed probably the first time after World War II. Since March 25, 2020, when the Indian government announced the nation vide lockdown, all universities and colleges are closed. This badly affected the teaching-learning, as universities-colleges-research all are under lockdown without prior ideas for so. March 2020 will be regarded as the darkest month for education in recent times, as we suddenly had to deal continuation of education under lockdown. University Grant Commission (UGC) published guidelines on examinations and academic calendars for the Universities given COVID-19 pandemic and subsequent lockdown on April 29, 2020. On May 17, 2020, Govt. of India announced the top 100 institutions of higher education will start online courses till

May 30, 2020. UGC then, gave the mandate to the top 100 NIRF ranked institutions to start online courses under the PM *e-Vidya* initiative. On June 1, 2020, the World Health Organization (WHO) advised opening only the essential list of services. Unfortunately, education seems to be put in the non-essential list even though education holds the future not only in terms of human resource development but the economic growth also. India's initial good position in the fight against this outbreak due to timely lockdown, have been put on the hammer as we proceeded to the worst situation now.

This may be due to untimed unlock procedures, labor migration, poor implementation of policies, lack of micro-level roadmap, state-center conflicts, lack of public awareness, poor knowledge on the subject, *etc.* It is now been predicted that the coming semester(s) will be full of uncertainties and instability. The initial comparison with west countries was enthusiastic, but recent data shows that our south Asian neighbors are doing better than us. The government admitted the fact that we "*have to learn to live with Covid-19.*" There is no early relief from this disease so India would require urgent adjustment of social distancing and sanitization. It has been indicated by government authorities that by August-September 2020, we may have lockdown lifted in all forms. However, the future of higher education still looks in the dark as recently a group of IIT teachers suggested to start a new semester from January 2021. They also submitted to avoid any face-to-face classes for at least one year till 2022. The educationist needs to get prepared for techniques like online learning, online admissions, and online examinations to counteract such situations.

The face to face classroom teaching has no alternative but in the current situation, we need to devise new pedagogies to combat the vacuum in the education sector. Students returning to classrooms may put their families and population at higher risk of infection. It will add more difficulties to the public health sector which already in a crunch situation. This article makes suggestive roadmap by defining new normal, for Indian universities to combat the current situation.

## **2.0 SHORT TERM SUGGESTIONS**

In the current scenario, the education sector in India needs urgent revival, in total. Before March 2020, the higher education institutions in India were in their respective academic calendars. The examinations for the odd semester were over and results were awaited only in few cases. Most of the institutions done 45-55% of syllabi for the current even semester. The sudden outbreak of Covid-19 in India interrupted the otherwise continuous process of teaching-learning. Efficient higher education is the most powerful tool to get growth for any country, especially for India as we have more young people than

anywhere in the world. The National Education Policy (NPE) is under tough questions that need to be revived amid the Covid-19 pandemic. Sincere attempts are made by universities and colleges, to continue education. Still, it is felt that a structured roadmap is required for higher education in India due to its socio-economic diversity. This paper aims to present suggestions and roadmap based on the latest knowledge available in the public domain.

### **1.1 Need to train teachers**

There are various online tools used by teachers to take online classes but such cases are very few in numbers especially in the institutions where learning mode is in contact classrooms. The sudden change in pedagogy is a new challenge for those teachers who never taught online. The distance education mode is a new feature to be explored by teachers in universities and colleges. This requires a complex mix of use of technology with special subject materials. The authorities must arrange training for all faculties to use technologies amid constraint to lockdown. The initial attempts could be to use the blended model where learning could be through online but without online real-time interactions. However, it might be a temporary phase because such a model of asynchronous learning found to be not effective.

### **1.2 Selection of appropriate tool**

Teachers are well equipped with the subject knowledge but they might not be aware of available *e*-learning tools. The selection of an appropriate tool is very important for effective teaching-learning process. This selection should be based on students' reach, subject requirements, and technical support available. The addition of multimedia like audio, video, text, *etc.* makes teaching more inclusive for different types of learners. It should be easy to use for both teachers and students at least for initial sessions, because a complex system may take high energy and time from learners before they come to study the subject. Such systems make learning boring and learners may lose interest at the initial stage itself.

### **1.3 Adopt new teaching methodology**

Many teachers who were in face-to-face teaching mode before the pandemic, now suddenly put into online mode. The conventional way of teaching is different than the online teaching model. In fact in online teaching mode, the conventional way of teaching becomes boring and least effective. The ideal method is to make learners participate and engage in different online activities. Such online activities include case studies, group learning, team problem solving, storytelling, *etc.* The strong recommendation is to make online classes for small duration and activities for longer durations. This helps to get learners' active participation without boredom. So teachers need to adopt a new methodology to contribute

effectively in the learning process. It is a challenging task as most of the teachers in India uses the old conventional chalk-talk process. Teachers must equip themselves to judge the online learning behaviors of students to take necessary action during the learning procedures.

#### **1.4 Need for technical assistance**

Even though online teaching tools are easy to be used but during the initial phase of implementation it may be testing for both teachers and learners. Therefore a team of technical experts needs to assist the online teaching-learning procedures. This technical team must include experts in online tools and internet facilities. The people in this team may need to respond 24X7 basis and have the expertise to respond from remote, appropriately. They should be able to make contact and assist online.

#### **1.5 Learning outcome & examination**

Last year UGC had introduced curriculum based on learning outcome *i.e.* teaching-learning process must ensure the objective achieved. This can be judged through the testing of learners, no matter what the mode of learning is. This time when all educational institutions are closed and online efforts are made to achieve the objectives. Hence evaluation, this time needs more cautious efforts than it ever was done. Amid the uncertainty of future lockdown in the education sector, the only solution to the problem is online testing. The online testing should be such that it be able to not only judge student appropriately but also ensure online remote invigilation. The examinations may be taken through multiple-choice questions (MCQs) that fits the open-book scenario under time limitations. To avoid proxy attendance of students, frequent photo (or video) recording may be done. After all efforts, we need to trust the students, and students need to prove trustworthy.

### **3.0 LONG TERM SUGGESTIONS**

As depicted by various sources that the global scenario is now changed amid Covid-19 pandemic, so as the job requirements. Today there is a need to make people job creators, rather than job seekers. Though this debate was on earlier also, Covid-19 had given it an urgency. Most of the people in India are on the verge of losing their job in the current situation. On May 12, 2020, Prime Minister Modi in an address to the nation said in the *post-Covid* world we need to make India self-reliant. He also emphasized the fact that we have to live with Covid-19, for a long time and need to protect ourselves while moving forward. This put a serious responsibility on the shoulders of policymakers for higher education in India. As the steps taken today in this field will decide the future of India.

Amid Covid-19 pandemic, all universities and institutions in the world are put on the same line where students-teachers interact only through online. So no matter how good the

infrastructure an institution may have, today it has to deal online in all aspects admissions, pedagogy, and examinations. The given scenario may be taken as an opportunity for the Indian institutions “*to move local to global through being vocal*” (as per PM’s quotation). We need to make fundamental changes in our education system to accomplish this. The government of India should include the perspective of going global and make India a hub for better education through revised NPE.

People may lose jobs as there is a complete break on the demand-supply chain for most of the goods and services. It is expected that the jobless poor people may put education on the least priority and survivor on first. But education under such severe circumstances should remain basic right and the government should provide the roadmap to achieve this. The curriculum should also change to make people not only job-ready but encourage them to be an entrepreneur.

The government already announced INR 20 lakh crore to *Atmanirbhar Bharat Abhiyan* -The Covid-19 economic stimulus package to make India self-reliant. The education sector has to play an important role in this mission. It will require a concrete roadmap to take India’s education policy to the next level and maybe through a new innovative path. If the given situation prevails for a longer time, we need to answer questions like how to make education more accessible to masses. It will need a well-directed roadmap that must be followed by all stakeholders. Here teachers have to play an important pivotal role. They should be open to face changes and consider this as a new opportunity. Teachers should adopt the change of being a lifelong learner. Institutions should promote and arrange training sessions for teachers to equip them for future technologies that will complement the teaching-learning.

The use of new technologies like Internet of Things (IoT) and artificial intelligence (AI) sooner or later going to get embedded in education. Therefore today we need to train teachers in that direction.

A comprehensive roadmap needs to be laid down by the Ministry of Human Resource and Development. That needs to be followed by universities and higher education institutions at the grass-root level. It is also suggested that such a move should come with additional incentives in promotions and appointments so that it gets easy acceptance among the teaching fraternity. The new course curriculum needs to be developed taking constructive feedback from industry and satisfying the new rules for demands and supply. The subjects like entrepreneurship and internship should be made compulsory in all streams of education and from now on we should focus on project-based learning.

#### **4.0 CONCLUSIONS**

We will live with Covid-19 as we are living with diseases like tuberculosis. The urgent needs as it arises due to the current crisis may prove to be a sustainable change in Indian higher education institutes. Public health is of utmost importance but education is still a right so we need to deliver it continuously for the growth of human resources and development for the country. The teaching community needs to carry a positive attitude and take this time as an opportunity to learn technologies to complement their capabilities. The government and authorities may help to build a parallel infrastructure to facilitate online learning in all higher education institutions. There is a need to revisit the curriculum design and make it more activity and project-based. We should take this as an opportunity and make the Indian education sector shine golden on the global map.

#### **ACKNOWLEDGMENT & REFERENCES**

This article suggests the new normal for Indian Universities, by reviewing the common experiences and knowledge in institutions of higher studies, during the current Corona-19 pandemic period.



## CHAPTER 18

### COVID-19 PANDEMIC: CHALLENGES AND POSSIBILITIES OF E-LEARNING AT HIGHER EDUCATION LEVEL

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#### 1.0 INTRODUCTION

COVID-19 is a pandemic disease. The whole world is affected due to this pandemic. Nobody was ready for the sudden outbreak of COVID-19. It has affected every sector of human life, in which higher education is also no exception. Most of the countries began to maintain physical distancing as a measure to stop the spreading of COVID-19. Due to which the education system has to face many changes in its functioning. The measures taken to stop the spreading of this virus has affected the well-being, lifestyle, and functioning of students engaged in higher education. The pandemic has forced the global academic community to explore new ways of teaching and learning, including distance and online mood education. This has proven challenging for both students and educators, who have to deal with the emotional, physical, and economic difficulties posed by the outbreak while doing their part to help control the spread of the virus. Teaching-learning is now shifting to an online mood.

Studies have found that students worldwide have been dramatically affected by the spread of COVID-19, after facing travel restrictions, physical distancing, isolation, and quarantining, as well as dormitory and border closure (Quacquarelli Symonds, 2020). These changes affected both students' plans and priorities and their level of interest in attending classes online. Many survey studies reported that some students are enjoying online mood classes, at the same time many other students reported that due to the closure of the educational institutions' impact on their lifestyles, reported a lack of motivation and negative attitudes towards learning online.

#### 1.1 Online Mood of Learning during COVID-19 Pandemic Era: Challenges and Possibilities

The sudden outbreak of the coronavirus disease affects the mental health of higher education students. In the results of many studies and surveys, it is found that due to

lockdown and physical distancing students reported a feeling of socially disconnected and also found that students develop anxiety, depression, and stress concerning future career, study progress, and so on. To reduce these psychological constrain many universities started various counseling programs. Studies found that students have positive attitudes toward online learning, as they see it as a good opportunity to draw their attention away from the pandemic and to treat the emotional support from their teachers as an advantage in overcoming this period with ease (Zamira & Linda, 2020). This study's findings recognized the importance of receiving emotional support from the university and teachers (Quacquarelli Symonds, 2020), and increased communication among students and their professors can prevent higher levels of anxiety and stress in students as well as positively impact students' academic performance. Many students reported worldwide that lack of regular communication from their institution as a primary stressor.

On the other hand, many other students also reported that they are facing many challenges and problems to attend online classes and courses during the pandemic era. In countries like India where most of the population are middle class and lower-middle and resides in a remote area, it is a big challenge for the students from there to attend online learning due to poor connectivity of the internet and high rate of internet connection.

In a survey conducted by The Associated Chambers of Commerce and Industry of India reported that COVID-19 pandemic forced to shift teaching learning as online mood may have brought great opportunity for digital revolution in education and transformation in the role of a teacher, but schools or colleges cannot be replace by homes as students are missing out peer-teacher interaction, sports, arts and physical activities during lockdown. The survey covered various government and private institutions from different part of India, 88 per cent of the students from total population of the survey said they were missing out on interactions with their teachers, peers, and friends and about 51 per cent students missed their extracurricular activities such as physical education, sports, art, music, and dance. Around 50 per cent of the students stated that they find it difficult to understand the subject without the classroom environment and teacher present. The home environment, being vastly different from formal classrooms, is often difficult to adjust to and make conducive for learning.

The sudden shift of teaching-learning process has come up with various challenges and struggle for students and teachers as well. Despite of having challenges there are possibilities too. Below are some challenges and possibilities of the online mood of learning during the COVID-19 pandemic era:

## **2.0 CHALLENGES**

First of all, it is the first experience for most of students and teacher as well to get connected with an online platform for teaching and learning, so they are found to be struggling with the proper adaptability with this trend as switching from traditional classroom to a virtual classroom makes the learning and teaching experience entirely different for them.

Secondly, during the shutdown, most of the students are staying at home in different areas of the country. The rural area's students find it difficult to use mobile internet which interrupts the online connectivity due to poor internet signal. Besides, the internet is still expensive in a country like India.

Thirdly, there have to download and install some applications like Zoom, Webex, Microsoft team meet, etc, to connect to the virtual class, sometimes it seems challenging due to not having prior experiences or proper knowledge on the internet and gadgets like mobile and computer to run these applications smoothly.

Fourthly, time management has been a crucial thing as technologies always have some technical glitches, and to fix those it take more time due to which the class time increases from 2 to 3 hours sometimes. If a student due to some connectivity problem may out from the live streaming session and he/she again able to join after some time, but he missed some important topics during that time then he/she may find unconnected with the topics discussed later on.

Fifthly, it is difficult for the teachers to give individual attention in a virtual classroom. Students find it difficult to freely interact with their teachers. It is also difficult for teachers to interact one by one to all the students of the class, especially when the class size is quite large and due to which many students remain unanswered with their questions.

## **3.0 POSSIBILITIES**

Firstly, an online mood of learning increased the use of e-learning resources. Now students access more e-resources which broaden their knowledge and they able to get more benefits. Students as teachers also gain knowledge about create e-resources using a different device.

Secondly, many students able to learn freely from teachers who are from different parts of the world through webinars, online conferences, etc. It also enables them to attend international workshops and conferences through online mood on different platforms which was not accessible for everyone earlier, which helps the students to expand their knowledge

on various areas of concern. It also increased national and international collaboration among the institutions and the learners.

Thirdly, online learning enhances various communication skills in students. Through virtual classroom students and teachers able to connect which makes them able to stay connected with their teaching-learning and prevent being static on their learning.

Fourthly, the online mood of learning in the pandemic era enhances the knowledge of students as well as teachers regarding the use of technologies for teaching-learning. Students and teachers learn about various online platforms through which teaching-learning can be conducted.

Fifthly, due to the pandemic many national and international institutions started providing short e-courses through MOOC with free of cost or with very minimal cost for example Coursera, which helps students to gain more and more knowledge, explore learning.

#### **4.0 CONCLUSION**

The sudden outbreak of COVID-19 has shaken the whole world. The outbreak immensely affects human mental and physical life. The education system now shifting from the traditional way of learning to online mood learning. The students and teachers as well struggled with the change of the education system as it is new for all to come under virtual classrooms, the physical absence of teachers and students. There many challenges faced by students of higher education in the online mood of learning, especially students from remote areas of the nation. Despite challenges, there are possibilities too in the online mood of learning. The sudden outbreak affects psychological factors of students due to which they develop anxiety, depression, and mental stress. Online learning helps them to divert their mind and engage in some creative work, broaden their knowledge on the various field, it now providing opportunities to collaborate with national and international institutions, and explore learning.

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**CHAPTER 19**  
**COVID-19 OUTBREAK AND EDIFICATION: CHALLENGES AND TRENDS IN**  
**HIGHER EDUCATION OF INDIA**

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**ABSTRACT**

The Covid-19 epidemic has affected educational systems globally by leading to the widespread lockdowns of schools, colleges, and universities. The society facing increased threats due to the Covid-19 pandemic and all types of academic activities including teaching-learning, research, and extensions are now at disruption. In response to the Covid-19 outbreak in India, all educational institutions partly or fully got shut down and institutions are opted to teach students online. Students are far away from the regular learning atmosphere and seeking to adopt alternating modes implementing by their institutions. The teaching-learning atmosphere changing significantly as new trends are evolving to continue the instructional process in this pandemic. Reflecting on the rapid expansion of the pandemic and the shutdown of higher education (HE) institutions, the alteration to online instruction have been happening so fast that it hardly gave any time to plan. There was no provision for reflecting on the potential risks or the potential opportunities that such a sudden change occurred. In this respect, the present article tried to elucidate the challenges and trends in higher education in India that occurred due to the Covid-19 outbreak. This article is the reflection of the scholarly observation of the current situation.

*Keywords: Covid-19, challenges & trends, higher education, lockdown, and research*

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**1.0 BACKGROUND**

The Covid-19 is an infectious disease caused by severe acute respiratory syndrome coronavirus-2. It is known as the coronavirus, constitute the subfamily Orthocoronavirinae, in the family Coronaviridae, order Nidovirales, and realm Riboviria (Wikipedia contributors, 2020). In humans, Coronaviruses cause respiratory tract infections that can range from mild to moderate and deadly. As the on-going Covid-19 pandemic has continued to expand, the World Health Organization declared that it is a public health emergency of international concern (World Health Organization, 2020). Nearly 191 countries have implemented nationwide lockdowns, impacting about 91.3% of the world's student population. In response to institutions lockdown, UNESCO recommended the use of distance learning programmes and open educational applications and platforms that institutions and faculty can use to reach learners remotely and limit the disruption of education.

In India, the first case of Covid-19 was confirmed on 30<sup>th</sup> January 2020 in the state of Kerala and afterward, it started increasing. With the view of increasing threats of Covid-19 (approximately 500 cases), the Government of India under Prime Minister Narendra Modi

declared to observe Janata Curfew on Sunday, 22<sup>nd</sup> March for 14 hours (UNESCO, 2020) Observing the unstoppable increase of Covid-19 positive cases, from 25<sup>th</sup> March the government of India declared nationwide lockdown 'Phase 1' for 21 days as the only solution to control the spread of coronavirus through social distancing<sup>[5]</sup>. Likewise, Phase 2 of the lockdown started from 15<sup>th</sup> April, Phase 3 from 4<sup>th</sup> May, and Phase 4 from 18<sup>th</sup> May (Wikipedia contributors, 2020; Press Information Bureau, 2020) Afterward from 4 May 2020 (unlock 1), the lockdown was eased with several relaxations in all zones per Ministry of Home Affairs guidelines but educational institutions remain closed (Mishra, 2020) At present (on 19<sup>th</sup> July 2020), a total of 10,80,194 Covid-19 positive confirmed cases found in India in which 6,78,709 cases recovered and 3,74,243 persons suffering the disease and 26,842 persons died by this deadly disease (Covid-19 Update, 2020).

The structure of higher education and research, including teaching, instruction, assessment methodologies are significantly affected by this crisis. UGC as the regulatory authority of higher education in India given advisory to the universities and colleges on 5<sup>th</sup> March regarding taking preventive measures and instructed to avoid large gathering on campus (UGC, 2020). Further, on 21<sup>st</sup> March, it notified to postpone academic activities and advised the teaching and non-teaching staff to work from home via online mode to achieve social distancing. In response to the UGC guideline more or less all institutions were started teaching and learning online and MOOCs were found to change directions in unforeseen ways. The trend of online learning got swift importance as an alternative to traditional face-to-face learning. Teaching-learning became technology-driven and the questions of adaptability arise. Moreover, the question of the possibility of running research activities arises; as the teaching-learning and research activities cannot be run in the same way.

## **2.0 COVID-19 OUTBREAK AND CHALLENGES & TRENDS IN HIGHER EDUCATION OF INDIA**

In the outbreak of Covid-19, new challenges as well as new trends have been arising in higher education including teaching-learning, pedagogy & andragogy, assessment & evaluation, and management.

Many educationists termed technology-driven learning as the opportunity and on the other hand, some educationists' opinion as nothing can alternate the appropriateness of traditional face to face instruction. The reasons behind these controversial statements are the arising challenges and trends & opportunities in education due to the Covid-19 outbreak. The present paper is an attempt of highlighting those trends and challenges arising in the field of

higher education. Hereby, the following are some major trends or opportunities that occurred in the current Covid-19 crisis (Covid-19 Update, 2020).

### **2.1 Growth of Blended Learning**

Due to the Covid-19 crisis, higher educational institutions are added online mode of instruction in the traditional model. This is how universities and colleges have been shifted their instruction to a model of blended learning where both face-to-face deliveries along with an online model will merge. Blended learning is the best method of learning which gives a comprehensive understanding of particular content. Here teachers need to be techno-friendly for the good application of the model.

### **2.2 Swift increase in collaborative work**

This Covid-19 crisis has increased the collaborative teaching and learning opportunities to a great extent for the students, teachers, as well as for institutions. The student community got the opportunity to learn from any institution from any part of the globe. The teacher community has got the chance to learn and teach from and to any institution from any part of the globe with the collaboration of teachers from any part of the globe. Further, institutions are enjoying the organization of online academic meetings, webinars, conferences, intellectual talks, workshops, induction programmes, faculty development programmes, etc. with the collaboration of other one or more institutions from the country or abroad. This is how the global operation of higher education envisages in India (Mishra, 2020).

### **2.3 Evolution of new learning management systems**

Concerned institutions and companies have got immense opportunities for the development and establishment of learning management systems for use by the higher education institutes. There are increased demands for the same in the current scenario and this provided a good market to the developing institutions and companies. Online course providers like YouTube, Eduncle.com, Admission News, Shiksha.com, India Education, SolidEssay, Indiaedu, Dimdima, Unacademy, Aglasem.com, Toppr, Byjus, Virtual classrooms, etc. got increasing demands in the current market.

### **2.4 Evolution of new assessment and evaluation method**

As is currently UGC advised the higher education institutions to conduct the examination, by interest or by situation demand institutions are conducted or planning to conduct online examination for final year students. This is how the new mode of examination and evaluation is ascended with the help of the different management systems.



## **2.5 Opportunity for the improvement of resources**

There is a great opportunity for institutions of higher learning to start refining the quality of the learning and supportive material that is used in the teaching and learning process. This will equip an institution for implementing a blended learning model in the future and will bring improvement and transparency in the instructional process. This lockdown has given enough time and opportunity for the development of e-content and Moodle (Mishra, 2020).

## **2.6 Opportunity to be techno-friendly**

The current crisis provided enough opportunities and challenges to every member of the higher education including students, scholars, teachers, managers, administrators, and other non-teaching staff to become techno-friendly. Those persons who were technically illiterate, are also nowadays got interest to learn about technology or bound to learn so to adjust to the situation.

## **2.7 Familiarity with all possible instructional software**

In the past scenario, institutions were very limited with the use of instructional software. But in the current scenario institutions are putting all effort to introduce and implement all possible instruction software in academics. Emergenceor swiftly used software and applications namely ZOOM, *Gotomeeting*, *Gotowebinar*, *Telegram*, *Google Classroom*, *Google Hangout*, *Microsoft Team*, Skype, Kohoot, *Idroo*, *Google Meet*, *Testmoz*, etc. are now becoming familiar to all academician (Lockdown, 2020).

## **2.8 Government initiative regarding learning platforms**

The government of India has increased stress on developing new online learning platforms& projects and improving its exiting platforms. For example, SWAYAM, NDL, INFLIBNET, Shodhganga, Shodh Sindhu, Vidwan, e-PG Pathshala, DIKSHA, Zigya, Swayam Prabha, SHAGUN, NPTEL, e-kalpa, iGOT, are some initiative for supporting the all learner community and nowadays they are in a super active phase.

## **2.9 Self-paced learning with self-discipline or personalization of education**

The process of online instruction is self-paced, flexible, and student enjoys their learning with self-discipline without external control. However, the learner-centric approach should be adopted in the development of online instructional strategies.

## **2.10 Research scope and project initiative**

The Covid-19 crisis had provided scope for extensive academic activities and research to all disciplines including sciences, social sciences, and humanities. There are many

initiatives by the government for a research project on Covid-19 and its arising effects. ICSSR also had invite proposals for the research project on the Covid-19 crisis.

For understanding a situation in a comprehensive manner it is not enough to reflect on only positive sides rather reflect on both positive and negative.

### **3.0 SOME CHALLENGES AND NEGATIVE IMPACT**

Some challenges and negative impact in higher education occurred by Covid-19 crisis are reflected bellow.

#### **3.1 Adaptation of online Instruction with insufficient planning**

Although higher education institutions are adopted and implemented online teaching-learning mode in a hasty way, they got very little time to plan and reflect on the potential risk for the same. Therefore, there are chances for quality degradation and mismatch of achieving institutional goals.

#### **3.2 Break in the movement of students in overseas**

International movement and exchange of the students & scholar is very essential for global higher education. Reflecting on the current Corona crisis, movement of the students & scholar abroad is not possible as lockdown and social distancing are prime means of breaking the increasing chain of Covid-19 disease (Ward, 2020).

#### **3.3 Passive participation by students**

There is a possibility of the dullness of online learning as online instruction sometimes unable to gain students' attention and students may only seek attendance rather than learning actively. Moreover, there is no control or less provision for discipline on students. Further, online instruction without proper planning cannot able to meet the expectation of the students (Mishra, 2020).

#### **3.4 Infrastructural constrain**

From the infrastructural viewpoint, it is revealed by researchers that all the higher education intuitions specifically colleges are not ready or capable to lead online technology-based learning and assessment. Moreover, students from economically disadvantaged families are facing a lot of dilemmas in the adaptation of online learning. Further students or faculty from the remote areas are facing problems of network connectivity.

#### **3.5 Unskilled teachers and students for online instruction**

All teachers from HE institutions are not trained or skilled with online teaching methodology and software. Some teachers are neither ready for sudden adaptation of online teaching-learning mode. Online teaching by the unskilled teacher cannot be able to meet students' expectations and learning objectives. In the same way, all the students are not aware

of online teaching-learning pedagogy and methodology related to technology-driven teaching. They are in the learning phase of the same. The provision of training for adopting online instruction was not taken place earlier and training online for adaptation of online instruction is quite idealistic.

### **3.6 Changing criteria for student admission**

It is witnessed that, most of the universities and colleges those who advertising admission for the upcoming 2020-21 session, are changed the student recruitment process. Instead of conducting entrance examinations, they are proposed to base on marks obtained in the last examination. With this process, there are increasing chances of not getting admission by some eligible & competent but low score obtained aspirants.

### **3.7 Economic constrain**

Aspirants from the family of daily earners, those seeking admission in the upcoming session (2020-21) in HE may face economic problems regarding paying high fees. Due to lockdown, daily earners are not in a position to earn as much they earn in normal time. In this respect govt. should take the initiative of free or admission with fewer fees in the upcoming session. Hopefully, the government of Assam took initiative by giving free admission to students in the colleges of Assam.

### **3.8 Stress for students**

Students are now in a state of uncertainty. Covid-19 crisis giving sleepless nights to the students who were to appear final year of semester examination, different entrance tests, 12<sup>th</sup> board examination, different eligibility tests, etc.; as more or less all the examination got postponed. Some institutions canceled the provision of entrance test and looking for marks based admission entry. Therefore, unless contingency measures are undertaken, students looking for admissions in 2020 could face hard times. Further, institutions are stressing in conducting final year examination without giving stress on whether the syllabi have been completed or not. Moreover, it will be a big challenge for an institution to complete their syllabus without compromising on the quality of education.

### **3.9 Chances of plagiarism**

Online teaching, assignment, and assessment have increased the chance of stealing others' intellectual properties very much. Copying the e-materials is very easy in comparison to hard copy materials. There is a need for attention by the teacher and educationist in this concern.

### **3.10 Deterioration for research studies**

The Covid-19 crisis very badly affected the academic research activities of M.Phil. & Ph.D. Scholars. As research is different from teaching-learning, all research activities are not possible through online mode. Especially the experimental and field-based research studies are in comma during the corona crisis. In maintaining lockdown, most of the researchers are far from their laboratories and field of research. Although UGC has increased 6-month duration of the research period for the scholars who are in the submission stage, scholars are in a state of uncertainty and fear regarding their research career.

### **4.0 CONCLUSION**

Adaptation of technology in Indian HE education is continuing for several years and got swift popularity in the current pandemic (Murthy, 2020) Undoubtedly, the pandemic has affected the HE to great extent by projecting some challenges as well as trends & opportunities for long or short times. In short, it can be stated that the current crisis disrupted the balance situation of HE and this disruptive brought some new opportunities and trends that will positively transform the quality (Choudhary, 2020) Therefore, a comprehensive and effective strategy and practice will be required in HE. Higher education institutions should continue collaboratively to improve the quantity and quality of education provided through technology. From the above analysis, it can be hoped that the mix of online and offline mode will work in the coming future as the best approach. Teachers and students must make themselves skilled and interested in technology-driven learning as future education is going to adopt a blended strategy.

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**CHAPTER 20**  
**MENTAL HEALTH AND LIFE STYLE OF UNIVERSITY STUDENTS**  
**DURING LOCKDOWN PERIOD OF COVID-19 PANDEMIC**

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**ABSTRACT**

The flare-up of Covid-19 in India caused open frenzy and emotional wellbeing pressure. At first, it was about the course finishing later the issues have been moved to assessment. This scourge expands the mental issues, stress, dissatisfaction, sorrow and nervousness. This study was a cross-sectional investigation and a snowball method was utilized for assortment of information from the students. There were 65.2 per cent of members who revealed that they were giving more consideration to their emotional wellbeing during pandemic. Most of the members revealed that they got expanded social and family support, and furthermore they were giving more consideration to their psychological wellbeing, investing more time, resting and practicing after the beginning of the pandemic. Majority of the participants expressed that they have expanded worry of learning, worry for conclusive university assessment, career stress and upset during the lockdown time. Very less members expressed that they were giving more consideration to their psychological wellness, investing more time, resting and practicing after the beginning of the pandemic. These positive effects on psychological wellbeing may have helped the students adapt to other negative effects on emotional wellbeing, and expanded pressure. This pandemic impact will probably be engraved on every individual included.

**Keywords:** *Academics, life style, mental health, pandemic, and stress.*

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**1.0 INTRODUCTION**

Government of India proclaimed an across the country lockdown for 21 days on 24<sup>th</sup> May, 2020, as a preventive measure against the Covid-19 pandemic in India. The national wide lockdown in India has been reached out past 4<sup>th</sup> May, 2020 for an additional fourteen days. Once more, it was extended out up to 31<sup>st</sup> May, 2020. The flare-up of Covid-19 in India caused open frenzy and emotional wellness worry, with an expanding number of cases being analysed. Psychological well-being is in excess of an insignificant nonattendance of mental issues. It alludes to a perspective which is described by enthusiastic prosperity, relative opportunity from tension and crippling manifestations, and an ability to set up useful connections and adapt to the conventional requests and worries of life.

All the instructive organisations have been shut due to Covid-19 episode. In the interim, school and college students are worried about inns, residence clearing and wiping out of foreseen occasions, exchange studies and graduation functions. Final year students are anxious about the job market they are going to enter soon. The assessments were deferred because of the lockdown impact and the genuine date of test is nobody knows and questionable. In this context numerous students were experiencing mental pressure and there

is a solid need to think about their psychological wellness status. The constant spread of the pandemic, exacting disconnection measures and postponements in beginning schools, colleges, and universities across the nation is expected to impact the mental health, emotional well-being of the students.

There have been provides details regarding the psychological effect of the pandemic on the overall public, patients, clinical staff, youngsters, and more established grown-ups. Studies have revealed that a greater part of the students are experiencing nervousness issue and anxiety (Chen et al., 2020; Yang et al., 2020; Li et al., 2020). However, even those students who are living at home have grumbled about experiencing about suffering from interpersonal issues. Indian Psychiatry society study revealed that there is up to a 20 per cent expansion in cases related with emotional well-being and mental health issues. Initially, it was about the course completion and the university and college educators began web based instructing, however the issues have moved to assessment. Students, particularly from the more vulnerable segment who may not have a PC, cell are worried about the method of assessment and examinations. Numerous uncertain family issues come out which were not tended to yet being bound to one space for the duration of the day has constrained these issues to come out and these students are in the middle of it.

Different studies have affirmed the effect of communicable disease episodes on open psychological well-being, such as serious intense respiratory disorder in 2003 and the 2009 novel influenza epidemic. These kinds of pestilences increase the mental issues, such as stress, disappointment, discouragement, stress, frustration, depression, anxiety, and tension. A few investigations have demonstrated that post-traumatic stress disorder is firmly identified with melancholy, depression, psychological problems, and other mental issues. Some studies conducted in relation to the mental health risks of Covid-19 in vulnerable populations includes older adults (Rajkumar, 2020; Yang et al. 2020), the homeless destitute (Tsai and Wilson, 2020), migrant workers (Liem et al., 2020), the intellectually ill (Yao et al., 2020a; Zhu et al., 2020), pregnant ladies (Rashidi and Simbar, 2020) and Chinese students studying abroad (Zhai and Du, 2020). An investigation conducted in China (Leilei et al, 2020) on impact of Covid-19 on youth psychological well-being, mental health and in India (Banerjee, 2020) discussed about the significance of therapists during the Covid-19 pandemic is featured on teaching critical thinking, problem solving strategies to adapt to the current emergency. Haimin (2020) conducted an investigation on look at university students' family life in the midst of the Covid-19 and found that an alternate learning experience in this situation from the time with this circumstance from when they were on campus previously. There are

various ways a student can use this time profitably and gain something out of it. However, technology and innovation has made our life simpler and easier as well as entertaining.

However, sometimes it is an absence of interest that individuals feel exhausted significantly in the wake of being involved by the electronic devices. Fatigue is really an opportunity for individual to improve their life in a few or other manner. A student's mission should be to make the best use of the leisure time and other resources spent in learning to create value for oneself and to society. The university grant commission has been utilizing customary warning to all universities to take conceivable precaution measures for wellbeing and security of students. So as to maintain a strategic distance from any sort of stress universities will take a few measures for the psychological wellbeing psychosocial viewpoints and prosperity of the students. From the above examination it is discovered that couple of studies have detailed the effect of the Covid-19 pandemic on emotional wellness, mental health and way of life of public and adolescent youths. No such study has been conducted on psychological wellbeing and way of life of university students of India. Therefore, the study intended to explore the mental health and life style of university students during lockdown period and whether there was a quick effect of the Covid-19 pandemic.

## **2.0 METHODOLOGY**

The present study was a cross-sectional investigation. A snowball sampling strategy was utilized for collection of information from the university students. An online semi-organized survey questionnaire was utilized for assortment of data by utilizing Google forms. The connection of the semi organized poll was sent through messages, WhatsApp and other social media to the students who have connected with the contacts of the investigator. The members were urged to reveal the study to whatever number individuals as would be prudent. Accordingly, the link was sent to the students apart from the primary purpose of contact. Part-A of the survey which incorporate sex, stream of instruction, area of residence and course.

Part-B of the survey questionnaire was to gauge the mental health of the students. Respondents are solicited to answer the Part-C from the poll for examining the effect of the Covid-19 pandemic on mental health related life style changes having yes and no responses. Furthermore, students are approached to answer their learning experiences with online courses, assessment of the government measures against the Covid-19 spread, view of the impact of the pestilence on their own thoughts, behaviours, and practices.



### 3.0 FINDINGS

The information was gathered from 894 university students with 513 females and 381 males. Out of total participants 224 Arts, 107 commerce, 284 science and 279 students are from professional courses. With respect to area of residence 376 students are from urban and 518 students are from rural background.

**Table-1: Demographic characteristics of the participants**

Variable	Types	Sample (894)	Percentage (%)
<b>Gender</b>	Male	381	42.61
	Female	513	57.39
<b>Stream of Education</b>	Arts	224	25.06
	Commerce	107	11.97
	Science	284	31.76
<b>Course</b>	Others	279	31.21
	General	615	69.00
<b>Locale</b>	Professional	279	31.00
	Rural	518	58.00
	Urban	376	42.00

*Source: Primary Data*

From the above table it tends to be seen that 69 per cent students are in general course participated in the study and 31 per cent students are from professional course like Engineering, MBA, M.Ed. MSW, M. Lib., and MJMC course. Concerning stream of instruction 25.06 per cent are from Arts 11.97 per cent students are from commerce and 31.76 per cent are from science background remaining students were from other streams. Fifty eight per cent students are from rural and 42 per cent students are from urban background.

Following the onset of the pandemic, more than half of the participants 67.2 per cent reported no expanded worry, stress from scholastics. Additionally, 78.2 per cent mentioned that they did not experience increased financial stress arising from the pandemic. A total of 74.5 per cent of participants reported that they did not encounter increased stress from home. There were 65.2 per cent of participants who reported that they were paying more attention to their emotional wellness, mental health following the pandemic. Additionally, 66.3 per cent of participants reported that they were investing more time to rest. The majority of participants 65.2 per cent expressed that they were spending more time to relax. More than half of the participants 69.7 per cent reported that they were spending more time exercising.

**Table-2: Mental health status of various demographic factors**

Variables	Categories (n)	Stress for Final University Exam			Career Stress			Disturbed due to the Covid-19		
		Yes	No	p-value <sup>1</sup>	Yes	No	p-value <sup>1</sup>	Yes	No	p-value <sup>1</sup>
<b>Gender</b>	Male (381)	342	39	0.109	243	138	0.554	366	15	0.055
	Female (513)	476	37		337	176		492	21	
<b>Stream of Education</b>	Arts (224)	202	22	0.006	81	143	2.159	216	08	0.237
	Commerce (107)	87	20		41	66		102	05	
	Science (284)	262	22		202	82		261	23	
<b>Course</b>	General (615)	571	44	0.751	332	283	7.793	589	26	0.005
	Professional (279)	247	32		248	31		269	10	
<b>Locale</b>	Rural (518)	475	43	0.312	333	185	1.380	492	26	0.000
	Urban (376)	343	33		247	129		366	10	

*Source: Primary Data; Chi-square test*

Since the pandemic is not finished at this point and there is a further spread of the pandemic throughout the country, it is conceivable that the Covid-19 pandemic will cause extreme frenzy, excessive panic, uneasiness, and anxiety in inhabitants living inside and outside states of India on account of the expanding number of Covid-19 cases around the world. Along these lines, some may contend that the reactions from the relevant authorities should to have been quicker and progressively proactive. Simultaneously, government and private clinics to battle the Covid-19 pandemic were assigned by the concerned specialists. However, it was imperative to ensure that these quarantine facilities were not planned simply for lodging huge quantities of individuals, indeed, which can spread the contamination further. Occasion periods were additionally delayed and school openings were stretched out to decrease the quantities of new Covid-19 cases.

**Table-3: Mental health status of various demographic factors**

Variables	Categories (n)	Worried for life due to the Covid-19			Feel helpless due to the Covid-19			Internet Issues		
		Yes	No	p-value <sup>1</sup>	Yes	No	p-value <sup>1</sup>	Yes	No	p-value <sup>1</sup>
<b>Gender</b>	Male (381)	276	85	0.005	300	81	2.099	333	48	1.221
	Female (513)	448	85		321	192		211	302	
<b>Stream of Education</b>	Arts (224)	200	24	8.035	198	26	1.051	199	25	0.001
	Commerce (107)	82	25		87	20		78	29	
<b>Course</b>	Science (284)	204	80	0.006	192	92	1.918	230	54	1.141
	General (615)	487	128		477	138		497	118	
<b>Locale</b>	Professional (279)	237	42	0.058	144	135	1.641	47	232	8.662
	Rural (518)	426	92		412	106		480	38	
	Urban (376)	298	78		209	167		64	312	

*Source: Primary Data; Chi-square test*

**Table 4: Lifestyles of various demographic factors**

Variables	Categories (n)	Time spent to rest			Time spent to relax			Time spent to exercise		
		Yes	No	p-value <sup>1</sup>	Yes	No	p-value <sup>1</sup>	Yes	No	p-value <sup>1</sup>
<b>Gender</b>	Male (381)	280	101	0.119	243	138	0.514	362	19	0.125
	Female (513)	406	107		337	176		480	33	
<b>Stream of Education</b>	Arts (224)	182	42	0.016	81	143	1.159	216	08	0.202
	Commerce (107)	67	40		41	66		102	05	
<b>Course</b>	Science (284)	202	82	0.311	202	82	3.193	265	19	0.015
	General (615)	501	114		335	280		579	36	
<b>Locale</b>	Professional (279)	245	94	0.212	245	34	1.101	263	16	0.107
	Rural (518)	362	156		342	176		489	29	
	Urban (376)	343	52		238	138		353	23	

*Source: Primary Data; Chi-square test*

The overall score in participants showed a gentle distressing effect. One potential reason behind this finding is that the infection flare-up was not viewed as serious during the time that there was conducted. Moreover, it is conceivable that members despite everything probably would not have been all around educated about the seriousness of the infection, as referenced beforehand. When this investigation was conducted, the whole India was locked down as had happened in Mizoram University is located in the Aizawl (Northeast of India) and the road distance between plane India state Assam and Aizawl is approximately 400 km.

By the month May 2020, the quantity of affirmed Covid-19 cases in Mizoram is just one, which is extremely little than that of rest of India. In addition, most of members reported that they got extended social and family support. Present study also documented that the vast majority of the members had positive mental health, psychological well-being connected way of lifestyle changes. Spending more time to rest was also associated with a lower score in the respondents of the present study. Therefore, these elements might have helped to reduce the stressful impact of the Covid-19 pandemic. Future studies should also investigate if limited knowledge, lack of interest, the relationship between the distance of the survey population from the epicenter of the epidemic, or other factors might contribute to such a limited impact on mental health as reported in the current investigation.

Albeit the greater part of the members 52.1 percent reported that they felt stunned and uncertain because of the Covid-19 pandemic, they did not feel helpless because of the pandemic. Additionally, the majority of participants revealed that they were paying more attention to their mental health, psychological wellness, spending more time relaxing, resting and practicing after the onset of the pandemic. These positive effects on mental health, psychological wellness may have helped the participants adapt with other negative impacts on mental health, including increased pressure and stress. Then again, an expansion in money related and family worry in a debacle could be related with some shirking practices, which would have compounded their psychological wellness, mental health and lead to a progressively latent way of life and more passive lifestyle.

The current study results were consistent with the findings reported by Lau et al. (2006) who explored mental health, psychological wellbeing, quality of life and personal satisfaction in Hong Kong residents during the SARS epidemic in 2003. The authors also reported increased social and family support as well as positive psychological wellness, mental health-related lifestyle changes. One potential reason behind these findings was that during the pandemic, the pace of the entire society eased back down. This could have then created more chances and time among the community members to help, support and care for each other.

In addition, during the some *Ugadi*, *Ramzan* and other various festivals in each state, relatives, family members and companions were tremendously esteemed and there was expanded correspondence with relatives and companions. Family members were bound to think about one another and fraternize in light of the fact that they were approached to abstain from going to open places and remain at home, particularly during the celebrations and festivals. In addition, these festivals and celebrations are the most significant state festivals

and celebration because it marks the beginning of a new year according to the traditional local calendar. It also signifies an opportunity for a new beginning and a hope of good things to come. Companions were likewise bound to send respects to one another by means of WhatsApp and potentially other social media.

This study was one of first studies to over a unique opportunity to investigate the impact of the Covid-19 pandemic, as this study was conducted more than weeks after the lockdown in Aizawl other areas and cities in Mizoram were imposed by the Indian government. This is especially important, as this study serves as some of the main information about the mental health, emotional wellness impacts of the Covid-19 pandemic. Furthermore, the current study pilot-tested the legitimacy of the questionnaires used to ensure that they were appropriate in present investigating context and setting. However, present study conducted from the limitations associated with the modest number of the sample size and for little timeframe, poor adherence to the investigation and the sampling method, which constrained the speculation of present findings to the entire university student population in mainland India.

It is also possible that the members were limited to only those who have the passionate and mental scope to really respond these questions, which may have skewed entirely of the appropriate responses towards those normal of a “healthier” population in this circumstance. Additionally, to what degree these study responses might have been affected by perceived monitoring of responses among the members remain uncertain. In the midst of this moment of increased security, particularly digital security aimed at playing down the crisis, any sort of critical responses or signs that may belie a sense of things being out of control would be monitored or suppressed. Additionally, the conceivable recall inclination from members may have confounded the present findings. The pay level of participants’ family was not assessed in the study. In spite of the fact in this study researcher collected the occupational information of the guardians, researcher did not collect specific details including whether their parents’ occupation and income was related to healthcare. Additionally, researcher did not collect information on whether participants had family members, relatives and friend who contracted the virus or who developed symptoms.

Researcher did not utilize any promotional material for the survey in light of the fact that during this sensitive time, the degree to which members may sensibly perceive the survey as a sort of institutional surveillance may have affected the legitimacy of the responses. Participants were approached to refer to the data with respect to Covid-19 updates and the prevention measures released by the administration. Enormous scope with both

qualitative and quantitative techniques ought to be conducted in all districts of different nations to explore the mental health and quality of life among citizens and residents, especially in the areas most severely impacted by the pandemic.

Following the current study, researcher will conduct a long haul follow-up study on these same participants as well as a large-scale survey to explore whether there were any significant changes in the mental health impact of the Covid-19 pandemic. The researcher will likewise research whether these members develop post-traumatic stress after the Covid-19 pandemic is over. Ideally by at that point, researchers and scientists will have some ideas on what transmits the SARS-CoV-2 infection and how this infection comes through. This will then provide some important information for community health workers in mainland India to help them tackle these mental health-related issues in response to other similar societal disasters. It is also imperative for mental health workers to be aware that such awful traumatic stress symptoms could lead to the development of avoidance behaviors or passive lifestyles after the pandemic. Researcher emphatically urges that health workers ought to incorporate emotional mental health advancement as part of their follow-up after the pandemic.

Future investigation should also incorporate more issues related to mental health questions. Young members express a stronger sense of helplessness, which might be correlated with an expanded utilization of social media. These young members watch and tune in to increasingly more negative news which will at that point strengthen their sentiments of tension and discouragement in the midst of emergency. Therefore, questions related social media use, or internet use, or news consumption, would be useful to comprehend the effect of such epidemics on mental health. In addition, questions regarding family members, relatives or friends who have contracted the infection, health history of the people, and their relationship with healthcare sectors in the case for work, and existing mental health issues ought to be included.

The ministry of health and family welfare, government of India, has provided health advisories, videos, posters and even conducted webinars on handling mental health issues of peoples. Two sorts of devices cell phone 78.35 per cent and PC 21.65 per cent were utilized by the students for accessing the online course. With respect to the online course, live telecast, instead of recorded broadcast, of the courses was the best choice of most of the students 73.60 per cent. Nearly 55 per cent students took part in the zoom class with a length of 35 to 40 minutes. About 65.7 per cent students gain proficiency with their course by

means of learning management system. Also, 72 per cent students learn through WhatsApp and social media.

Regarding the activities of the students performed in their home during lockdown period they spare time, watching TV 75.4 per cent, reading books 38.7 per cent, writing assignments 34.8 per cent, and playing computer games 26.8 per cent. Further, 34.5 per cent of the students viewed the news from TV news paper and social media about the covid-19 pandemic for each day. Overall, nearly 37.3 per cent students felt fairly exhausting dating comfortable, and 46.70 per cent of them perceived family life during the unique time as not terrible, but not great either and 17 per cent not exhausting. Although personal hygiene was profoundly accentuated, there were a little proportion of the students 12 per cent who believed that they did not pay more attention to personal hygiene than previously and 88 per cent of the students deemed that wearing facemasks would be necessary while heading outside and beneficial for themselves even when the epidemic is under control and vanishes.

#### **4.0 CONCLUSION**

Since the lockdown is not finished at this point and there is a further spread of the pandemic, it is possible that the Covid-19 pandemic will cause extreme panic and anxiety among understudies living inside and outside the home. Albeit maximum number of participants revealed that they have expanded worry of learning, worry for conclusive final university examination, career stress and upset during the lockdown time. Moreover, a very few percentage of participants reported that they were paying more attention to their emotional well-being, mental health, investing more energy unwinding, resting and practicing after the beginning of the pandemic. These positive effects on psychological wellness, mental health may have helped the members adapt to other negative effects on emotional wellness, including expanded pressure. The present study results are depicting expanded social and family support just as positive psychological wellbeing connected way of life changes. One potential purpose behind these discoveries was that during the pandemic, the pace of the entire society eased back down. In this study, it was discovered that there were professional students with an inclination toward mental issues and psychological problems, which was higher than the proportion of mental issues in different studies.

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## CHAPTER 21

# COVID-19 LOCKDOWN AND ITS IMPACT ON THE LIFESTYLE OF PEOPLE IN ASSAM

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### 1.0 INTRODUCTION

The COVID-19 pandemic is first and foremost a health crisis. The corona virus disease (COVID-19) pandemic, which originated in the city of Wuhan, China, has quickly spread to various countries, with many cases having been reported worldwide. The Ministry of Health and Family Welfare of India has raised awareness about the recent outbreak and has taken necessary actions to control the spread of COVID-19. The central and state governments are taking several measures and formulating several wartime protocols to achieve this goal. Lockdown as preventive strategies is aimed to reduce community transmission as the best weapon to defeat the COVID-2019.

The first case of the COVID-19 pandemic in the Indian state of Assam was reported on 31 March 2020. As of 21 July 2020, the Government of Assam has confirmed a total of 26,772 positive cases of COVID-19 including 18,033 recoveries, three migrations, and 64 deaths in the state. The state's as well as Northeast's largest city, Guwahati has been worst affected by the corona virus. The pandemic born lockdown is having an impact on the living habits of people and their behavior. Lots of changes take place in people's life during lockdown due to COVID-19. No sector has escaped from its impact. It impacts sectors like- education, daily routine, farmers and agriculture, migrant laborers, economic, mental health, and so on. This chapter deals with the impact of COVID-19 on the lifestyle of the people, especially in Assam. The following discussion has covered some major aspects of human life influenced by the COVID-19 outbreak.

### 1.1 Impact on Education

The COVID-19 has resulted in shut down of all the schools, colleges and universities not only in Assam and India but the whole world since March. That's why students faced lots of problems. Students are not able to complete their whole courses. Due to the outbreak of the COVID-19 pandemic, the whole teaching-learning process has shifted to the e-mode from traditional classroom teaching. So, this sudden shift leads to lots of problems especially for



the students who are from remote areas. Some of the problems are like- network issues, lack of electricity facilities, lack of android phones, laptop, lack of knowledge of the students towards technology, lack of willingness of the learner to learn, individual differences are ignored, misunderstanding of the concepts, responses from the students are low.

In the case of the family where both parents are working from home, it is difficult for parents to maintain the balance between their work, household work, and children's online education. In most of the rural areas of Assam, parents are unable to give smart phones to their child which is essential for online education. In recent times we all must have heard of the growing number of suicide cases because of the inability to have the resources required to shift to a digital platform.

School closures negatively impact student learning outcomes. As it provides essential learning and when schools close, children and youth are deprived of opportunities for growth and development. COVID-19 lockdown affects the academic performance of students. Examinations are postponed by most of the universities of India and Assam is no exception in this regard. On July 9, the Tezpur University has cancelled its entrance examination for all programs. Earlier, it had to postpone the examination due to Lockdown and now had to cancel it due to spike in COVID-19 cases across the state. This leads to the loss of students' interest towards study.

## **1.2 Impact on Mental Health**

As we know that this is a difficult time for all of us, as we hear about the spread of COVID-19 not only in Assam but all over the world, through television, social media, newspapers, family and friends, and other sources. The most common emotion faced by all of us in this situation is nothing but fear in mind. It makes us anxious and can even possibly make us think, say, or do things that we might not consider appropriate under normal circumstances.

The continuous COVID-19 lockdown causes stress, and stress makes other risk factors like high blood pressure, diabetes, and high cholesterol worse. The doctors working in different Private and Government hospitals of Assam revealed that there is an increase in health issues like gastrointestinal disorders, respiratory issues, and a very high increasing rate of mental health issues like anxiety and depression.

Due to lockdown, people are not busy like before. Most of the people are free from their work (business) which leads to the symptoms of internet addiction, changes in food and sleep habits and Students, those who have completed their education may have fear in their

minds of withdrawal of job offers and they became uncertain about their future and all these create mental illness among the individuals.

Changes in the daily routine of the life of the individual also adversely affect the psychological and physical health of the person. Nowadays, the people who have health issues don't want to be admitted to the hospitals because of the fear that they will be affected by COVID. In Assam, cases are increasing day by day and it seems that many people and health workers are dying due to the lack of medical treatment, though doctors and health ministers are working hard for COVID patients. Most of the fake news related to COVID-19 also creates stresses among the people.

### **1.3 Impact on the Economy**

COVID-19 is impacting almost every sector and the economic sector is no exception. In Assam, during the lockdown, many people became unemployed. People lost their jobs and even the source of their earning. There are huge economic losses in households while salaries were cut for many others. Stock markets in India posted their worst losses in history.

The state's economy has been hit hard due to the COVID-19 pandemic and lockdown. As a result, the Goods and Services Tax (GST) collection in Assam dropped by around 80 percent in April. The state collected only Rs 193 crore as GST collection, which is only around 20 percent as compared to the previous year. The collection though increased to Rs 360 crore in May, but it is still 40 percent compared to the previous year. Further, the state government had collected Rs 6.33 crore in April as foreign liquor tax which is just 10 percent as compared to March this year. Moreover, the monthly collection from the cess of petrol and diesel has also dropped from an average of Rs 340 crore to only just Rs 60 crore.

On account of the COVID-19 lockdown, normal operations in tea gardens were under shutdown from 25 March till 14 April, due to which the tea industry has incurred a loss of around Rs 1,059 crore in revenue. Along with the tea industry, the tourism industry also suffered a great loss due to the COVID-19 lockdown. According to sources, the industry suffers an estimated loss of around 60 crores of income. The government further estimates a loss of revenue of around Rs 500 crore from the state tourism industry.

Covid-19, for the weavers, is not just a health crisis anymore – it is a livelihood hazard and a socio-cultural calamity since, for many of them, weaving is a form of livelihood, an art, and a part of their culture and identity. Most of the recent studies support the impact of lockdown crisis on human behavior and suggest that people in lockdown are experiencing negative psychosocial changes that have an impact on over thinking and anxiety.

#### **1.4 Impact on Farmers**

Farmers in Assam are facing a tough time due to the closure of vegetable markets in the state following the nationwide lockdown to stop the spread of corona virus. The state, which produces a total of 66 lakh metric tons of vegetables every spring, has allowed limited agricultural farming which affects adversely in the financial condition of the farmers, whose only source of income is agriculture.

Making the food grains, fruits and vegetables, and other essential items available to consumers, both in rural and urban areas, is the most critical challenge for Government machinery during the lockdown period not only in Assam but India too. The smooth functioning of the supply chain, with adequate safety measures for the people involved, is of paramount importance. Transportation of public distribution system (PDS) items to last-mile delivery agents, by both rail and road, has to be ensured by respective Government agencies. Distribution of the commodities to a vulnerable population, while maintaining prescribed guidelines and protocol, particularly of social distancing, must be effectively monitored. The Covid-19 caused lockdown has meant a loss of sales and supply, leaving the farmers stranded with the ready crop.

From my practical experiences I can say that in the absence of transportation and restricted movement of traders, tones of vegetables are going to waste. This has affected the farmers the most as the lockdown was announced in the middle of harvest season forcing them to stay indoors.

Most of the people in Assam are battling against hunger, searching for food rather than battling Corona. Food intake has been reduced to day's long hunger or just a single meal in a day. The state of Assam is in a state of anarchy and faces worse in the days ahead. Several persons and organizations are involved in the relief and humanitarian aid operations. These aid workers and volunteers are co-operating with the administration. The administration is trying its best to supply the ration needs of those mainly in urban and semi-urban centers.

#### **1.5 Impact on Migrant Workers**

Migration is the movement of people away from their usual place of residence, across either internal (within-country) or international (across countries) borders. Migrant workers are those who majorly comprises of daily-wage laborers working in the manufacturing and construction industries. They are mostly from rural areas but live in cities for work for most of the year.

Migrant workers from Assam during the COVID-19 pandemic have faced multiple hardships, with factors and work plans shut down due to the lockdown imposed in the country. With no hope for work and a source of money, the millions of migrant workers are facing difficulties to buy foods and find shelter. Many of them and their families went hungry. Thousands of them then began walking back home, with no means of transport due to the lockdown. In response, the Central and State Governments took various measures to help them and later arranged transport for them. Though the government has decided to extend financial support to the migrant workers it's not up to the mark.

The number of the migrant workers of Assam died due to the lockdown, with reasons ranging from starvation, suicides, exhaustion, road and rail accidents, police brutality, and denial of timely medical care.

### **1.6 Impact on Daily Routine**

Due to the COVID-19 pandemic, lots of changes take place in the daily routine of the individual. People started to wash their hands after touching infected or any other objects, always wearing a mask regardless of the presence or absence of COVID-19 symptoms, covering mouth when coughing and sneezing, need to avoid sharing utensils (e.g., chopsticks) during meals, always washing hands immediately after coughing sneezing or rubbing nose.

Eating habits of the people also changed during the lockdown and people are cooking more and spending more time in the kitchen compare to pre lockdown. In this pandemic situation, people started to feel socially isolated due to lockdown as they are bounded to stay inside their homes and not allowed to go outside or meet people.

## **2.0 POSITIVE CHANGES THAT TAKE PLACES DUE TO COVID-19 PANDEMIC**

The whole world is in a complete lockdown. But as we know that challenges create opportunities. So, some the opportunities are like-

- i.** We have become more hygiene conscious. People have started taking personal hygiene more seriously. The ritual of washing hands, sanitizing things before use, that started as a compulsion is becoming a habit. Public spitting is a criminal offense liable to fine. So people are becoming more and more aware of the rules and regulations imposed by the government.
- ii.** During pandemic days of Covid-19, we have learned that we can work from anyplace or home by using technology in a better way. And this period teaches people to be more advanced in technology.

- iii. People developed the feeling of humanity towards others & also supported people in various ways. **We realized we are all equal concerning the force of nature.** Rich or poor, great or small, this virus has impacted all of us. Such a blow of global proportions has broken down the barriers between us and we no longer see ourselves as separate nations.
- iv. We have realized that we need a more advanced scientific laboratory, hospitals, and medical assurance that if in future like this will happen no one will die for lack of treatment or vaccine.
- v. This is the best time to be enrolling in an online course. The course might not be necessarily related to their academics. There are online courses available for practically anything nowadays. They can take up a new hobby or perfect an already existing one. This way, they will spend their time constructively and also learn a new skill which might come in handy when they grow up.

### 3.0 CONCLUSION

The pandemic Covid-19 is a public health emergency of international concern and poses a challenge to the psychological resilience, economy, and social life of people. It impacts the life of the individual adversely. During the current pandemic there have been many lifestyle changes, few of these like taking care of diet and exercise, adding more fruits, having home-cooked meals, spending time with family, reading quality books, and so on. We know that each and everything has two sides positive and negative. In the case of COVID-19 negative impact is much more than positive. The central and state government works hard to control its effect.

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# CHAPTER 22

## ADAPTING TO MENTAL HEALTH CHALLENGES DURING COVID-19 PANDEMIC

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### **ABSTRACT**

A recently developed zoonotic viral infection known as novel coronavirus disease (COVID-19) is affecting individuals, globally appearing as a pandemic. It has been seen in the course of recent months that during this episode of COVID-19 disease, there are expanding mental health issues. Mental health issues vary among different population during the COVID-19 pandemic. Vulnerable populaces like COVID-19 cases, close contacts, old, youngsters and health professionals are required to have more challenges with adapting. Likewise Myths related with COVID-19 additionally lead to trouble and inappropriate lifestyle measures. Thus, appropriate prudent steps that can decrease the mental distress must be taken. In view of this, people encountering distress ought to adopt various healthy relaxation measures and if required help from mental health professionals.

*Keywords: Mental Health, Challenges, Covid-19 Pandemic*

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### **1.0 INTRODUCTION**

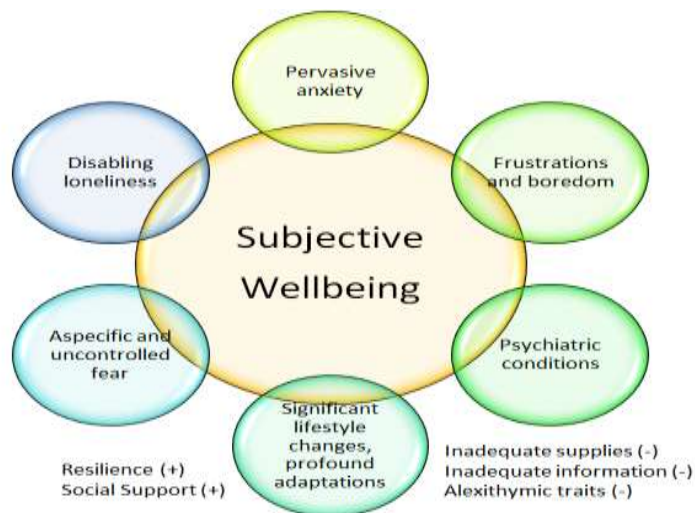
The progressing pandemic of COVID-19 is a worldwide threat which brought about critical morbidity and mortality around the world. It has likewise antagonistically influenced the economy and social integrity. The worldwide effect of COVID-19 has been significant, and the public health threat because of this is the most genuine seen since the 1918 H1N1 influenza pandemic. The overall case fatality pace of COVID-19 is variable in various nations. The effect of the disease is past mortality, and morbidity has become apparent since the outbreak of the pandemic.

An enormous population all through the world is certain to have a huge mental effect as confirm by a preliminary report which suggests that the greater part of the respondents evaluated the mental effect as moderate-to-extreme and around 33% announced moderate-to-serious anxiety. Studies post-SARS pandemic or post-Ebola show that even after recovering physically from the disease, people experienced social and mental issues and similar effect will be there with this pandemic. Studies proposes that vulnerable groups who are restricted to their homes during a pandemic can have negative health outcomes (Figure 1). Kids particularly become genuinely less active and have much longer screen time, unpredictable

rest designs and less favorable eating regimens, bringing about weight gain and lost cardiorespiratory wellness.

Likewise, there are other direct and indirect implications of the closure of schools like unintended childcare commitments, which are especially enormous in health care occupations. This could be identified with the current circumstance in the majority of the nations all through the world not only in child care but also in the adult and geriatric population. COVID-19 is a supply shock and a demand shock. Both the viewpoints will effect on total trade flow. It has both immediate i.e. direct and roundabout i.e. indirect economic implications. The stocks and flow of physical and money related resources are intruded. Stigma and fear are other aspects of the outbreak of a pandemic. Another zone of effect would be travel and the tourism.

It can introduce significant obstructions against medicinal services seeking, social marginalization, distrust in health authorities and distortion of public perceptions of risk, resulting in mass panic among citizens and the disproportionate allocation of healthcare resources by politicians and health professionals. Effect on the sports and different mass social occasions all through the world can't be ignored. Within weeks of the emergence of this pandemic, there have been circulation of misinformation, misleading rumours and conspiracy theories about the origin paired with fear mongering, racism and compulsive buying and stocking of goods and face masks. This can be ascribed to affect the social media created. Over all the pandemic will have sway in all domains of the current world beginning from health, society and economy and would likewise affect the future policy making at worldwide, provincial and nation level.



**Figure 1: Most relevant psychological reactions in the general population related to COVID-19 infection**



## 2.0 RISING MENTAL HEALTH ISSUES IN COVID-19 PANDEMIC

The COVID-19 pandemic is a worldwide emergency situation while the analysis of explicit issues needs a particular time period which is a significant requirement to evaluate the mental health issues. In addition, huge numbers of the survivors may develop mental disturbances after the event. Along these lines, different and complex perplexing factors makes the issue hazy. Luckily, studies evaluating the mental health issue have been coming out bit by bit which needs additional time absolutely to get replicable discoveries.

## 3.0 ADAPTING WITH MENTAL HEALTH ISSUES DURING COVID-19 PANDEMIC

While the healthcare division and government authorities from everywhere throughout the world is concentrating on the control of the pandemic adapting different preventive systems, there is little consideration gave to the mental health status of the isolated, panicked and house-arrested people. Because of absence of customary social activities and remaining at home for a longer time will impact their emotional well-being. Exploration has likewise indicated that abrupt outbreak can decline the mental health conditions of those with pre-existing mental health illness. Individuals can adapt to the psychological or mental health challenge by receiving different way of lifestyle related measures. (Figure2 and 3).

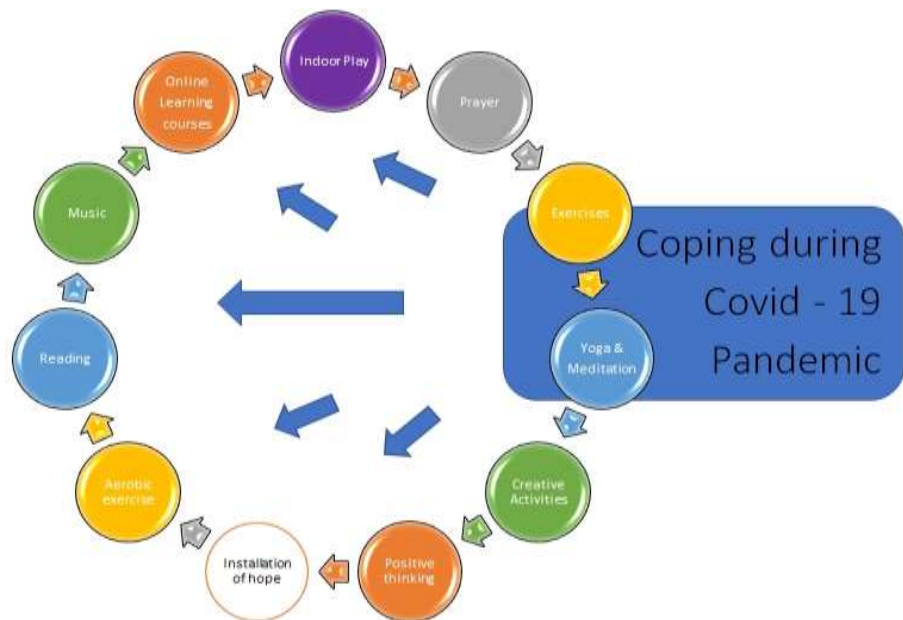


Figure 2: Coping during Covid 19 Pandemic



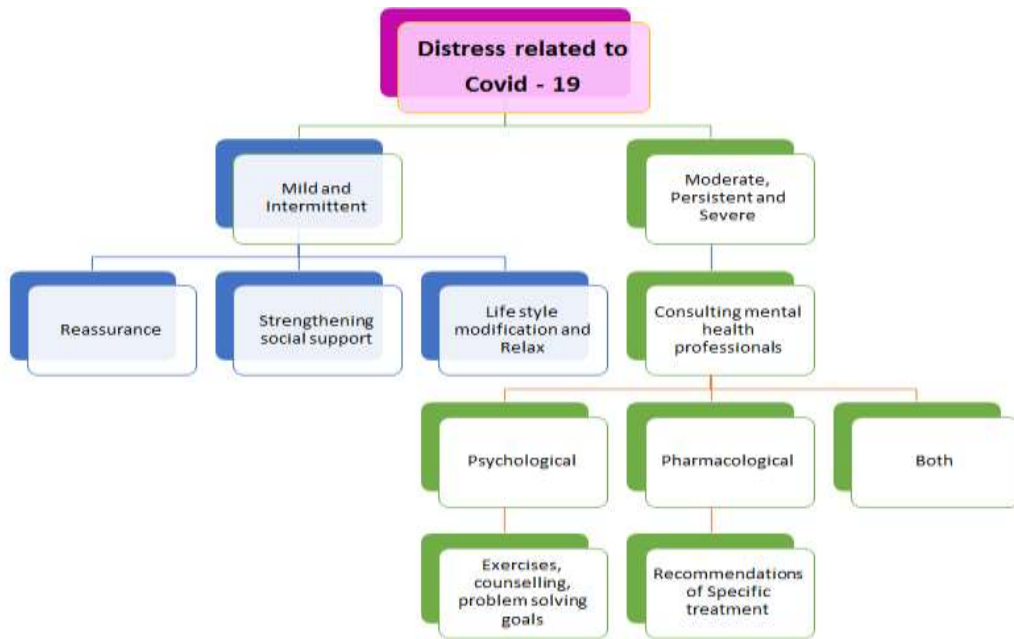
**Figure 3: Recommendations for effective adapting with mental health challenges during Covid – 19 Pandemic**

#### 4.0 PRECAUTIONARY MEASURES AND RECOMMENDATIONS

No clear treatment is accessible for the treatment of the COVID-19 infection. Prevention is the best system to battle the COVID-19 pandemic. Prevention is certifiably not a difficult task as it is commonly thought to be. For the viable prevention of COVID-19, extensively two kinds of prudent steps to be taken, as referenced beneath:

1. General precaution steps: It is intended for everyone in the network. : It includes social distancing, hand hygiene, avoid travelling, use of masks, etc.
2. Explicit precaution steps: It is intended for people who are sick, close contacts of COVID-19, travellers and healthcare workers : Use Covid test if symptoms develop and persist, Use of personal protective Kits by healthcare personnel, Avoid travel and social contact if come in contact with infected person, maintain proper hygiene and sanitization in home, clinics and hospitals, etc.

The insurances and suggestions are focused to address the necessities of the over three groups of the population that are General population, Covid – 19 infected patients and close contact, health workers. Prevailing myths and unawareness about prudent steps may cause trouble among individuals. There is a need to follow certain recommendations for effecting adapting to mental health challenges. People who experience mental distress must report or advise their challenges, as opposed to concealing them. People who experience persistence distress may look for help from the mental health professionals through helplines accessible or hospitals in cases of emergency situations. **Figure4** sum up the recommendations according the risk severity and the board way to deal with mental health difficulties during COVID-19 pandemic.



**Figure 4: Management approach to mental health difficulties during COVID-19 pandemic**

## 5.0 CONCLUSION

COVID-19 conveys huge psychological and mental health hazards. There is a scarcity of exploration tending to the mental health issues during the COVID-19 pandemic. As the mortality and morbidity statistics are reaching at new pinnacles each day, isolation and lockdown states are getting drawn out, recreational opportunities for individuals are reduced and the money related emergency is building in, mental health issues are probably going to develop exponentially. There is a need to comprehend the psychological viewpoints of COVID-19 and potential measures to adapt to the pandemic for their successful and effective management.

## 6.0 FUTURE PERSPECTIVES

The mental health issues related with the COVID-19 pandemic can be prompt (short term) or remote (long term). Existing studies tend to the prompt mental health concerns only. It is imperative to see long-term mental health sequels of COVID-19 infection. Nothing is thought about the eventual outcomes of novel coronavirus disease; henceforth, there is a requirement for broad exploration as far as Management way to deal with mental health challenges during COVID-19 pandemic.

Essentially, it is required to comprehend the psychological medicinal services needs of patients with COVID-19, close contacts, health experts managing COVID-19 patients and general public. Future examination ought to likewise consider the practicality and adequacy

of different online psychotherapeutic mediations during the COVID-19 pandemic, internationally with a particular concentration in the low-and middle-income countries (LMICs). As there is a worry about contacting infection during direct contact with patients, online consultation can be a possible method of delivering therapy.

## CHAPTER 23

# COVID-19: CORONAVIRUS EPIDEMIC AND ITS GLOBAL MENTAL HEALTH CONSEQUENCES

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### ABSTRACT

The current epidemic in Wuhan (China) and spreading coronavirus COVID-19 among human beings significantly affect global health and mental health. Given all the tools to combat the spread of the virus, more comprehensive approaches to dealing with related health problems are required. This outbreak causes additional pro-health health, including stress, fear, depression, insomnia, denial, anger, and global fear. Popular issues influence everyday behaviour, economy, preventive initiatives and policymakers, health organizations, and medical centres to undermine COVID-19 management approaches and to increase morbidity and mental health requirements at the world level.

**Keywords:** *COVID-19, Mental health, Outbreak and Global*

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### 1.0 INTRODUCTION

Following the out breaking of a new coronavirus (COVID-19) in Wuhan (China) on December 31, 2019, a growing number of information and concerns affect global mental health. The details, advice, and minute-by-minute updates on COVID-19 spreading and lethality are provided by the world media, local and international health organizations (including the World Health Organisation), epidemiologists, virologists, and opinion-makers. Nonetheless, the global mental health burden of this disease is ignored even though patients, the general public, policymakers, health department, and teams are questioned. After the outbreak of the febrile respiratory syndrome caused by pneumonia due to a novel, unknown coronavirus (Li et al . , 2020) which may connect with a wholesale market in Huanan, the city of Wuhan has become a significant hub on China after December 2019 (Y. Chen, Liu, & Guo, 2020). On January 1, 2020, China's health authorities introduced fast-track steps, including extensive monitoring, epidemiological surveys, and business closures (N. Chen, Zhou, et al., 2020). Severe acute coronaviral respiratory syndrome (SARS-CoV), Mid-Eastern Coronaviral Respiratory Syndrome (MERS-CoV), avian influenza, and other common air viruses have been rapidly eliminated (Centres for Disease Control and Prevention, 2020). On January 7, 2020,

the latest coronavirus (SARS-CoV-2, originally named 2019-nCoV), was isolated from a patient and the sequencing of that genome was carried out (Lu et al., 2020). World health or the SARS-CoV-2 is the seventh member of the coronaviral family to infect humans, other than MERS-CoV and SARS-CoV, SARS-CoV-2 (Zhu et al.'s, 2020, previously identified as an unknown beta-coronavirus). This outbreak may be related to the selling in the seafood market of brown meat derived from wild or captive sources (Cui et al., 2019). This new respiratory disease has been named COVID-19 by the WHO. The first cases were men, with underlying conditions, including diabetes, high blood pressure, and cardiovascular disorders, less than half of them reported. Animation (WHO) officially recognized the genetic sequence of SARS-CoV-2, which led to the development, in various countries, of specific PCR-based diagnostic tests for the identification of new infections (Corman et al., 2020). This led to one particular polymerase chain set reaction. Fever, cough, and myalgia or fatigue is common symptoms of the onset of disease. Sputum, vomiting, hemoptysis, and diarrhea were fewer common symptoms. Acute respiratory distress syndrome, serious heart injury, and bacterial secondary infection were complicated (Huang et al., 2020; Su et al., 2016; Weiss & Leibowitz, 2011). More and more data on transmission, route, reservoirs, incubation period, symptoms, and clinical conditions are reported on the new coronavirus every day. Outcomes are collected worldwide, including survival rates (Corman et al., 2020).

## **2.0 COVID-19 AND MENTAL HEALTH REPERCUSSIONS**

Similar data can be derived from previous experience with coronavirus infections, even if this epidemic has not registered and measured its impact on global mentality. Patients were treated for haemodialysis in an isolated environment during the 2015 Korean MERS-CoV outbreak. After two weeks of isolation, patients reported decreased haematocrit, calcium, and phosphorus levels. Circulated cell-free genomic DNA (ccf-gDNA) and cell-free mitochondrial DNA (cf-mtDNA) in circulation have shown a significant delay in the normalization of cells in the group of controls compared to patients. It means that a high level of stress in the haemodialyzed patients was caused by medical isolation during the Korean MERS outbreak (Kim et al. 2019).

The protection measures consist primarily of the segregation of significant parts of the population. In many situations, isolation can serve as security; for example, terrorist attacks and previous experiences have been identified with much

mental distress (Fagan et al., 2003). In fact, following the city-wide evacuation, after the Boston Marathon bombings, the frequency of functional neurological symptoms has risen 3,4 times (Guerriero et al., 2014). Caregivers should be conscious of operational neurological conditions, particularly in people with previous psychiatric illness, during traumatic group activities (Jeong et al. 2016). Also, medical professionals may encounter developmental problems after dealing with traumatic group events. During the SARS-CoV outbreak in Singapore in 2003, 27 percent of staff registered mental disorders (Lee et al., 2018). The post-traumatic stress disorder signs showed the medical workers performing MERS-related activities after the 2015 Korean outbreak. As stated, even after isolation, the incidence of symptoms increased (home quarantine). As demonstrated by a high mortality outbreak of infectious disease (Shantanu &Kearsley, 2020), early and consistent clinical interventions were carried out by the mental health team to deal with the outbreak. Likewise, medical staff has shown a high level of anxiety and the effect of stigma among those directly infected by the Ebola outbreaks in Sierra Leone in 2014 and the Democratic Republic of the Congo in 2018 (Park et al., 2018).

## **2.1 Taiwan**

Most emergency and psychiatric personnel in Taiwan developed post-traumatic stress disorder (PTSD) during the Taiwan 2003 SARS-CoV outbreak. The emergency department employees showed more severe PTSD symptoms than the psychiatric team (Lee et al., 2018). Medical workers displayed a sense of loneliness and fear of spreading the virus to their families. Heavy protective suits and N95 masks also complicated the communication among the staff with related psychological distress (Lee et al., 2018) medical personnel stated. In health workers who had access to a well-equipped and structured environment, the psychological adaptation was described. The effect of stigma and hardness directly influenced public hospital health workers during the 2015 Korean MERS-CoV outbreak (Shigemura et al., 2020).

## **2.2 Wuhan**

In the emergency of COVID-19, medical staff in Wuhan faced a high risk and insufficient protection from pollution, overwork, anger, prejudice, loneliness, negative emotional patients, inaccessibility to their families, and fatigue (Kang et al., 2020).Currently, tension, anxiety, depressive symptoms, insomnia, denial, frustration, and fear are the reasons for the condition (Jones et al., 2017). Mental

health problems affect healthcare professionals' attention, intelligence, and decision-making capabilities, which may prevent combating COVID-19. Nevertheless, they can continue to have a permanent effect on their mental health (Kang et al., 2020). In the general PTSD population, the prevalence rose from 4% to 41%; after the epidemic, the incidence of major depression rose by 7%. Many variables may increase the likelihood of developing disorders such as female sex, lower economic status, ongoing disputes, regular use of social media, and lower social support and resilience (Heather Mowbray, 2020).

Many people search for event-related information during each group crisis to keep updated on what's taking place. Nevertheless, if official data from channels are missing or is disseminated irregularly, some misleading information may be exposed to social and media. A research carried out in the United States of a university lock after a shooter incident showed substantially higher levels of acute stress in subjects receiving contradictory details about the lockdown (Purgato et al., 2018). Many issues with direct telephone contact messages and social media for essential notifications were subjected to more contradictory information and tension during the lockdown. In the study, heavy social media users also registered higher acute stress. The research highlights the importance of regular, substantial official updates to crisis events and social media surveillance to reduce the risk of incorrect information and frustration (Purgato et al., 2018). Unidentified fear can lead to discrimination, stigmatization, and scapegoats in healthy people and those with pre-existing mental illness (Mowbray, 2020). Firstly, intense anxiety and insecurity are likely to be the emotional reaction of people and, sometimes, negative social behaviour is motivated by fear and skewed risk perceptions including

1. Additionally, special measures should be made, especially for vulnerable populations: patients, their families and colleagues, and infected and sick.
2. people and their relations with the community,
3. Persons with pre-existing physical and psychological conditions;
4. Provider of health, in particular nurses and physicians directly affected by the sick or quarantined.

Finally, in the decision-making process, we will consider the level of psychological stress facing health workers and other individuals and the danger to vulnerable groups.



Although there are limited studies of mental wellbeing in patients with COVID-19, several authors stress that the potential psychological and physical impacts of the most disadvantaged segments of the population can be predicted more or less (Kang et al., 2020). The group and family's psychological and medical intervention can have some effects on adult reduction of the symptoms of PTSD, depression, and anxiety. More evidence-based work is needed, in particular, on the impact of such interventions over more extended follow-up periods on children and young people (Purgato et al., 2018).

### **3.0 CONCLUSIVE REMARKS**

The current emphasis on COVID-19 infection in the world can divert public attention from the psychosocial effects of the outbreak in people and the general population. The significant issues of mental wellbeing associated with this global phenomenon will contribute to chronic depression, alienation, and prejudice. In particular, the use of segregation and quarantine, anxiety, and vulnerability among the general population should be dealt with by comprehensive health interventions for tackling psychosocial stress. The mental health effects of patients and the general population should be focused on an integrated international response. Media and social network knowledge must be tightly monitored, and psychological strategies, inclusive of communities should be implemented internationally.

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## CHAPTER 24

### IMPACT OF CORONA CRISIS ON WOMEN

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#### **ABSTRACT**

The world is giving more emphasis to look at the effects of Coronavirus from the lens of social science. In this article Coronavirus is considered as a devastating natural disaster and intends to know the impact of Coronavirus on housewives. They are facing the stress, anxiety, depression and sexual harassment etc problems. In this article qualitative approach is used and housewives classify into three pillars of society one is having no child, second is having children and old grandparents third is working housewives. Finally it is suggested to recruit more psychiatrists and increase the level of social & family support for depressed women so that they can have more of an equal contribution in society.

***Keywords:** Mental and Physical health of Housewives, Gender Dimension*

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#### **1.0 INTRODUCTION**

Coronavirus is a Virus which infects humans. The virus is spread through the air by coughing and sneezing, touching an object or surface contaminated with the virus. It is the biggest challenge for the whole world. People are facing various problems. Because of this Coronavirus Govt announced the lockdown in India. In this lockdown period from 22 March 2020 and ongoing it is a very difficult time for every person whether they are child, young or old age. Housewives are more affected during this lockdown period. Because the major responsibilities of household chores are upon the women of the family.

#### **2.0 CLASSIFICATION OF HOUSEWIVES**

**2.1 *Having no Children (discussed below)***

**2.2 *Having Children and Grandparents (discussed below)***

**2.3 *Working Housewives (discussed below)***

#### **2.1 Impact of Corona Crisis on housewives having no children**

- i. **Work burden**-In lockdown period housewives bear over work burden. Stress of doing household chores and taking care of family, preparing food and cleaning the house etc work has to do so they feel more work burden on them.

- ii. **Depression/Anxiety-** women are doing too much work and feel very tired after finishing their work. So here anxiety level is increased in these Coronavirus situations.
- iii. **Worried about future life plans-**Housewives are worried about future life plans because in this corona crisis nobody can see their future life as we know future is a uncertain .Even nobody knew the Coronavirus come in their life and destroy all their dreams for sometimes or forever .Because after this lockdown everybody want one or two may be more year to be settle down to this situation.
- iv. **Unwanted pregnancy-**Wives and Husbands are sitting at home for whole day .They talks about their life problems so they more attached physically or emotionally They have more sexual feelings which may be result to unwanted pregnancy. After that women have no choice to accepting the unwanted pregnancy.
- v. **No Outing/Honeymoon trip-**Everybody know that women having a lots of hobby to shopping and long drives. But this is the biggest challenge for women not to go anywhere for honeymoon or long drives , only sitting in house and preparing food.
- vi. **Depressed about earning money-**Daily wage husband is the problem faced by housewives because they are worried about to earning money and maintain the money circle of house, buying vegetables and all other necessary things.
- vii. **Sexual Harassment-**Some husband are used to drink vine and drug addicted and they attempt to sexual harassment upon their own wives. This is the biggest impact because only due to lockdown men are also frustrated and all that stuff.
- viii. **Situation of Divorce-**According to survey after corona crisis divorce cases will increased .Because fighting in relationship may be intents to giving divorce to their husband. Every wife can bear this only up to a limit.
- ix. **Domestic violence-** Men are ordering food three times in a day and women are preparing food even a man also can prepare food .So today's wife are aware about their rights. Silly things even a cause of domestic violens.Some husband drinks vine and beating their wife only to frustrated their anger.
- x. **Irritated from lockdown-** Lockdown stared from 22 March still is very un bearable situation. Nobody can go outside without any need, only sitting at home like live in isolation so wives have irritated from this lockdown .Because they have no holiday from their work.

## **2.2 Impact of Corona Crisis on housewives having children or grandparents**

- i. Overburden of household chores-**Women having children and grand parents and living in joint family feel overburden of household work. They have to do cleaning the house and washing the clothes of whole family ,preparing food for whole family. Therefore all work burden is upon shoulders of wives.
- ii. 24 hours working without demanding salary-**It is the biggest problem for wives that are working 24 hours without demanding the salary even nobody is ready to pay for it because everyone say that this the duty of wives to prepare food and do household chores. Wives are not earning money so they are depressed to think about it.
- iii. No time for their own life-**Husband giving orders for food, Children need help to do their homework, then wives all day working for their family they have no time for their own life, and no time to think about their selves.
- iv. Sexual Harassment by their husbands-**Men is sitting at home and get depressed and frustrated so they are attempt to sexual harassment and beating their wives. It is the biggest problem which wives are bearing. Even so many cases are here that husband raped his own wife .This unwanted sex make the women physically weak and mentally upset.
- v. Difficult to create awareness about Coronavirus to their grandparents-**Grandparents and children want to go outside so it is difficult for wives to understand them about Coronavirus and the lockdown policy.
- vi. Bearing domestic violence and abusing language.** This covid-19 era is full of struggle in life of wives and all other people also because in this time husband frustrated about their job or salary and they beating the wives and use abusing language which result to some wives give complaint to their near police station.
- vii. Worried about their children future plan and study-** Women are worried about their child's future and also about their study because as we know students have passed their classes without giving exams .This is not the exact success of student's study. Nursery or up to primary classes students are not make their base properly because online classes are not so effective for children's.
- viii. Gender Dimension-**Male of society is made for earning money and women are made only to prepare food whole life of women spent in kitchen. Women have no right to do work outside the home. This is the genderdimension of our society. This is the biggest drawback of people which intents to upset women mentally and they are going in

depression because they have no freedom to live their own life according to their lifestyles.

- ix. **Stress and Anxiety level-** full day working wives having more stress and increasing their anxiety level. They are also facing the insomnia problem.
  - x. **Increase in feeling of frustration, guilt and fear-** They have fear of corona that this deceased is widely spread in air. They are sitting at home and frustrated from the daily routine.
  - xi. **Fear to maintain the financial position of family-**In covid-19 era there is lockdown in india.This result to all factories, shop are shut down. Therefore it is difficult to maintain the financial position of family. Because demands are not less, food is the basic need of everyone. Wives have fear in their mind that how they can survive without earning money.
  - xii. **No awareness about Govt Policies and plans-** They have no awareness about Govt plans and policies. They are worried about in this situation that what will happened with them. Because they cannot go to any marriage function because Govt impose some restrictions on various function.
  - xiii. **Domestic violence intendeds to divorce cases-** Domestic violence is the reason of divorce cases. Because husband beating their wives and torture them so finally wives decided to give divorce and finish this daily domestic violens.But this impose very bad effect up on their mental health.
  - xiv. **Difficult to understanding to use of technology-**less educated women having problems to use technology. They feel difficult to attend their child's zoom app classes or online classes.
- 2.3 Impact of Corona Crisis on working housewives**
- i. **Not able to do work effectively from home-** Those wives ware working in office now they are sitting at home. They are not able to do their work effectively from home because in this lockdown they have to do household chores also.
  - ii. **Difficult to concentration to their work-** family disturbance is the reason to concentration to their work properly. Because they have to take care of their child and have to do other work also.
  - iii. **8 hours work is increased to 24 hours –** Their job timing is increased from 8 to 24 hours because at home they are working from laptop and pc. They have to prepare food ,cleaning the house.

- iv. **Difficult to maintain the family and office work simultaneously-** They have to do office work from home and household chores. So it is difficult for them to do office work or maintaining the family simultaneously.
- v. **Problems in husband wife relation-** Women are doing their household and office work after that they get tired and having no proper time for their husband .So this result to create relationship problems.
- vi. **Less output of their work done –** As they are sitting at home and can not concentrate to their work properly so output is not too much and they are not satisfy from their work done. According to research most women are not ready to do their work from home
- vii. **Depression and anxiety –** women get depressed because they are mentally and physically tired from their work done. So anxiety level is increased and insomnia problem also occur.
- viii. **Problems because of using more hours internet-**Using the technology more hours get resulted of infections in eyes (eyesight), backbone problems to using the laptop or pc. So women get tired.
- ix. **Not too much caring the family and children-** As we know they are doing their office work and daily output is checked by their boss so they have not too much timing for their children and family.
- x. **Bad effect on mental health –** Doing all the office work and household work, other tensions about future, financial problems get very bad impact up on their mental health which intends to depression.

### 3.0 CONCLUSION

Housewives need help from their family and social support also .Because in this 21 century patriarchy system still exist that women are made only to prepare food and physical entertain. So there is need to aware people that, in difficult time man should stand with their wives and helping each other. There should be more counseling centers and recruitment of psychologist to aware the women about their mental health and taking care of them. And also women should have self confidence to fight against corona.



**CHAPTER 25**  
**INDIAN START-UPS AMIDST COVID-19 PANDEMIC- THE CHALLENGES**  
**AHEAD**

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**ABSTRACT**

The COVID-19 pandemic and the prolonged lockdown caused the Indian start-ups to experience havoc. Restrictions on the movement of goods and people leading to increased supply and demand side risk, lack of investors to continue investing in the business, a global recession that is looming in – all made Indian start-ups' survival too difficult. Change in customer perception is also quite challenging to handle. Above all the uncertainty that has gone up in manifold seem almost impossible to handle. In this context, this paper sincerely attempts to highlight the challenges that Indian start-ups will have to combat in the post covid-19 world from four different perspectives namely financing, sourcing other resources, customer retention and adhering to the regulatory impositions.

**Keywords:** *start-up ecosystem, venture capital funds, migrant workers, customer perception*

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**1.0 INTRODUCTION**

Start-ups in India saw a colossal development during the last decade because of conducive business conditions including government activities. The KPMG Report released in February 2019, revealed that there has been a quantum jump in the number of new start-ups from a mere 7000 in 2008 to 50000 in 2018, an increase of 7.14 times. All around, India is the third largest start-up ecosystem in the world, after China and the US. The total fund raised by Indian start-ups had been over \$11 billion in 2019, which was 55% higher than 2018 in terms of value and 30% higher in terms of deal volume. Another important benchmark for value-addition namely aggregate employee benefit expenditure shows that Indian start-ups spending in this context stood at \$1.25 billion, an increase of 33% from the previous financial year. As per the US-India Strategic and Partnership Forum, Indian start-ups were relied upon to draw investment of over \$21 billion creating 550,000 immediate and 1,400,000 aberrant occupations. Business specialists were relying on India's possibility to turn into the most dominant start-up hub of the world very soon, until there was the episode of COVID-19.

**2.0 INDIAN START-UPS AMIDST COVID-19**

Despite the fact that COVID-19 rose in December 2019 in Wuhan Province of China and afterward spread over the world, the real heat was felt by Indian start-ups just during the

finish of March when following the WHO's declaration of the infection being a pandemic the Indian Govt. announced the first period of lockdown to confine the spread of malady in India on 25th March 2020. Unfortunately, the lockdown was further continued in three additional phases until the first phase of unlock started on 8<sup>th</sup> June 2020, after a total of 68 days of lockdown since 25<sup>th</sup> March 2020. This extended period of lockdown caused severe destruction for the Indian start-ups. Restrictions on the movement of goods and people leading to increase in both supply and demand side risk, lack of investors to continue investing in the firm, a global recession looming in - all made the endurance of Indian Start-ups extremely troublesome. As indicated by an ongoing report by NASSCOM, out of around 9300 tech start-ups in India, many suffered extreme consequences, though the same was bigger for early to mid-stage start-ups. Over 90% of these start-ups confronted noteworthy decline in their revenue while around 30-40% had to shut down their activity. Another report by Datalab by Inc42 showed that layoffs, hiring freezes and pay-cuts for founders and senior managers have been announced by even the major Indian start-ups like *OYO*, *Blackbuck*, *MakeMyTrip* to other start-ups such as *Limeroad*, *Fabhotels*, *Shuttl* and many more. The report also revealed that over 246 Indian start-ups have already undertaken layoffs whereas 278 start-ups have announced hiring freezes. Another overview by Praxis Global Alliance during the propelled period of lockdown uncovered that the new businesses are to suffer extreme shortage of funds if the circumstance doesn't normalize soon.

### **3.0 THE COVID-19 CHALLENGES FOR INDIAN START-UPS**

Any major worldwide disturbance causes intense vulnerability in the monetary condition and an enduring effect. The Great Depression, World War I and II, Financial Crisis of 2008 – all had an extreme monetary effect over the world and economies took a long time to stabilize again. The COVID-19 effect is no less, rather in many aspect more than those occasions as it will have a multidimensional impact. With no immediate relief available, the circumstance may additionally get confounded. While an established firm in a formal sector may still figure out how to endure, the same may not be possible for start-up which are fundamentally characterised with high risk either due to the business model or the product which is innovative and not traditional. Because of this trademark, Indian new companies are additionally prone to confront colossal difficulties overseeing of which will be critical for their endurance and future development. Additionally, India start up eco system is still in the advancement stage and not developed at this point. Thus, the difficulties will intensify further. The difficulties that Indian new businesses should battle in the post COVID New Normal are:

### **3.1 Procuring Resources**

Unlike tech start-ups, companies in other sectors such as healthcare, glossaries, education etc. require sizable amount of manpower or logistics support to conduct smoothly. These start-ups are heavily reliant for their raw material, product procurement, on various micro, small and medium-sized enterprises. In India the extended 68-day lockdown has had a severe impact on the MSME sector. Over that long period, they remain completely inoperative. Also, after the beginning of the unlocking cycle on 8 Jun 2020, this sector is faced with immense difficulties due to a lack of funding and workforce.

A broken supply chain is also adversely impacting the start-ups. Some start-ups are also highly impacted on the logistics front due to a shortage of workforce. During the initial shutdown process, start-ups in the e-commerce sector were fully closed because of the lack of adequate workforce even though critical supplies (including groceries) were permitted and advocated. The situation was not different in the second phase. This problem of lack of manpower is unlikely to fade out soon in the future as all the migrant workers have already left for their native places.

### **3.2 Flow of Fund**

Start-ups normally run on ideas and are thus highly risky enterprises. That's why they can hardly reach alternative conventional financing. The main source of capital investment in start-ups is Angel Investors, Venture Capitalists and Private Equities. The Covid-19 pandemic and the prolonged lockdown that results in millions of job losses will surely lead to a serious recession, the indication of which is already visible in India. The unemployment rate touched 23.48% in May, 2020. The PMI stood only 30.8 in May and 47.2. in June 2020. Factory output contracted by 55% in April, 2020. The growth rate estimates have been revised below 2% by almost all the international agencies. If that is not all, then fiscal deficit has touched 58.6% of the annual target of 2020-21 in just two months. All these figures are sure to make investors cautious. Investors who have already committed will also like to personally re-evaluate the targets or push the deal to a future period until everything normalizes. This is because the profit figures of even a very high potential start-up during the pre-COVID era can suddenly come down in a big way under the revised circumstances.

In fact, there will be a lack of clarification about the number of valuations because it will be extremely unpredictable when start-ups will return to their historic growth trajectories. This will also limit the flow of money.

The Venture Capitalists will also tighten their requirements for investment. They would expect the start-ups to make their consumer acquisition costs more effective and

shorten their selling cycles. Focus will be more on companies that are able to maintain a steady cash flow rather than on those that require high marketing costs. They will look for unique models. As a result, deal negotiations will be lengthy.

Due to low return on investment, investors' fund will soon dry up and there will be only a few to continue investment even if the multiples and valuations of start-ups compress greatly. With capital market being extremely volatile, number of new IPOs will decline sharply. Value of exits will also drop too. With lower exit value, start-ups will have to manage increased pressure to raise funds in smaller rounds.

### **3.3 Altered Customer Perceptions**

Unlike the last financial crisis in 2008, there are several ways the latest COVID-19 pandemic is likely to alter consumer perception. Their buying behavior will also change, accordingly. While the financial crisis may have changed the way they plan to distribute their money, this pandemic could change the perception of their life goals because their very existence becomes all of a sudden at risk, survival is becoming more and more essential. The perception adjustment will change their lifestyle and redefine their priorities. When movement outside the house is limited, for example, they may feel less likely to buy clothing or cosmetics, spending less on spa services. At the other hand, they may give priority to buying a health plan or computer accessories to help work from homes or children's online classes. Thus, while start-ups in essential sector may get a boost, those in the non-critical or luxury segment (such as spa services, beauty products) will face severe demand side risk and become more vulnerable.

### **3.4 Regulatory Impositions**

Post COVID-19 the world won't remain the same. Since there is still no cure for the deadly disease, and even the medical practitioners and researchers are unclear about its transmission process and proper treatment, regulatory restrictions on medical grounds, such as restrictions on the free movement of persons, proper sanitation, the use of personal protective equipment and social distancing are bound to be there for few more years. Unfortunately, start-ups will find difficult to maintain these restrictions as the same would be quite a costly affair. Working in shifts or with part of the workforce, ensuring sanitization and social distancing at the workplace will shoot up the cost of production. Delivery of product or service will also become expensive to adhere to the social distancing norms and due to shortage of staff. All these costs may not be possible to be shifted on the customers. Additionally, there would be an increased risk of the disease being spread in the worst case resulting in the authorities again shutting the business operation.

There could also be other administrative restrictions as well. The geo-political rivalry between China and India post-COVID is also likely to invite restrictions on funding from China. US firms also may not be able to make fresh investments due to the pandemic crisis there which is worsening day by day. In fact, the Government of India has already issued a directive on 17.04.2020 by reviewing its FDI policy which states that foreign investment by a person (including beneficial owner of an investment) from a country which shares land border with India (namely China, Nepal, Myanmar, Bhutan, Afghanistan, Pakistan and Bangladesh) will require GoI approval. This would significantly impact capital inflows into Indian start-ups and they will now have to look beyond China and Hong-Kong.

Import curbs on raw materials from China will increase the misery for certain sectors (such as pharmaceuticals including biotech and electronics) that are highly dependent on China's imported raw materials. Sourcing the raw materials from any domestic vendor would definitely increase the cost.

The above challenges are extremely threatening and, if not tackled early, can cause major disruption in Indian start-ups. With businesses falling to near zero for many, low cash reserves, high debt burden, Indian start-ups are clamouring for the policy makers' immediate intervention.

#### **4.0 CONCLUSION**

Fortunately, the government has already taken some policy steps in this direction in April 2020 (as a stimulus package) and in May 2020 (as part of the Atmanirbhar India package by Prime Minister) that can help start-ups to combat the crisis. However, the worst-case scenario for companies perhaps is yet to come. Hence, with the rate of infection growing after Unlock 1.0, the ray of hope of any possible re-emergence is fading out day by day. The situation is really grave now for the Indian start-ups.

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## CHAPTER 26

### IMPACT OF INVISIBLE THREAT ON THE INDIAN ECONOMY

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#### ABSTRACT

The world is witnessing the invincibility of the invisible threat i.e. COVID-19, which has shaken the world to its core. It is unlikely for any economy to come out of this pandemic unscathed. Mitigating the impact and suppressing the spread of the virus is a major challenge for the already ailing Indian Economy. This paper aims to study the impact of outbreak on the Indian Economy and the policy response of the government to combat the virus. The immediate impact of the pandemic shows the disruption in the economy and the long term impact would be dreadful unless the vaccine is developed and the virus is contained as early as possible.

*Keywords: Macroeconomic Variables, India, Covid-19*

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#### 1.0 INTRODUCTION

Economies across the globe are in the clench of novel coronavirus which has emerged as the black swan event of the century. The virus, first identified from the Wuhan city of China in November 2019, has been announced as a pandemic by the WHO on March 11, 2020. Originating from a wet market of the city, it quickly spread over to almost all countries and territories of the world. This pandemic, popularly known as Covid-19, is a health and humanitarian crisis but has completely shaken the world economy to its core. Posing a serious health risk as having no cure yet and being highly contagious, it also halted economic activities in all major economies of the world impacting the socio-economic lives of people all around.

The immediate economic impact of this unprecedented crisis on the nations across the globe has been disruptive. Simulations of this global crisis shows that its long term impact would be dreadful for the human development and economy as a whole.<sup>i</sup> The virus brought the nations across the globe to standstill in the form of partial or nation-wide lockdown to contain its spread. Lockdown has affected businesses across various sectors of the economy including transportation, logistics, banking and financial services, tourism and hospitality. This puts a pressure on national and international authorities to look into various policies and



redesign them. Maintaining a balance between lives and livelihoods while managing social distancing norms is the major challenge in front of every nation.

Many compare the situation with the great depression of 1930s. The total extent of loss is still unknown. The pandemic is believed to have recessionary effects worse than that of global financial crisis, 2008. GFC, which was a gradual event, resulted in demand side shock whereas the sudden outbreak of Covid-19 pandemic has resulted in a rare twin supply-demand shock. Lockdown and slowdown of business activities have resulted in dearth of supplies and at the same time, constantly spreading virus and falling income levels have reduced the demand for non-essentials, hence, has resulted in slow economic growth. Another difference between the two is that GFC started in financial system and eventually transferred to the real economy and on the other hand, current pandemic started in real economy as a health crisis and has been impacting the financial and other sectors of the economy.

There is a huge economic cost associated with controlling the outbreak of any serious disease which creates a state of health emergency in the affected areas and involves diverting the funds reserved for the development. In past, outbreaks like HIV, Ebola, SARS etc. have compelled the authorities to commit huge funds and resources in order to help citizens out. But this time owing to the vast outbreak, it has significantly impacted the global economy. Economies with sufficient infrastructure, technical and financial resources are finding it difficult to withstand the damages from the crisis. Economies with fewer resources and deeply rooted problems like poverty and other economies which are highly dependent on exports, are likely to be hit severely by the global recession that this virus has brought.

Countries highly dependent and interconnected with other countries have suffered the most due to the disrupted global supply chain. China, is the biggest player in global supply chain and many countries depend on China for their raw material supplies. Halting of economic activities in China started affecting the countries dependent on it even before actually hit by the virus itself. India, which also had high dependence on China for raw material to be used in various sectors, is also bearing the brunt of virus. Indian economy was struggling with falling consumption and slow growth problems in pre-covid times, now the constantly increasing number of affected cases would add to the woes of this already beleaguered economy. The present paper aims to study the impact of the current pandemic on macro-economic variables of the Indian economy and challenges put by it. Further, it aims to reflect upon various steps taken up by the government to contain the virus and minimize the impact of it. As far the outline of the paper is concerned, it starts with introduction to the

topic. Then it proceeds to the methodology used to conduct the study, followed by impact of Covid-19 on the Indian Economy and policy framework of the Indian government to mitigate the impact of this outbreak. It ends with the concluding remarks of the authors.

## 2.0 METHODOLOGY

In order to achieve the objective of the current study, secondary data has been used. To understand the impact of the pandemic on the Indian Economy, reports of international organisations like World Bank, International Monetary Fund etc, reports of central bank, data released by national government, reports of various rating agencies, research articles and newspaper articles are thoroughly studied. Data for various economic variables has been taken from the websites of agencies like Centre for Monitoring Indian Economy Pvt Ltd, Public Information Bureau, etc. Conclusion is based on the subjective evaluation of the data.

## 3.0 IMPACT OF COVID-19 ON VARIOUS MACROECONOMIC VARIABLES OF INDIA

The immediate impact of the unprecedented crisis has been detrimental to the Indian economy. The actual long term impact can not be predicted accurately but it can be said that Indian economy will have to bear the dire consequences of the global health crisis.

### 3.1 Impact on Gross Domestic Product

Ever so debatable concept of measuring the growth of a nation i.e. GDP has been constantly declining since 2017-18 in case of India. The GDP growth rate of India was 8.2% in year 2016-17, 7.1% in 2017-18, 6.1% in 2018-19 and it fell to 4.2% in year 2019-20 as per the data released by National Statistical office. The economy has been struggling with low consumption, which forms the largest part of the GDP.

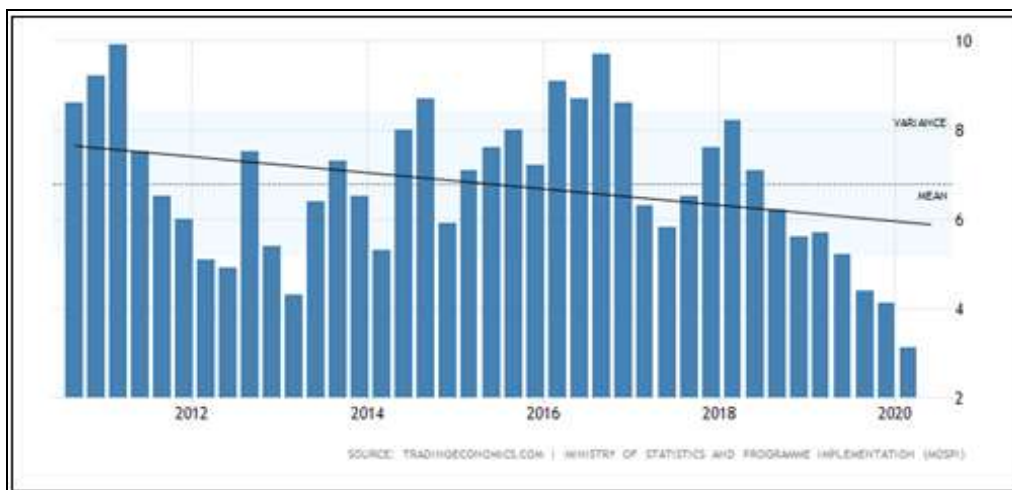


Figure 1: India's GDP Growth Rate Source: MOSPI

The growth rate in Q4 of the year 2019-20 stood at 3.1% as against 5.7% in previous year.<sup>ii</sup> This could be associated with the global economic slowdown during pre-covid period. According to the International Monetary Fund, India's GDP will contract by 4.5% in 2020-21 which is much lower than its earlier projection of positive 1.9% in its World Economic Outlook for April. The global GDP is expected to fall by 4.9% which is a historic low.<sup>iii</sup>

### 3.2 Impact on Employment and Wages

Covid- 19 has been detrimental to the employment situation of the country. The Centre for Monitoring of Indian Economy (CMIE) data on unemployment shows that there was a massive jump in weekly unemployment following the lockdown. The unemployment rate in already slowing economy reached 8.75% in March 2020, which further worsened to 23.5% in April 2020.<sup>iv</sup> Due to the lack of working opportunities during the lockdown and uncertainty over the extant of lockdown period, labour started migrating to their native places. This would further cause disruption in the supply of labour to businesses once the economy starts opening up. As the country started to unlock in a phased manner, there has been a good recovery in the employment rate. As per CMIE, the data for week ended July 3, the unemployment rate stood at 8.9% and employment rate at 36.9%, which is still lower than that of of pre-covid level, the average employment was at 374 million in June which is less than the average level of 404 million.<sup>v</sup> This data relates only to the workforce in organised sector while vast majority of the workforce in India is employed in unorganised sector, the data for which can't be computed. They have a higher risk of losing their jobs as there is no formal contract backing their employment.

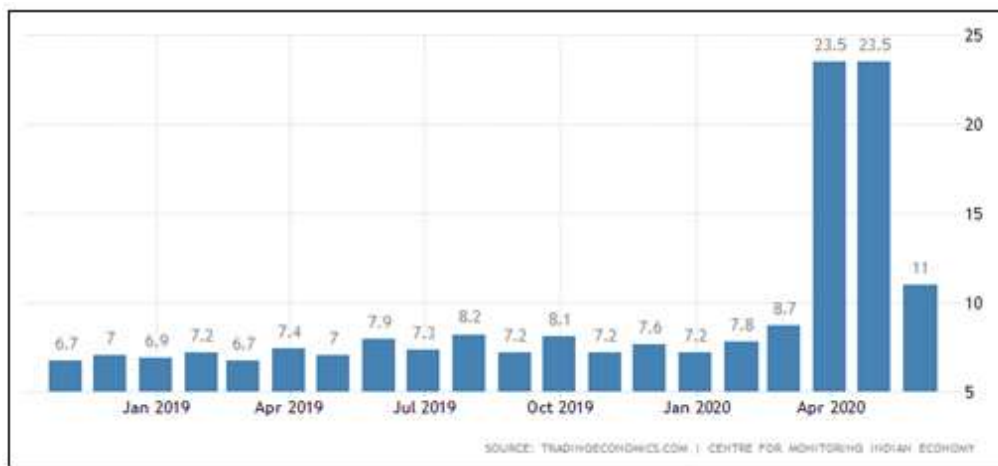


Figure 2: Monthly Unemployment Rate; Source: CMIE

As far the wages are concerned, a report from CRISIL states that over half of Indian companies are likely to fail on their regular wage payment commitments, which will lead to a drastic cut in paychecks resulting in a delay in overall economic recovery. The study was conducted on 40,000 companies having a collective wage bill of Rs 12 lakh crore and the resultsshowed vulnerabilityin68% of the companies to meet their wage expenses.<sup>vi</sup> Revenuesof the businesses are expected to fall owing to a low consumption demand putting a stress on wages and employment which could further impact the consumption demand unless there is a direct economic stimulus to increase the level of demand.

### 3.3 Impact on Industrial Production

The variation in industrial production in India is measured through the Index of Industrial Production (IIP) which indicates the growth of various sectors in an economy. As a result of nation wide lockdown, all the major industries experienced a substantial loss of production. Production of all the 8 core infrastructure sectors which include coal, crude oil, natural gas, refinery products, fertilizers, steel, cement and electricity declined sharply. These core industries form 40.27% in IIP. As per the data released by ministry of statistics, the overall production contracted by 34.7% (year on year) in May, 2020, following a contraction of 57.6% (year on year) in April, 2020 (see the graph below).<sup>vii</sup> As the economy starts opening up in a phased manner, the production is expected to rise but with low consumption and rising covid cases economic outlook for the near future remains bleak.

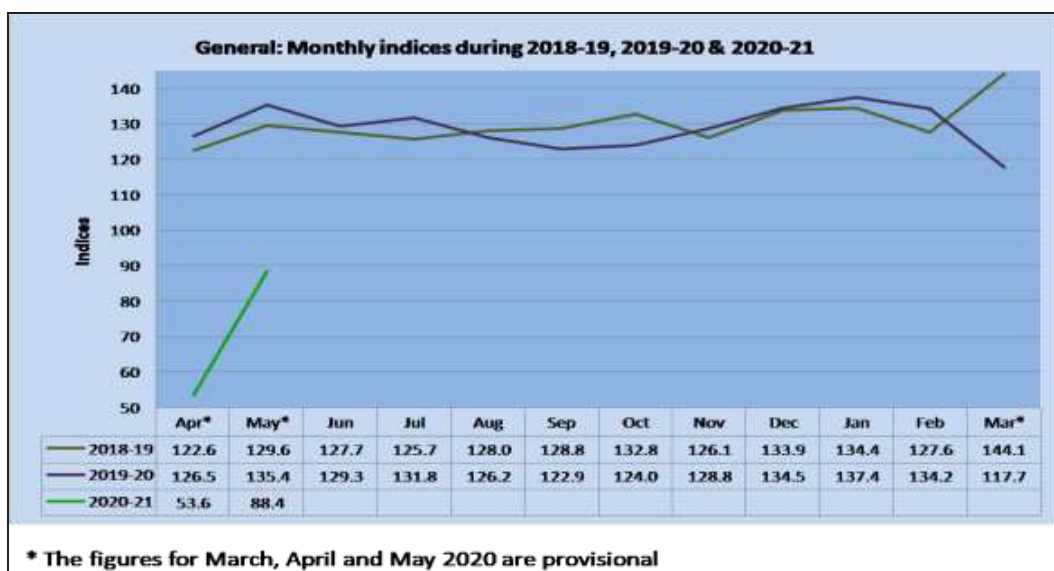


Figure 3: Index of Industrial Production; Source: MOSPI

### **3.4 Impact on Inflation**

In the pre-covid period, retail inflation peaked in January with Consumer Price Index (CPI) at 7.59% caused by high prices of vegetables and rise in milk price, as Consumer Food Price Index (CFPI) rose to 13.6%.<sup>viii</sup> This subsequently eased in the following months, retail inflation coming down to 5.84% in March driven by fall in food prices and decline in global oil prices. The RBI has been mandated by the government to keep inflation between 4+-2% range, sometimes breach is acceptable due to unprecedented and uncontrolled events and RBI tries to keep inflation in check by managing the liquidity or money supply through its monetary policy measures. With the worsening of the outbreak and subsequent lockdown, prices of essential items rose, majorly food, due to supply chain disruptions. The data collection for April and May was limited due to lockdown restrictions<sup>ix</sup> therefore, the Government released data only for certain subgroups, including housing, health, milk and products, cereals, vegetables, fruits and others with CFPI rising to 10.5% in April from 8.7% in March.<sup>x</sup> The data released by MOSPI for June shows headline inflation stood at 6.09% with CFPI coming down to 7.87% including high inflation for pulses, meat and fish, oil-seeds and spices.<sup>xi</sup> The inflation in food prices is mainly because of disruption in supply. While there has been a bumper harvest for Rabi crops including wheat, oil-seeds and pulses, their faster procurement would gradually reduce the prices. Further, the inflation for non essential products is expected to remain in targeted limits because of low demand putting downward pressures on prices.

### **3.5 Impact on Poverty**

Its been feared that the Covid would have a severe socio-economic impact on the poorer sections of the society with a number of studies depicting that it could add millions of people 'back' into extreme poverty and hunger worldwide, nullifying all the progress made in poverty alleviation in last 20-30 years. The June 2020 Global Economic Prospects Report released by World Bank shows that Covid could push more than 71 to 100 million people into extreme poverty i.e under \$1.90/Day, depending on how long the Covid situation persists.<sup>xii</sup> The poverty standards set by World Bank fixes the International Poverty Lines at \$1.9, \$3.2 and \$ 5.5 a day at Purchasing Power Parity(PPP) for lower, lower middle (like India) and upper middle income level countries. Another study published by UNU-WIDER says that over half a billion in developing countries could be pushed into poverty and extreme poverty could rise above 1 billion people by adding more than 400 million to it as majority of them live just above the poverty line, a shock away from getting back to poverty.<sup>xiii</sup>

The study gave a special mention to India, it estimated that a contraction of 5%, 10% and 20% in per capita income or consumption expenditure due to the present crisis, India could likely add 114.9 million, 237.9 million and 525.8 million, respectively, to the list of impoverished, leading the contribution to global poverty.<sup>xiv</sup> The actual numbers would depend on the mitigation strategies and policies of the governments around the world to fight the crisis. Such humongous estimates show how the organisations and governments have failed in bringing long term structural reforms to alleviate poverty. The present crisis has revealed the shortcomings in the existing framework and measures to deal with the poverty.

### 3.6 Impact on Stock Market

Fluctuating stock market indices reflect the sentiments of investors due to the uncertainty that lingers upon in the economy. The markets around the world crashed to the levels not seen since the Global Financial Crisis, 2008. Following the global trends, Indian stock market indices- Sensex and Nifty fell by 38% in the last week of March, 2020 from the high of this year in January.<sup>xv</sup> The market saw a loss of 27.31% in market capitalization from the beginning of this year. Certain sector such as hospitality, tourism and entertainment have been impacted adversely and stocks of such companies have plummeted by more than 40%.<sup>xvi</sup> Following the lockdown, companies have witnessed losses and huge layoffs. Although it is too soon to predict the magnitude and impact of the pandemic on the economy, but the experts believe these drops in indices are temporary and that the markets will bounce back once the crisis gets over. Following table shows the indices on different dates.

**Table1: Stock Market indices on different dates**

Index	14-01- 2020	23-03- 2020	30-06- 2020
Sensex	41952	25981	34915
Nifty 50	12362	7610	10302

Source: Data taken from Yahoo Finance

### 3.7 Impact on Banking and Financial Services

Banks play a front line role in stabilizing the economy when hit by any crisis. The impact of current pandemic would be deeper and long term for the economy like India already stressed with huge non-performing assets (NPAs). Where the impending lockdown has resulted in freezing of activities and slow economic growth, relaxations like reduced repo rate, provision of moratorium, liquidity infusion can further affect the banking system. The sluggish business activities, deferment of loan payment, low loan growth would push the NPAs to higher levels. The RBI estimated that NPAs may rise to 10.2-10.5% by September, 2020. As per the estimates detailed out by global rating agency S&P in June, 2020, gross

NPAs may rise upto 14% in FY2021 from 8.5% in FY2020.<sup>xvii</sup> The economic downturn would also take a toll on non banking financial companies as they are more dependent on wholesale lending and lending to weaker and vulnerable sections. Moreover, liquidity infusion by RBI to increase the credit flow through banks can result in more spurious or lax lending.

### **3.8 Impact on India's Exports and Global Trade**

Global markets are in free fall with supply chain disruptions due to the number of lockdown and a subsequent fall in demand. Early estimates by the WTO forecast that global trade could shrink between 13-32%, as compared to last year.<sup>xviii</sup> The markets today are highly integrated and any disruption in production in one economy will impact all the economies dependent on it for procurement or supply of goods and services. The recent oil crisis, resulting from over extraction with low demand due to shutdowns has caused a sharp decline in income of the oil exporting countries while the oil importing countries could save substantially on their import bills. Such disruptions in global trade affect the overall balance of trade and payments for the economies. The India's external trade has likewise seen a big downfall with merchandise exports declining by 60.3% in April 2020 while imports contracting by 58.6% during the same period. This has been a worst slump in last 30 years. And the trade balance reduced to \$6.8 bn, lowest since June 2016.<sup>xix</sup> The recent data released by Ministry of Commerce and Industry shows signs of recovery. For the collective period April - June, merchandise exports stood at \$51.32 bn (-36.71%) driven by Iron ore, Oil seeds, Rice, Chemicals, Pharmaceuticals and Imports stood at \$60.44 bn (-52.43) with Gold, Precious stones, Silver, Transport equipment and Petroleum, creating the deficit of \$9.12 bn for the same period. Likewise services exports were \$49.7 bn(-10.11%) and Imports were \$28.88 bn (-19%), creating a surplus of \$ 20.82bn for the same period, with an overall trade surplus of \$11.7 bn.<sup>xx</sup>

### **3.9 Impact on Investment**

According to the World Investment Report 2020 released by UNCTAD in June 2020, FDI in India increased by 13% (year on year) for FY20 at \$49.97 bn., making India the 9<sup>th</sup> most attractive destination for Investment.<sup>xxi</sup> The Agency went on to concur that India is going to remain most resilient in South Asia and would continue to attract FDI even in Covid crisis due to its large market, although the inflows may sharply decline. The Data released by RBI in the week ended July 3 reveals that the foreign exchange reserves hit a high of \$513.23 bn including \$473.2 bn as foreign currency assets that could now cover India's one year of Import Bill.<sup>xxii</sup> This can be associated with healthy inflows of FDI and FPI and decline in

Import outflows due to fall in crude oil prices and trade due to the pandemic. The FDI inflow in March and April stood at \$6.2bn while there was a massive FPI outflows during March and April amounting to \$17bn amid fears among the portfolio investors of global economic downturn due Pandemic. <sup>xxiii</sup>

### **3.10 Impact on Public Debt**

Amid the rising tensions of the crisis, public debt level of the government also rises. The pandemic has drastically affected the economic outlook and is putting extra pressure on fiscal deficit. According to the Fitch rating agency, public debt of government stood at 70% of GDP in FY2020 and is expected to rise to 84.5% in FY2021 from 71% as estimated earlier. The ratio is significantly higher from the median of 42.2% of GDP for ‘BBB’ category of rating agency. <sup>xxiv</sup> The improvement in the ratio is subject to uncertainty and majorly depends upon the GDP growth and policy framework of the government.

## **4.0 POLICY RESPONSE BY THE GOVERNMENT**

To mitigate the economic impact of the current outbreak, government and authorities have been taking multiple measures. The government is continually redesigning fiscal policy to weather this storm targeting to improve the economic condition in the form of spending on public health and infrastructure, direct and indirect benefits to households and entrepreneurs to boost up the consumption and production. Monetary policy measures by RBI ensures the credit and supply in the economy. The government has pushed India to become self reliant through a ‘Atmanirbhar Bharat Abhiyan’ and has also responded by providing economic stimulus package, including both monetary and fiscal, of Rs 20 lakh crore which is almost 10% of GDP and the major areas covered have been summarized below. <sup>xxv</sup>

### **4.1 For Small Businesses**

- One of major changes for small business include change in the definition of MSMEs. This move will allow expansion of these units without losing benefits.
- There is a provision of collateral free loan of Rs 3 lakh crore with 100% credit guarantee for MSMEs and it will help 45 lakh units to resume business activities.
- Other benefits in the form of subordinate debts and equity infusion of Rs 20000 crore and Rs 50000 crore, respectively, are also provided.

### **4.2 For NBFCs**

- Liquidity infusion of Rs 30000 crore for non-banking financial companies (NBFCs), housing financial companies (HFCs) and micro finance institutions (MFIs).
- Partial credit guarantee schemes for NBFCs for Rs 45000 crore.



#### **4.3 For DISCOMs**

- Liquidity injection of Rs 90,000 crore for Power Distribution Companies. The loans will be provided against state guarantees for discharging the liabilities of distribution companies against generation companies.

#### **4.4 For Laborers and Workers**

- The government announced a Rs 1.7 lakh crore spending plan for poor by the way of cash transfers and food security.
- For workers under MGNREGA, an increase in average daily wages from Rs 182 to Rs 202 has been announced.
- For the migrants, provision of 5 kg of rice or wheat per person and 1 kg Chana per family is made through state government. It aims to benefit 80 mn migrants for next few months and entails Rs 35 bn.<sup>xxvi</sup>

#### **4.5 For Farmers**

- Rs. 30,000 crore additional working capital fund through NABARD.
- Rs. 2 lakh crore concessional credit to 25 mn farmers through Kisan Credit Cards.

#### **4.6 For Agricultural Sector**

- Provision of more than Rs. 1.64 lakh crore for agriculture and related activities including farm gate infrastructure, micro food enterprises, fish production, animal husbandry and vaccination of cattle and other farm animals, bee keeping, herbal cultivation and marketing reforms.

#### **4.7 Promoting Private Investment in certain sectors**

- Various structural reforms have been announced in the form of allowing private investment by arranging auctions for mineral blocks and airport maintenance, raising FDI limits in Defence, opening sectors like Coal Mining Space and Atomic energy for private participation and a viability gap funding of Rs 8100 crore for developing social infrastructure to boost private sector investment.

#### **4.8 Regulatory Measures by RBI**

- For the repayment of installments for term loan outstanding on March 1, 2020, moratorium period of 3 months was allowed and this has been extended for another three months, till August 31, 2020.
- Exclusion of moratorium period from 90 days norm for calculation of NPAs.
- Repo rate cut by 115 basis point and infusion of Rs 1 lakh crore equity for banks through long term repo operation (LTRO).

## 5.0 CONCLUDING REMARKS

The current pandemic is one of its kind in the mankind history. Where the government and authorities have been under a tremendous pressure to control the spread of virus, uncertainty lurking around the development of vaccine adds to the woes of already distressed economy. The outbreak of pandemic will further push the already ailing economy into downward trajectory. Lockdowns have led to a loss of income of the vast majority of the people and businesses, putting a pressure on governments' revenue that are already under fiscal pressure to provide financial aid to support the livelihoods and to develop a separate health infrastructure for facilitating diagnosis and treatment to the citizens.

As the country is unlocking gradually, the economic activity has started to spur, but not all sectors have been opened as to prevent the spread of the virus, many industries such as hospitality, aviation, tourism, entertainment, education have to wait till the situation gets under controlled.

Many have lost their jobs and livelihoods due to this, worsening their mental and physical well being. The virus is indifferent in infecting the rich and poor but is likely to affect poor people tremendously. Having few resources at their disposal, poor people are expected to have pre-existing health issues and more likely to be undernourished, thereby deaths will be more common. This demands a direct financial support from the government in the form of cash or food transfers to the unemployed or poor. While government has introduced an economic stimulus package of Rs. 20 lakh crore (10% of GDP) that has provisions for providing support to migrant workers and poor in the form of food transfers and work under MGNREGA, many others in the unorganised sector or urban unemployed are left uncovered. Further, most of the funds are allocated for long term structural reforms and investment rather than providing immediate support to various economic units. Also, the actual fiscal cost of the package comes around to be Rs 2 lakh crore or 1% of GDP as almost half of the package includes liquidity infusion through RBI and some others are in the form of revenue foregone, addressing majorly supply side constraints as has been done previously in the form of corporate tax cuts and not much is done to boost the demand.

The country is having massive foreign exchange reserves to back its credibility and also the Debt to GDP ratio is comparatively lower than in the other major economies, therefore the government can provide more fiscal support to spur the consumption demand and provide some relief to the worst hit sectors which is need of the hour.

The answers to how well and quickly the economy will revive depends on how well we and the rest of the world combat the pandemic but if the situation deteriorates, the

economy will have to bear more economic cost. Intervention to mitigate and suppress the spread of the virus is in place but effectiveness of the reforms largely depend upon the implementation. The structural reforms will help to boost the investment in the long run and India having a large market could attract more investment in the post Covid period. Considering the growing anti- China sentiments around the world, preference of countries and businesses is more likely to shift to India, giving her the opportunity to become more favored investment destination and also to prove her plan to become self-reliant a well timed move.

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## CHAPTER 27

### IMPACT OF COVID-19 ON DIFFERENT SECTORS OF INDIAN ECONOMY

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#### ABSTRACT

The entire world is in the strong grasp of Coronavirus. With more than 180 countries has reported confirmed cases of Covid-19. The spreading of the virus is so massive that the World Health Organisation (WHO) had to declare it a pandemic. The outbreak of this pandemic has given unprecedented shock to the Indian economy. Indian industries have to face unadorned economic problems and serious consequences due to the extended longer lockdown in the country, global economic recession, travel restrictions, lower exports and associated disturbance in demand and supply chains. The scale of the impact on economy will depend upon the duration and severity of the health crisis, the duration of the lockdown and the manner in which the situation unfolds once the lockdown is lifted completely. Total number of case are increasing day by day at a rapid spread rate which again forcing the Govt for enforcing partly lockdown in some states. Lockdown either for a particular time or in specific states always create hindrance for demand and supply chain which directly effect the growth of economy. The Government of India has announced a variety of measures to handle and lower the effects of this unpredictable situation by distribution of free food for poor people, release of extra funds for healthcare industry, deferments of EMIs, incentives for MSMEs, ease licensing requirement for production of Sanitizer and extensions of tax deadline etc. This article is intended to study the probable impact of coronavirus on different sectors of Indian economy like Export trade, manufacturing industry, financial services, banking, infrastructure, real estate, and services.

**Key Words:** Indian Economy, Pandemic, Supply Chain, Coronavirus, Sectors

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#### 1.0 INTRODUCTION

The outbreak of Novel Coronavirus disease is a serious threat to the whole world affecting millions of people. Because of its uncertainty, most of the countries are working for its vaccination as it seems to be the only solution for coming over from this pandemic. Besides being harmful to human health, it also has negative consequences on the global business world the outburst of the diseases was first identified in Wuhan, china in December 2019. World Health Organizations (WHO) has been thoroughly monitoring and assessing its global threats. This virus started spreading at a faster growth rate in different countries across the world and in result WHO had to declare it as pandemic on 11th March 2020. Now the whole world is dealing with this unseen enemy.

Most of the countries had gone under lockdown and everything including normal life, social and economic conditions were on hold. In India, the first case of coronavirus disease

was reported in Kerala on January 30, 2020. Multiple cases were than reported in different states in India. Hence, the Government of India had taken needful and necessary action by announcing national lockdown in every corner of the country on 24th March 2020. The metropolises of Delhi, Mumbai, Ahmedabad, Kolkata, Chennai are densely populated which has given rise to the cases of covid-19 and these cities are the considered as engines for growth and development of Indian economy. With more than 9 lacs confirmed cases as on June 15, 2020, India entered the list of the top 3 countries with the highest number of people infected by the Covid-19. The cases started increasing at a rapid stage after the announcement of Unlock-1 in the country which is needed for securing the growth in the economy.

The fact that despite two extensions of strict lockdown in the country, India has not been able to manage to flatten the curve suggests that the lockdown might have been necessary. But it cannot be forced for much longer time as it is affecting adversely on the economic output. The pandemic has led to social and economic disturbance, hindering the growth of entire economy and changing the way of living of individuals which is affecting demand and supply of outputs. The outbreak has presented fresh challenges for the Indian economy now, causing severe disruptive impact on both demand and supply side elements which has the potential to disrupt India's way of growth.

## **2.0 INDIA'S GROWTH PROJECTIONS REVISED DOWN**

Most multilateral agencies and credit rating agencies have therefore revised their 2020 and 2021 growth projections for India keeping in view the negative impact of coronavirus-induced travel restrictions, supply chain disruptions, subdued consumption and investment levels on the growth of both global and the Indian economy.

### **2.1 Fitch Ratings -**

Fitch has also cut its forecast for India's economic growth to 4.9% for 2019-20 from 5.1% projected earlier.

### **2.2 Moodys**

Moody's Investors Service has revised down its growth forecast for India to 5.3% for 2020 from earlier estimate of 5.4% made in February.

### **2.3 S&P Global Ratings**

S&P has lowered India's economic growth forecast to 5.2% for 2020 as against 5.7% projected earlier.

### **2.4 Barclays**

Barclays has lowered India's economic growth forecast to 5.6% for 2020 as against 6.5% projected earlier.

Whereas according to Asian Development Bank (ADB) the “Covid-19 outbreak could cost the Indian economy between \$387 million and \$29.9 billion in personal consumption losses” (<https://www.livemint.com/>).

A survey by FICCI (2020) found that “Most industry respondents did not foresee positive demand account during the entire fiscal year. Demand side impact on tourism, hospitality and aviation is among the worst affected sectors that are facing the maximum burnt of the present crisis. Consumption is also getting impacted due to job losses and decline in income levels of people particularly the daily wage earners due to slowing activity in several sectors including retail, construction, entertainment, etc. Some sectors like automobiles, pharmaceuticals, electronics, chemicals products etc. are facing shortage of raw material and component”.

### **3.0 OBJECTIVES**

The major objectives of this study are:

1. To understand impact of Covid-19 on overall Indian Economy
2. To understand impact of Covid-19 on different sectors

### **4.0 IMPACT ON INDIAN ECONOMY**

The economic impact of the Covid-19 pandemic in India has been predominantly fractious. To battle with Covid-19, Indian Government announced lockdown in all over the country which resulted in pointing out e-commerce firms were to only fulfil the demand for essential goods such as groceries, medicines etc. As there was a hold for all business firms around the country, According to the survey, COVID-19 is having an ‘tremendous impact’ on Indian businesses, over the coming months, jobs are at high risk because firms are gazing for some reduction in manpower. According to the Ministry of Statistics, India's growth in the fourth quarter of the fiscal year 2020 plunged to 3.1%. India has previously been witnessing a pre-pandemic slowdown, and according to the World Bank, the current situation has even more "amplified the pre-existing risks for our country's economic outlook". On May 26th, CRISIL announced that this will perhaps be India's worst ever recession faced since independence.

Unemployment rose from 6.7% on March 15 to 26% on April 19 and then back down to pre-lockdown by mid-June. During the lockdown, an estimated 14 crore people lost employment while salaries were cut for several others. An industrial survey that has recently been jointly conducted by an industrial body FICCI and tax consultancy Dhruva advisors and they took responses from about 380 companies across the sectors. It stated that businesses are struggling with an "immense uncertainty" about their future. While India has started to relax its

lockdown measures in small steps, the positive economic impact of exiting the lockdown might take longer than anticipated. Even as manufacturing, services and other economic activities slowly lurch into motion, Here we are analysing impact of Covid-19 on the different sectors of the Indian economy.

## **4.2 SECTOR WORSE HIT BY COVID-19**

### **4.2.1 Export – Import**

Contracting for the 2<sup>nd</sup> month, Exports in India shrank by a record 60.28% in the month of April to USD 10.36 billion, mainly due to the coronavirus lockdown across the country. Imports also plunged by 58.65 per cent to USD 17.12 billion in April, leaving a trade deficit of around USD 6.76 billion as against USD 15.33 billion in April 2019, according to the data by the commerce and industry ministry. Some commodities have registered a decline by over 30-40%, particularly engineering goods, textiles, meat, cereals, plastics and chemicals, which have been the major growth drivers of exports in recent years.

Majorly notable impact was observed on the following: -

- Gems and jewellery shipments decreased to 98.74 %, followed by leather (93.28 %), petroleum products (66.22 %), engineering goods (64.76%), and chemicals (42 %).
- In April oil imports were USD 4.66 billion, which was 59.03% less as compared to the same month last year.
- Gold, transport equipment, silver, coal, fertilizer, machinery and machine tools displayed a negative growth during the month
- India has also banned exports of sanitisers and ventilators including all artificial respiratory devices anticipating spike in local demand as the country fights the coronavirus pandemic..
- Non-oil imports knock down to 58.5% to USD 12.46 billion in the month of April.
- Gold imports stood at USD 2.83 million, as against USD 4 billion in April 2019.

### **4.2.2 GDP**

On 28 April the former Chief Economic Advisor to the Government of India has said that India should prepare itself for a negative growth rate in FY21. On 22nd May the RBI Governor Shaktikanta Das had also said that “India's GDP growth will remain negative in FY21”. GDP grew by a very slower pace of 3.1% in the fourth quarter of 2019-20 showed the data released by Central statistics. During the quarter under review, only one week of nationwide lockdown was observed. Growth was 4.2% in the fiscal year through March 2020, said the Statistics Ministry when compared to 6.1% in FY19. The median forecast from a



reuter's poll of economists had put the annual economic growth at 2.1% in the March quarter. The GDP growth was 4.7% in the December quarter.

#### **4.2.3 MSME Sector**

The Micro, Small and Medium Enterprises (MSMEs) are the backbone of all different sector in India and often engaged majorly in either manufacturing or export activities. While They are set to face an acute cash crunch due to a sharp fall in business and operational challenges with low or zero availability of manpower over the next few weeks since migrant workers are fleeing to their respective hometowns. Today, almost all MSMEs are out of action due to the prevailing lockdown across country, chocking all the production activities at major firms across sectors. There are several reports that indicate how MSMEs are reeling under current crisis and are with no money to pay their employees.

From leaders to experts and industry bodies, everyone has appealed the government to increase its relief package for the MSME sector, which contributes to over 30 per cent of India's GDP. MSME loan portfolios of non-banking financial companies may see a significant increase in delinquency levels.

#### **4.2.4 Tourism**

Ongoing pandemic have led to travel restrictions across the country and also around the globe. The country wide lockdown has brought the entire tourism industry to a standstill, and also unlike other sectors, tourism may take longer to recover. This will impose a direct impact on states like Uttarakhand, Goa, Rajasthan, Kerala, Himachal Pradesh, Sikkim and other north eastern states which mostly depend on tourism as a source of state revenue. The Indian tourism industry employs 8.75 crore people (12.75% of the total employed population in 2018-19), such as people from the hospitality industry, tour operators, travel agents, homestay owners, drivers, guides, small traders, artisans and craftsmen are among a host of other service providers. FAITH, a policy federation of associations of tourism and hospitality industry has estimated nearly a loss of Rs10 lakh crore for the industry due to pandemic. The World Travel and Tourism Council (WTTC) has estimated to the cost of USD 22 billion.

#### **4.2.5 Aviation**

Since the beginning of year 2020, more and more countries around the globe shut down their borders and limited domestic travel as a response to the novel coronavirus outbreak. Thus, cancelling almost all flights so as to control the spread of the virus has adversely affected the entire airline industry globally. The aviation sector that connects nations across the world is witnessing a huge layoffs and pay cuts. Some workers were asked to go on forced unpaid leaves. It fears that the situation in the post-virus setup would remain

much the same for the aviation industry. The writing appears to be on the wall. "In the event of a 3 month shutdown, the two listed carriers alone are IndiGo and SpiceJet who could report a combined losses of USD1.25-1.50 billion across 4QFY2020 and 1QFY2021.

#### **4.2.6 Automobile Sector**

The automobile sector in India has been forced to stop their key manufacturing activity and has led to a sharp drop in production & sales. With most of the firms being shut down, big automobile manufacturing companies have announced pay cuts and are waiting for a decision on resumption of dealerships. RC Bhargava, an industry veteran and Maruti Suzuki Chairman, told India Today TV that "how the automobile sector is interlinked with many other small sectors that manufacture key parts, which are then used for manufacturing vehicle components. Therefore, Bhargava like many others from the industry are urging the government to at least open a few dealerships to resume businesses". While there was a nationwide shutdown for all non-essential sectors the demand would be muted till then. According to FT Auto, "Indian Auto sector earns gross revenue of 2000 crores per day. What makes the auto industry further susceptible is of being impacted by the virus is the dependence on various players for different parts".

#### **4.2.7 Chemical Industry**

India's chemicals sector is the 6<sup>th</sup> largest across the world and has witnessed strong growth momentum steadily over the last couple of years. Following global supply-chain disruptions and the government's lockdown measures taken in view of restricting the spread of COVID-19, Indian markets experienced a significant decline in the month March 2020, and a subsequent rebound in April. The Chemical industry is worth 163 billion covering more than 80000 chemical products. The impact on the chemical industry is mainly due to its dependence on China for the procurement of raw materials.

#### **4.2.8 Agriculture**

A study done during the initial two weeks in the month of May by the Public Health Foundation of India, Harvard T H Chan School of Public Health and the Centre for Sustainable Agriculture found that "10% of farmers were not able to harvest their crop in the past month and 60% of those who did harvest reported a yield loss and that a majority of farmers are facing difficulty for the next season. The entire Darjeeling tea based tea industry will be seen with a significant fall in revenue, tea exports could see a yearly drop up to 8% as a result. In March 2020, tea exports from India fell 33% in March as compared to March 2019". During the lockdown phase, food wastage increased due to the affected supply chains, affecting small farmers across the country.

#### **4.2.9 Transport**

All modes of transportation are facing a very severe loss due to the limited operability as ordered by Indian government. Indian railways stopped all kind of train services due to the lockdown announced all over the country. They also limited its freight train services with the demand of some commodities such as cement and steel. They have particularly been affected by 26% of coal based power generation in India since the lockdown emerged. As all the domestic and international flights were grounded, they eventually are expected to bear a massive loss of 3-3.6 billion USD for Indian aviation industry while June quarter.

#### **4.2.10 Education**

Closer of schools was announced by the government across the country for preventing the spread of coronavirus amongst students. The closure that was announced could last for too many weeks and that too during the crucial phase of academic year ending. The private schools with low fee and public schools are likely to face a massive impact on in terms of teaching, learning and delivering lessons to their students staying in rural areas. Private schools have the required resources but could face cash flow issues.

### **5.0 CONCLUSION**

As coronavirus (COVID-19) evolved in no time and so did our several different sectors within our economy got shook up. It got spelled as a massive disaster for the financial backbone all around the world. The whole framework of the Indian economy collapsed due to lack of demand, funds and manpower across India as well as around the globe. India was primarily facing a pre-existing risk of economic outlook, While more of the epidemic is contained within India and country's government is taking all necessary steps to deal with this great disease. It could pose a significant challenge to the current government due to its complexities integrated to the world economy. Sectors such as tourism, aviation, hospitality and trade shall face the first shock of the impact and these sectors would be severely affected. While all seems to be deserted but if our government support businesses providing interest free loan and tax waivers to the MSME and SME sector primarily it could help them recover from their prevailing situation to some extent. The education sector have also been adversely affected. Students are receiving their lessons being at home, but worsely effected are the schools who are not having enough resourses for delivering their lessons. The transportation sector have also been impacted as the government announced lockdown in country keeping in view the safety of our country people. Coronavirus has severely hit the export and import of the country.

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## CHAPTER 28

### IMPACT OF COVID-19 ON VARIOUS SECTORS OF INDIAN ECONOMY

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#### **ABSTRACT**

The covid-19 epidemic is the first and foremost human disaster in 2020. More than 200 countries and territories have confirmed effective medical cases, caused by coronavirus declared a pandemic by the WHO. As we have already acknowledged that India is a developing economy, it is stated as an economy passing through demand depression and high unemployment, slowdown the supply-side, accelerating the slowdown further and jeopardising the economic wellbeing of millions. With an increasing number of coronavirus cases, the government has locked down transport services, closed all public and private offices, factories and restricted mobilization. Based on recent studies, some economists have said that there is a job loss of 40 million people (MRD report) in the country, mostly in the unorganized sectors. The effects of coronavirus have affected the stability of the economy - jeopardising their lifestyle, economy and impacting business the lockdown has adversely have affected service sector like banks, restaurants, food vendors, and food delivery providers.

*Keywords: - Covid-19, epidemic, jeopardising, lockdown*

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#### **1.0 INTRODUCTION**

Coronavirus es are a large family of viruses which may cause illness in animals or humans. In humans, several Coronavirus es are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered Coronavirus causes Coronavirus disease COVID-19. COVID-19 is the infectious disease caused by the most recently discovered Coronavirus . This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. The most common symptoms of COVID-19 are fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, runny nose, sore throat or diarrhea. These symptoms are usually mild and begin gradually. Some people become infected but don't develop any symptoms and don't feel unwell. Most people (about 80%) recover from the disease without needing special treatment. Around 1 out of every 6 people who gets COVID-19 becomes seriously ill and develops difficulty breathing. Older people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness. People with fever, cough and difficulty breathing should seek medical attention.

#### **2.0 OBJECTIVES OF THE STUDY**

- i. To highlight the impact of Covid-19 on different sector of the Indian economy.
- ii. To specify the measures that the Indian government should adopt in order to cope with the effects of COVID-19.

### **3.0 IMPACT OF COVID-19 ON DIFFERENT SECTORS**

#### **3.1 Unorganized Sector**

This pandemic affected workers of unorganized sector mostly who are daily wagers or those working in Micro, Small and Medium Enterprises (MSMEs) and left them jobless, and rapidly increased the unemployment rate, left no alternate income source. Everyone is witnessing their painful migration on foot and cycles to their homes but now some sort of help has been extended by states by way of running some special trains. After lockdown, giving them employment is a very necessary step, lack of which forced them to leave their home. They may not die from corona but will die definitely from starvation. Agriculture is considered the backbone of the Indian economy. As Inter-state transportation services have shut down, farmers are unable to sell their crops in the market. They are incurring huge losses and forced to throw out their crops. They don't have any other source of income. The poultry sector which is the fastest-growing subsector of the Indian economy has also incurred huge losses due to social media where misinformation has been spread by correlating the infection of COVID-19 with the consumption of meat and poultry products.

#### **3.2 Education**

Due to the outbreak of the pandemic, most schools and educational institutions have closed down to prevent the transfer of disease among children. Though, we are safeguarding them, this will also negatively impact their academic progress. Now, we need to shift our focus from traditional to the virtual classroom. There are many technology-enabled educational institutions that are providing live classes like byjus, extramarks etc.

#### **3.3 Tourism and Hospitality Sector**

The revenue of the tourism sector got down due to a strict ban on both domestic and international flights. Even many tourists got themselves cancelled. Meetings, conferences and major international events got cancelled like mobile world congress, Olympic, Wimbledon, Cannes international film festival and Facebook F8 which lead to huge losses. According to the Indian Association of tour operators, the hotel, aviation and travel sector together may incur a loss of around 8,500 crores due to the restriction imposed by the Indian government on the movement of flights.

#### **3.4 Healthcare Industry**

COVID-19 has exposed the vulnerabilities of healthcare systems. As we know that access to healthcare is a fundamental right but the fear of COVID-19 everywhere has in turn affected many people's primary healthcare provisions. This pandemic has made impossible for the pregnant women to visit obstetrician for prenatal checkups and instead of this, opting for

telemedicine. Many hospitals are mainly focusing only on COVID-19 patients and due to this, they are ignoring other people who are suffering from some other major problems like cancer and found it difficult to get proper treatment. If this will be continued the death rate from corona will be lower than the death rate from other diseases. This pandemic has taught a lesson that temples, statues and museums are not a necessary requirement but the hospital with world-class infrastructure is. Even there can be seen an adverse impact on the profitability of medical device manufacturer who imports consumables, disposables and capital equipment from china.

### **3.5 Defense and Security**

The COVID-19 impacted the supply chains and production/manufacturing facilities of defense companies. As they have to depend on different components on different sources located in affected countries. This will lead to a decrease in demand for defense equipment. The current scenario is not even good for business development as we know that many high-value procurement programmes were finalized during defense shows which are now cancelled. Military exercises, which expose foreign equipment and their capabilities to the prospective buyer also affected business development as many countries like the USA, UK have cancelled travel plans, deployments and exercise for troops. Even the assembled equipment which are ready for dispatch are also held up due to the lockdown of airspace. Due to non-dispatchment on time their sales value will substantially reduce which in turn will affect the balance sheet of the manufacturing companies. COVID-19 has taught a lesson to defense industry that they need to explore the different aspects of risk planning. They need to shift themselves toward technological platforms or start using an unmanned system.

## **4.0 MEASURES TO COMBAT ECONOMIC CRISIS**

### **4.1 The expectation to absorb information**

Each emergency fills in as a learning open door for associations, and this pandemic is ending up being a remarkable exercise. Here's the manner by which associations are making sense of their best courses of action.

### **4.2 Remote working**

With significant urban communities on lockdown, associations have had no real option except to dive into their business congruity and emergency courses of action. Since the time the first COVID-19 case was affirmed in quite a while, various organizations have established a 'telecommute' drill utilizing basic assets to comprehend whether remote working conditions are practical.

### **4.3 Security measures for employees**

Representative security is the need of great importance. All things considered, with no experience of managing an infection that can possibly spread quickly, most organizations are getting over their hands by requesting that workers remain at home. A few associations, in any case, are executing estimates like temperature screening, sanitization of office premises, setting up COVID-19 reaction groups, dispersion of COVID-19 preparatory packages.

### **4.4 An open line of communication**

Despite the fact that the death pace of COVID-19 is lower than the 1918 flu pandemic, it has caused an across the board alarm because of hazy lines of correspondence. Organizations are venturing up and keeping up an open line of correspondence with every one of their partners, including workers and clients.

### **4.5 Opportunity in an emergency**

Like India, a few worldwide economies are getting discerning of the hazard they face by being excessively reliant on one market. Making the present circumstance a learning opportunity, CXOs of Indian multinationals, who as of late went to the yearly gathering of the **Confederation of Indian Industry (CII)**, accept this is the time Indian can work by capturing conceivably 40% of their rival's market share by looking at indigenous creation of products, advancing the nation's Make in India crusade.

## **5.0 CONCLUSION**

The economic impact of COVID-19 has been substantial and broad-based. High frequency indicators point to a sharp decline in economic activity, as reflected in industrial production, business sentiment (eg, in the Purchasing Managers Indices), vehicle sales, and trade. This may be the time to reset. Never before has the world come to a standstill where one can pick apart the many moving pieces. We have the opportunity to rethink everything. If we do things right, we may be able to fix challenges that face humankind – environmental damage, inequality etc. More importantly, we must ensure something like this never happens again. History says that humankind has never learnt from history. Let's hope that it's a thing of the past. However, it is observed that a return to economic normalcy is beyond the scope of what can be achieved by economic stimulus alone – this is unlikely to be achieved until the threat of loss of life from COVID-19 has been eliminated.

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## CHAPTER 29

### IMPACT OF COVID-19 ON INDIAN ECONOMY

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#### **ABSTRACT**

Risk and uncertainty are the inherent elements of any business and every business, in its normal course of operations, learns to manage these elements to survive and grow. However, occasionally, there arises any event of a series of events that disrupts the business conditions beyond manageable limits. Unfortunately, Covid-19 and the consequential events seem to be the disruption of that nature which has not only affected our daily life but also has put the very existence of even well-placed businesses at risk. The present article carefully studies this impact of covid-19 on each and every sector of Indian economy and tries to measure its intensity. It also assesses the impact of the crisis on the economy as a whole by reviewing the macro-economic indicators.

**Keywords:** *Covid-19, pandemic, service sector, GDP, growth Introduction*

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#### **1.0 INTRODUCTION**

Risk and uncertainty are the inherent elements of any business and every business, in its normal course of operations, learns to manage these elements to survive and grow. However, occasionally, there arises any event of a series of events that disrupts the business conditions beyond manageable limits. Unfortunately, Covid-19 and the consequential events seem to be the disruption of that nature which has not only affected our daily life but also has put the very existence of even well-placed businesses at risk.

#### **1.1 COVID-19: The Pandemic**

As most of the people know by this time, Coronaviruses are a group of viruses that can cause disease in both animals and humans. In this family of viruses, one of the most dangerous virus-strains that causes acute respiratory problem is known as SARS-CoV. The first outbreak of SARS (severe acute respiratory syndrome) in 2002-03 was caused by this particular strain. Though similar, the present pandemic, Covid-19 which perhaps is deadlier than SARS with high potential of human to human transmission is however caused by a new strain of SARS-CoV, known as SARS-CoV-2. The virus was first detected in mainland China and it is believed that it originated in a 'wet market' (live animal market) in Wuhan, a city in the Hubei province of China in December 2019. Researchers claim that the virus was transmitted to humans from bats or pangolin. Being contagious, it soon spread across Wuhan and transmitted to other countries through international passengers. Considering its potential impact and rate of transmission, the world Health Organization (WHO) declared it a

pandemic on March 11, 2020. By the time of this article the virus has affected people of more than 200 countries across all the continents. More than 1.18 crore people has been infected with death toll reaching above 5.43 lakhs. USA, Brazil and different parts of Europe including UK are among the worst sufferers of this deadliest disease.

## **1.2 COVID-19 and India**

In India, the first case of COVID-19 was found on 30.01.2020 in Kerala. She was a medical student studying in Wuhan University, China. The Government, soon, implemented screening of international passengers coming into India in all the international airports and asked people with international travel history to quarantine themselves if they feel any symptoms of the disease. Unfortunately, the measures were not well placed and hence allowed many people infected with the virus left unattended. Within March 4, 2020 the number of infected people reached to 29, most of whom were international tourists. On March 11, 2020 it was declared pandemic by WHO. Following WHO's declaration and considering the magnitude of devastation that it can bring in a country like India having a poor health infrastructure, the Central Government, like many other western nations, decided to implement lockdown measures to curb the spread of the disease. Accordingly, the first phase of lockdown was declared on 25<sup>th</sup> March, 2020 for 21 days. Nearly all services and factories, except the essentials, were suspended. Extreme restrictions were imposed on movement of goods and people. All domestic as well as international flights were suspended, passenger train services including metro railways were also declared closed. Restrictions were imposed on any form of congregation, markets and grocery shops were allowed to remain open only for a few hours a day to help people procure their daily essentials. E-commerce platforms were allowed to deliver only essentials. Considering the high rate of transmission and death tolls in other countries, the first phase of lockdown was extended further in three more phases of 19 days, 14 days and 14 days. However, during the last two phases of lockdown different services were partially allowed to provide some breathing space. Amidst many odds, the unlock process started on 8<sup>th</sup> June, 2020 in three different phases with ambitious expectations of bring the life back on wheels. Unfortunately, the things are hardly to be seen going in that direction with news of record-breaking reported cases of transmission and deaths in India every day.

## **2.0 IMPACT OF COVID-19 IN INDIA**

Given the poor health infrastructure, lockdown was perhaps the only way out to reduce the speed of outbreak of the disease and buy some time to improve the health infrastructure. While debate may go on as to how far that objective has been achieved, an

extended lockdown of 68 days has brought a big blow on the economy which was yet to absorb the impact of two major events or reforms, namely Demonetization in November, 2016 and Implementation of GST in July 2017. The disruption is felt in every single square of the economy with almost all the sectors having affected with intense being moderate to severe.

## **2.1 Overall Impact on Macroeconomic Indicators**

Even before the lockdown, Indian economy was passing through a bad phase with declining growth rate, increasing unemployment, growing NPA and lack of growth in credit disbursement even after repeated reduction in bank rates. All these got worsen due to lockdown.

### **2.1.1 Growth Forecast**

As mentioned earlier, India was already struggling to maintain its growth rate of 2013-15 level after demonetization followed by implementation of GST. While demonetization mainly affected the informal sector including agriculture, GST was a massive blow for the MSME sector. Even after the remedial measures, the ill effect could hardly be avoided. However, a recovery was expected by many during 2019-20 fiscal. A steady flow of GST collection (collection had remained above the key Rs 1 lakh crore mark for 7 months out of 12 in 2019-20 fiscal) was an indication of the recovery. Unfortunately, the pandemic and the resultant lockdown destroyed all the hope. India's pre-pandemic GDP growth rate was struggling at 4.7% in October-December 2019 quarter which was the least in seven years. The pandemic brought it further down. The Indian economy expanded 3.1 percent year-on-year in the first quarter of 2020. It was the slowest GDP growth since quarterly data became available in 2004, as the country imposed a nationwide lockdown from March 24th aiming to contain the spread of the coronavirus. For the 2020-21 fiscal the growth forecast by various rating agencies including World Bank and UN has been set below 2%. While the world bank estimate sees a 1.5% to 2.8% growth for fiscal 2021, the same by Goldman Sachs is only 1.6% which is thirty years' low. Estimates by other agencies are also around 2%.

### **2.1.2 Factory Output**

The factory output contracted by 55.5% in April. The data released by the Ministry of Statistics & Programme Implementation (MSPI) showed a 64.26% decline in manufacturing sector output. Consumer durables contracted by 96.67% followed by capital goods by 91.99%.

	APRIL 2019	2020	Change (%)
IIP	126.5	56.3	-55.49
Manufacturing	126.2	45.1	-64.26
Mining	107.8	78.3	-27.36
Electricity	162.9	126.1	-22.59
Capital Goods	96.2	7.7	-91.99
Consumer Durables	127.1	5.5	-96.67
Consumer Non-Durables	140	89.4	-36.14

*Source: MSPI*

### 2.1.3 Purchase Manager Index

Another broad macro-economic indicator PMI (Purchase Manger Index) also showed the severe impact of pandemic. During the pre-pandemic period India's PMI rose from 52.7 in December 2019 to 55.3 in January 2020, the highest in eight years. However, during the post pandemic period the PMI stood only 30.8 in May and 47.2 in June 2020.

### 2.1.4 Unemployment Rate

The unemployment rate in India during September-December 2019 was 7.52% (Urban 9% and Rural 6.8%). The unemployment rate for the other quarters of the fiscal was also around 8%, the fiscal average being 7.6% (source: Financial Express ad CMIE). During the pandemic period, the rate, however, increased to 23.48% in May 2020 (with urban unemployment rate being 25.79%) due to nationwide lockdown. Though reduced significantly thereafter due to the partial lockdown measures instead of a total lockdown, the rate in June is 10.99% (Urban 12.02%) which is still very high as compared to 2018-19 level.

### 2.1.5 Fiscal Deficit

Though, in fiscal year 2019, India met its target of fiscal deficit of 3.4% successfully, it failed by a wide margin in FY2020 (4.4% against the target 3.8%). The pandemic crisis is likely to make the picture further gray as India's fiscal deficit has touched 58.6% of annual target (of 3.5%) in June 2020, within just two months. In addition to above, the credit disbursal will continue to be on lower side even though the bank rates have touched the lowest levels in country's history and retail inflation hovering around a comfortable level of 6%.

## 3.0 SECTOR SPECIFIC IMPACT

The heat of COVID-19 has been felt, more or less, by every sector of Indian economy.

### **3.1 Agriculture Sector**

The contribution of agricultural sector in Indian GDP was 14.39% in 2018-19 at constant prices (source: MSPI). The sector comprises Agriculture, forestry & fishing. Agricultural sector has been hit badly due to COVID-19. Since the Rabi crop harvesting season coincided with the pandemic, agriculture sector suffered a lot due to lack of workers followed by the imposition of restriction on movement of people. The sector also suffered greatly because of demand side risk arising out of closure of hotels and restaurants. Accordingly, poultry sector got massive setback. The situation further deteriorated due to social media rumours about the impact of the coronavirus on chicken health. This led to a drastic reduction in the consumption of chicken. Also, foodservice was the worst-hit sector in India. While food delivery is available sparingly, it accounts for less than 5% of foodservice sales. Due to export curbs and extended lockdown implemented also in tea gardens, tea industry, in particular has faced immense difficulty and loss. Also, nation-wide closure of sweet shops led to heavy decline in the demand of milk.

### **3.2 Industrial Sector**

The contribution of agricultural sector in Indian GDP was 31.46% in 2018-19 at constant prices (Source: MSPI). The sector is composed of mining and quarrying, manufacturing, electricity gas and water supply and finally construction. Manufacturing sector is further divided in food products, textiles, metals, machinery and others. Covid-19 impact on various industries in India has been moderate to severe. While industries like transport and automobile were affected due to restriction on movement of people, power generation and distribution sector suffered huge losses due to lack of demand followed by absolute closure of production units. Textile and apparel sector suffered losses due to closure of shopping malls. Construction industry is still suffering due to lack of workers as the migrated workers have returned to their native places. The pharmaceutical sector will continue to suffer as domestic pharma sector relies heavily on import of bulk drugs which account for 40% of domestic consumption in FY2019. Additionally, most of the raw materials are imported in India and import curbs restricted the import of raw materials and drugs from other countries, mainly from China. The chemical industry will also suffer for its dependence on China. Electrical and electronics industry, too, will suffer a lot as the sector too is highly dependent on import of Chinese inputs. The automobile sector suffered largely due to ban on import by various countries including China.

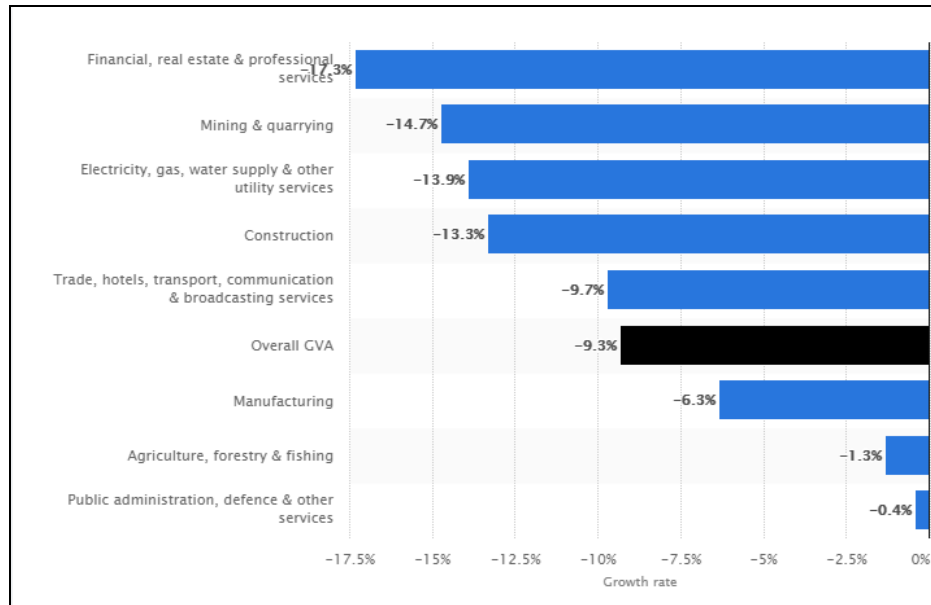
### 3.3 Service Sector

Service sector accounts for 54.15% of Indian GDP at constant prices in 2019 FY. It is the largest contributor to Indian GDP. The sector comprises Trade, hotels, transport, and communication, Financial, real estate, public administration, defence and other services.

- i. **Information Technology:** Among the various sub-sectors, IT sector has been at a loss due to global lockdown leading to decline in demand. The sector will continue to suffer due to travel restriction imposed by various countries. The project executions will be delayed leading to a sharp fall in the revenue estimates of the major IT companies.
- ii. **Healthcare:** The industry has suffered a lot during the crisis due to very poor health infrastructure. India is highly dependent on other countries including China for PPEs and other sophisticated ICU equipment. Thus, during the initial phase of lockdown, inadequate supply of testing kits, PPEs and other devices created huge difficulty in providing timely healthcare service to the patients. Though the situation got better with supply from US, it is still far from being called adequate. Another important factor that intensified the crisis for some states including West Bengal further was lack of trained healthcare workers. This is because, in some states the healthcare workers basically migrated from North-east and Odisha and they preferred to go back to their native states during this period.
- iii. **Tourism and Aviation:** This sector was among the worst hit sectors during the pandemic. Due to lockdown the domestic and international flights were totally suspended. As a result, hotels saw a sharp fall in occupancy. Many became jobless. The suffering of this sector not likely to end soon as the current process of easing the lockdown is increasing the infection in rapid pace.
- iv. **Real Estate:** The impact of the present pandemic on this sector is likely to be continuing in the near future as well. With many companies in the service sector allowing their employees to work from home, the sector will surely face lack of demand of office and residential space in anytime soon. Also, the uncertainty prevailing in the business sector will restrict people buying new home and assuming a long-term liability.
- v. **Financial Sector:** With the unprecedented increase in demand side risks, disrupted supply chains causing order execution far more difficult and lack of manpower, businesses are reluctant to take up new ventures. This will eventually reduce the demand for loan which will badly hit the banks and other financial institutions.

NBFCs are likely to feel the heat as MSME sector will take time to revive. However, fintech organizations will continue to grow.

Other sectors will feel moderate impact of the pandemic crisis and many will eventually come out of this soon as the unlock process will take momentum, provided the spread of the virus does not go uncontrolled.



Source: Statista 2020

The above graph shows the estimated impact on different sectors from April 2020 to June 2020 in terms of sector GVA. The graph reveals that the financial, real estate and professional services have contracted the most followed by mining and quarrying. Trade, hotels etc. have also contracted by 9.7%. While manufacturing has contracted by 6.3%, the contraction during the last three months has been only 1.3% for agriculture. However, public administration, defense and others have contracted by only 0.4%.

#### 4.0 THE SILVER LININGS

Though the covid-19 pandemic and the resultant lockdown during the last two and a half months have adversely affected many sectors in Indian economy, it also has brought immense opportunities for Indian tech enabled start-ups. Start-ups in edtech, biotech, streaming and online gaming services, e-commerce especially groceries have experienced double digit growth in business and cashflows. These sectors will continue to thrive further. With passage of time either the virus will lose its power or new treatment or vaccine will provide a check on its spread and will help the business back to normal. However, that

normal will be a New Normal and the businesses will have to struggle a lot to survive in that changed environment.

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## CHAPTER 30

### PUBLIC DISTRIBUTION SYSTEM- A RAY OF HOPE DURING COVID-19

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#### **ABSTRACT**

The COVID-19 pandemic has caused the whole world to face an economic crisis and hence putting people even more at risk of food insecurity; supply chain setup has been disrupted severely due to numerous transport restrictions. There is a need for various components of government machinery to work in complete synergy for aligning services, making provision for supplies and arranging means of delivery to the citizens. This review gives an understanding about the food security situation in India, problem faced by the citizens, in particular the poor and vulnerable population, small and marginal farmers during the COVID-19 pandemic. It also analyses the steps taken by the government of India to address the food security challenges during COVID-19. We have discussed the importance of macro level thinking and various measures that can be taken to strengthen public distribution system in India. We have also discussed policies to support the small and marginal farmers, wage labourers, and migrant workers.

*Keywords: Public Distribution system, food security and fair price shops*

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#### **1.0 INTRODUCTION**

The global pandemic of Covid-19 that originated in the Wuhan province of China has stretched its arms in the entire world affecting each and every sector of the economy. This has led to a fall in the world economy especially in developing countries like India. India with its apt governance has however tried its best to combat this crisis with a country wide lockdown to prevent the health implications. But agriculture being the backbone of the country and the GDP has been impacted in a negative way with huge disruptions in the supply chain and cropping decisions for upcoming agricultural seasons. All these have a negative implication on the farming community that is and will be undergoing heavy financial and mental losses.

Many vulnerable households see their purchasing power reduced by aggregate macroeconomic shocks. Global economic growth is seen falling to -3% for the whole year, compared to an already weak 2.9 % in 2019.

This review paper, will assess the impact of COVID-19 and subsequent lockdown on food security in India and different measures announced by the government of India/ministry of consumer affairs, food and public distribution to prevent food crisis when all economic activities are either closed or at a low key during this COVID-19 pandemic.

## **2.0 INDIA'S FOOD SAFETY NET AND MEASURES FOR COVID-19**

### **2.1 PDS Eligibility**

All states needed to formulate eligibility criteria for ration cards and identify those who meet them, with the implementation of the National Food Security Act (NFSA) in 2013. But these criteria were opaque and remained unclear, according to the report. "In the move from the targeted PDS to NFSA, several states relied on data from previous surveys, including the Socio-economic Caste Census, 2011 and the 2011 Census to identify eligible households," the report said. Some 100 million individuals were excluded. (Jean Dreze and Reetika Khera). Newly married women and children born after the survey period, in particular, were excluded. Family members living separately were also possibly affected. It was pointed out that migrant workers — who largely remain excluded from the PDS as they do not have valid ration cards — were covered by more than 63 per cent relief efforts. A majority of them were from Bihar, Jharkhand, Madhya Pradesh, Odisha, Uttar Pradesh and West Bengal. The Union government asked states and Union territories to begin national portability transactions in June 2020 to implement 'One Nation One Ration Card' by March 2021.

Stranded migrant workers can take advantage of the scheme only if their applications for ration cards were processed and approved promptly, according to the report. With high levels of income inequality reflected in India's score on Gini index, food insecurity in the country has been a challenge.<sup>8</sup> Findings from the comprehensive national nutrition survey (2016-18) suggest that around 35% of children below 5 years of age are stunted and 33% of them are underweight. The national food security act (NFSA), enacted in 2013, marked a paradigm shift in addressing the problem of food security - from a welfare approach to a right-based approach. The act relies on the country's public distribution system (PDS) to ensure access to food with a targeted approach to identify entitled people. Furthermore, NFSA includes integrated child development services (ICDS), mid-day meal (MDM), and Pradhan Mantri Matru Vandana Yojana (PMMVY) schemes. Under the PDS, the government provides 35 kg of food grains to every Antyodaya Anna Yojana household (poorest of the poor) per month and 5 kg of food grains to every member of priority household (poor and vulnerable section) per month through a network of 5,00,000 fair price shops (FPS) in the country. These food grains are provided at a highly subsidised rate of Rs 3/kg for rice, Rs 2/kg for wheat and Rs 1/kg for coarse grains by the central government. PDS covers around 800 million entitled people in the country. <sup>9</sup> NFSA has served to improve the general

functioning of PDS to a huge extent. It has led to increased coverage of entitled people, a decline in exclusion error, a rise in the purchase entitlement ratio and improvements in the transportation of food grains where states undertook proactive measures. In the current situation, the Indian government has declared that it has got surplus food grains of 435 lakh tons as on 23rd March 2020 of which 272.19 lakh tons is rice and 162.79 lakh tons is wheat.<sup>10</sup> The PDS requirement for April is about 135 lakh tons of rice and 74.2 lakh tons of wheat. There is an availability of 646 lakh tons of food grains in the stock, which is 435 lakh tons more than the required.

The government has enough supply to meet the demand and states can lift the quota in advance. <sup>11</sup> Ministry of consumer affairs, food and public distribution, government of India, is the key ministry and is at the frontline during this pandemic. The central government has announced several measures to deal with the food security situation in the country because of the pandemic and the associated lockdown. Some of these measures are as below. Free distribution of additional 5 kg food grains per person and 1 kg of pulses per household under PM Garib Kalyan Ann Yojana scheme for next 3 months to 800 million entitled people covered under NFSA 2013 ( Ref. FP No.7-1/2019(ii)-BP.III dated 30th March 2020) and they can lift quota of subsidised food grains for six months in one go. States and Union Territories have been allowed to lift food grains for three months in advance from food corporation of India (FCI) with close monitoring.

In addition to the steps taken by the central government, different state governments have also taken steps at their level as below. The Tamil Nadu government has issued an order to distribute Rs 1000/- each to rice cardholders and to supply rice, tur dal, oil, and sugar to all entitled families through FPS free of cost in April 2020. The token system will be adopted to avoid overcrowding at FPSs. Auto rickshaw drivers, construction workers, and registered pavement hawkers will get a cash grant of Rs 1,000. Families of migrant workers, construction workers, and auto rickshaw drivers have been handpicked by the Tamil Nadu government to be provided with 15 kgs of rice, 1 kg of dal, and free cooking oil. **Gujarat** state government has decided to distribute 3.5 kg wheat and 1.5 kg rice per person and 1 kg pulse, 1 kg sugar and 1 kg salt per family free of cost from 1st April 2020, to all the ration cardholders. Extremely poor migrant workers from other states who came to Gujarat for jobs will also get food grains kit free-of-cost under Annapurna Yojana in April 2020 from the 17,000 FPSs in the state.

The Uttar Pradesh government is providing free ration to all the PDS ration cardholders. Nearly 522 community kitchens have been set up to provide food to the needy.

The government has ramped up to 26,298 mobile vans and manual carts for doorstep delivery of fruits and vegetables. Delhi government has decided to give 1.5 times more ration to entitled families under PDS and this will be given free of cost. Also, free cooked food will be provided twice a day to the homeless in night shelters. In Kerala, entitled people will continue to get the 30 kg of food grains, as mandated under PDS, along with the kit prepared by the state. The kit will have rice, wheat, sugar, salt, edible oil, pulses, and spices. Those entitled to get 2 kg of rice at subsidised rates now get 15 kg of rice for free. To prevent crowding, the government has devised a card number system for the distribution of ration

The Punjab government is to implement the Atmanirbhar scheme to provide free ration to 14 lakh migrants, who are not covered under the National Food Security Act (NFSA). The scheme will also be applicable for Punjab residents who are not covered under NFSA. In the wake of the corona virus pandemic, lakhs of migrant workers have been returning to their hometowns across the country. From Punjab, nearly three lakh migrants have returned to their home states. While 17.7 lakh migrants had registered on the government portal to return home, three lakh have left via trains and over a lakh left by buses. Several others also left on foot or private vehicles. For the 14 lakh migrants still staying in the state, 2 months of free ration will be provided under the scheme.

### **3.0 CONCLUSION**

Food security exists when all people, at all time, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.<sup>15</sup> In the current situation of the COVID-19 pandemic, all the public resources are concentrated on mitigating the extent of damage. Further, economic activities are likely to remain at a low key in the coming months. The government should make policies to support the small and marginal farmers, wage laborers and migrant workers.

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## CHAPTER 31

### IMPACT OF CORONAVIRUS ON ENVIRONMENT

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#### **ABSTRACT**

As SARS-CoV-2, the novel coronavirus pathogen that causes the disease COVID-19, sweeps over the globe, social distancing measures are perceptibly affecting the environment. Therefore, both the protection and rebuilding of environmental quality are encountering a new normal as the pandemic proceeds. Lock-downs, isolates and border closures in the wake of the pandemic have prompted decreases in air pollution through diminished travel and creation. These positive environmental impacts are likely for the temporary, yet may serve in for instance that adjustments in our lifestyle can have brief constructive outcomes for the environment and show the usefulness of travel-reducing measures, for example, intercommunicating. Hence, recognizing that COVID-19 is most importantly a worldwide disaster, the pandemic may inspire to future behavioral changes with positive environmental effects.

**Keywords:** *Corona virus, Environment*

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#### **1.0 INTRODUCTION**

The new coronavirus (SARS-CoV2) has produced a phenomenal effect in many countries of the world. According to WHO report 2020, The virus has influenced pretty much every nation on the planet (213 altogether), spread to in excess of 2 million individuals, and caused around 130,000 deaths. As the priority revolves around people's health, most nations have attempted to battle the spread of the virus with enormous COVID-19 screening tests and building up open arrangements of social distancing.

The social distancing policies received by the legislatures following the presence of the pandemic has indicated different results. Thus, the roundabout effect of the virus on environment has been minimal investigated. The principal considers evaluated a positive indirect effect on environment. The positive outcomes incorporates have made numerous beaches around the world to get cleaned up. This because of the decrease in waste generated by tourists who visit the beaches. In like manner, noise levels have fallen altogether in many nations. The decrease in the utilization of private and open transportation as well as commercial activities, has caused a reduction in noise.

On the other hand, climate experts predict that greenhouse gas (GHG) discharges could drop to extents never before seen since World War II (Global Carbon Project, 2020). For instance, in the USA, a few urban communities have suspended recycling programs since

authorities have been worried about the danger of spreading the virus in recycling centers. Additionally, in affected European countries, sustainable waste management has been restricted. For example, Italy has prohibited infected residents from sorting their waste.

A few industries have taken advantage to repeal disposable bag bans. Organizations that once urged consumers to bring their bags have progressively changed to single-use bundling/ packaging. At long last, online food ordering has expanded. These developments are bringing about the expansion of domestic waste, both organic and inorganic.

In any case, the outbreak has likewise given spread to illegal activities, for example, deforestation of the Amazon rainforest and poaching in Africa, hindered environmental diplomacy efforts, and created economic fallout that some predict will slow investment in green energy technologies.

## **2.0 IMPACT OF COVID-19 LOCKDOWN ON ENVIRONMENT**

### **2.1 Air Quality**

After the lockdown was set up in numerous nations, there was lesser travelling done by individuals, regardless of whether it be by their own vehicles, or via trains and flights. Indeed, even businesses were shut down and not permitted to work. This thus prompted the pollution dropping essentially, as there was a marked decrease in nitrous oxide outflow. Due to the coronavirus outbreak's effect on travel and industry, numerous districts and the planet as a whole encountered a drop in air pollution. Decreasing air pollution can reduce both environmental change and COVID-19 dangers however it isn't yet clear which kinds of air pollution (assuming any) are common dangers to both climate change and COVID-19. One Earth systems scientist assessed that this decrease may have saved at least 77,000 lives.

NASA and ESA have been observing how the nitrogen dioxide gases dropped essentially during the underlying Chinese phase of the COVID-19 pandemic. The economic slowdown from the virus radically dropped pollution levels, particularly in cities areas like Wuhan, China by 25-40%. NASA utilizes an ozone monitoring instrument (OMI) to break down and observe the ozone layer and pollutants, for example, NO<sub>2</sub>, aerosols and others. This instrument helped NASA to process and decipher the information coming in because of the lock-downs around the world. As indicated by NASA researchers, the drop in NO<sub>2</sub> contamination started in Wuhan, China and gradually spread to the rest of the world.

### **2.2 Carbon emissions**

A study published in May 2020 found that the daily worldwide carbon emissions during the lockdown measures toward the beginning of April fell by 17% and could prompt a yearly carbon emissions decline of up to 7%, which would be the greatest drop since World

War II as indicated by the scientists. They attribute these decreases principally to the decrease of transportation utilization and industrial activities.

Nonetheless, it has been noticed that bouncing back could decrease reductions because of the more constrained modern exercises. However, societal shifts brought about by the coronavirus lockdowns – like widespread telecommuting and the utilization of virtual meeting technology – may have a more sustained impact beyond the short term reduction of transportation use. Notwithstanding of this the concentration of carbon dioxide in the atmosphere was the most elevated at any point recorded in mankind's history in May 2020.

A report by the London-based research organization Carbon Tracker infers that the coronavirus pandemic may have driven the fossil fuel industry into "terminal decline" as demand for oil and gas decreases while governments intend to accelerate the clean energy transition.

It predicts that a yearly 2% decrease in demand for fossil fuels could cause the future benefits of oil, gas and coal organizations to collapse from an expected \$39tn to \$14tn. However, as per Bloomberg New Energy Finance the greater part a trillion dollars overall are presently intended to be filled high-carbon industries. During the pandemic numerous individuals have begun cycling and bicycle sales surged.

### **2.3 Water quality**

In most the places, water in the canals cleared and experienced more prominent water flow. The increase in water clarity was because of the settling of sediment that is accounted by boat traffic and referenced the decline in air pollution along the waterways. Almost certainly, in view of the lesser human footfall even the oceans are recovering and marine life is flourishing.

### **2.4 Wildlife**

Demand at fish and fish costs have both diminished because of the pandemic and fishing armadas around the globe sit generally inert. As of April 2020, indications of amphibian recovery remain for the most part recounted.

As individuals remained at home because of lockdown and travel limitations, a few animal have been seen in cities. Sea turtles were spotted laying eggs on sea shores they once stayed away from, (for example, the bank of the Bay of Bengal), because of the brought down degrees of human interference and light pollution. Likewise, fatal vehicle crashes with animals, for example, deer, elk, moose, bears, mountain lions fell by 58% during March and April.



Protectionists expect that African nations will encounter a massive surge in bush meat poaching that are high-value products. On the other hand, Gabon decided to ban the human utilization of bats and pangolins, to stem the spread of zoonotic diseases, as the novel coronavirus is thought to have transmitted itself to humans through these animals.

## **2.5 Deforestation and reforestation**

The interruption from the pandemic provided cover for illegal deforestation activities. This was seen in Brazil, where satellite imagery demonstrated deforestation of the Amazon rainforest surging by more than 50 percent compared with baseline levels.

## **2.6 Litter**

As a result of the uncommon utilization of disposable face masks, a noteworthy number of masks were disposed of in the natural environment, adding to the overall burden of plastic waste.

## **2.7 Investments and other economic measures**

Some have noticed that stimulus improvement package could be intended to accelerate sustainable energy transitions and to help energy resilience. Scientists of the World Resources Institute have sketched out various reasons behind investments in public transport as well as cycling and walking during and after the pandemic. Utilization of public transport in urban areas worldwide has fallen by 50-90%, with considerable loss of income misfortunes for administrators. Ventures, for example, in elevated hygienic practices on public transport and in suitable social distancing measures may address public health concerns about public transport usage.

## **2.8 Need for action**

Attention must be given to threats on the environment and natural resources because of the coronavirus pandemic and significant social and financial effects.

Numerous rural and coastal populations depend on the economical utilization of the local environment and its natural resources whether they be small-holder farmers, small and medium-sized enterprises (SMEs) and micro, small and medium-sized enterprises (MSMEs) engaged with the creation of BioTrade, forestry and fishery items and ecotourism administrations.

As the emergency makes interruptions in their linkages both national and worldwide interest side markets, provincial makers, of whom many are women supporting whole families, are currently not, at this point ready to completely keep up their business models and livelihoods.

On the off chance that the emergency is drawn out, many will be compelled to forsake existing sustainable production so as to produce income rapidly in domestic markets, possibly bringing about further poverty and over-exploitation of natural resources and ecosystems.

### **3.0 CONCLUSION**

Finally, it is concluded that COVID-19 will deliver both positive and negative aberrant impacts on the environment, yet the last will be more prominent. Besides, the virus crisis brings other environmental issues that may last longer and perhaps additionally challenging to manage if countries neglect the effect of the epidemic on the environment.

## CHAPTER 32

### REFRAMING OUR PRIORITIES IN WATER RESOURCE MANAGEMENT DURING COVID-19

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#### ABSTRACT

Pandemic COVID-19 situation can be described as a global threat that have significant impact on economic slowdown, changing social behaviour, natural environment and water security issues in the society. While our immediate concerns to address, water and environmental systems at every (local to regional) level. The impacts of COVID have been recorded in term of changes in pollutant load, river flows, water quality, emission trend and other sources. The objective of the study to analyses the nature of COVID-19 and its impact on water resource availability and water security concerns in different societies. Study also tries to develop understandings about the link between environmental, anthropogenic activities and their impact on water security and associated issues. This study is based on secondary sources of data available and collected from the recent studies, provided updated statistics released by the various national, international agencies and their reports on COVID-19.

*Keywords: Corona Virus, COVID-19, Water Security, Environment and Development*

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#### 1.0 INTRODUCTION

The COVID-19 pandemic is caused by the Severe Acute Respiratory Syndrome (SARS COV-2), this virus was initially identified in Wuhan (China) and spread across the globe affecting more than 217 countries and territories. And presently acting as parasite to human minds which is the cause trauma for many peoples in our global society. COVID-19 transforming itself rapidly with new symptomatic or asymptomatic characteristics. Before announcing it's (Corona virus) name as COVID-19, it was known as '2019 Novel Corona Virus', and its viral disease known as Corona virus disease (COVID-19), after SARS-COV (2003) it's another version has occurred and reported in December 2019. So, it was named as COVID-19. It has another name as well like Severe Acute Respiratory Syndrome Corona Virus-2 (SARS COV-2).

This disease officially named by WHO (World Health Organization) in the International classification of Diseases (ICD), 2020. WHO announced "COVID-19" as the name of this new disease (on 11 February, 2020) following the guidelines of World Organization for Animal Health' (OIE) and the Food and Agriculture Organization (FAO) of the United Nation. This name was chosen because the virus is genetically related to the

Corona virus (family), responsible for SARS outbreak of 2003. Though they are related genetically but the viruses are different from each other. Among the all RNA viruses the corona virus ranges from approximately 26-32 kilo bases, it is one of the largest RNA viruses.

## **2.0 OBJECTIVE OF THE STUDY**

The proposed study tried to analyses the nature of COVID-19 and its impact on water resource availability and water security concerns in different societies. Study also focuses on corona spreading in various societies that affects the environmental status, economic and social behaviors. The study further come up with the suggesting suitable measures for combating pandemic situations in general and water issues in particular at different level of Indian rural society.

## **3.0 METHODOLOGY**

The present study is based on secondary sources of data. It is started with the available primary studies on pandemic situation and convenient methods to understand the historical experiences and perspectives of similar situations in the societies. Secondary sources of data were collected from the current updated statistics released by the various governments and non-governmental agencies WHO, World Bank, EU and union agencies and their reports on COVID. At the national level various central/state government reports released by health department (MHFW at different level), ICMR, disaster management agencies etc. were studied related to the fighting against COVID. Study also used for representing and analyzing the available data and observations and their trends for the analysis.

## **4.0 NATURE OF CORONA VIRUS**

Now it should be known that what is an RNA virus? This RNA/Corona virus has Ribonucleic acid as its genetic material, this nucleic acid can be single standard (SS-RNA) and double standard (DS-RNA) a well. Some examples of RNA virus disease or symptoms are: *the common cold, influenza, Hepatitis C, Hepatitis E, West Nile fever, Ebola virus disease, Rabies, Polio, Measles, SARS and now COVID-19* but here one thing must be mentioned that these viral diseases are found yet but there are many unknown virus and their related diseases which are not known yet. Whatever, the RNA viruses include DNA intermediates in their replication cycles, are called retrovirus. HIV-1 and HIV-2 are the notable human retrovirus, which are the cause of the disease AIDS. There are three distinct groups of RNA viruses, depending their genome and mode of replication.

#### **4.1 Current Scenario of COVID-19**

According to WHO, COVID-19 has already spread in 215 countries and territories, around 14,779,824 people worldwide are infected by this deadly virus (till date 20th July, 2020), and India has 1,154,917 confirmed cases, 724,702 patients are recovered, 402,116 people are hospitalized as active cases and 28,099 people were died. By 20th July the total accounted 14,779,824 cases are confirmed in all over the world, 8,822,260 people are recovered and 611,039 death cases have recorded. All these deaths have a deep impact to our society (psychological, social, emotional), economy (being a working population or nature of dependency) and indirect impact on environment (positive or negative) in every sense as well. Through this chapter it will be tried to show that how to limit the impact of pandemics like COVID-19 on environment and society. How can people eradicate this virus-related problem from the society and make a healthy/strong immune for Human well-being and its environmental relationship.

#### **5.0 LITERATURE REVIEW**

In the recent COVID situation every day we have huge number of writings in form of articles, research papers, books etc. In this chapter we will focuses on some important book's or major writings. That will contain depth study which are concerned with the environment, resource concerns, water issues, changing nature, impact on animal and society etc. During the research all these writings will be followed but apart from these academic works some other research or popular articles will also be picked up, few of them will be mentioned in the reference part. Here I tried to discuss the basic and initial writings to establish the common understanding of the issue. Author Attfield in his book "*The Ethics of Environmental Concern*" (Robin Attfield) focused on the ecological problems, traditional attitudes towards the nature and how this attitude enables us to cope with modern ecological problems. The Attfield's belief in humankind's dominion and examines concerns of applied ethics and considered our obligations to future generations, the value of life and the moral standing and significance of non-humans. In this book author defends a theory of moral principles which is appropriate for dealing with such concerns as pollution, scarce natural resources, population growth and the conservation and preservation of the environment.

The environmental lawyer David in his book *The Rights of Nature: A Legal Revolution that could save the World*, (David Richard) advocating legal actions taken to support the legal rights portending environmental catastrophes, a movement of immense import has been building in court-rooms, legislatures and communities across the globe. These acts are for protecting the planet and species with those we share the world. Through

this book David tries to say that if the nature has rights then the human has responsibilities as the supreme natural being. Around the world many laws have already passed to safe the ecosystems like rivers water, forests, mountains etc. these all have legally enforceable rights. The available academic writings were mainly focused on assessment and present chapter is an interpretation of water resource availability, water security issues and environmental data that will be studied through the analytical approach.

## **6.0 NEED OF WATER COOPERATION DURING COVID**

During the COVID every society try to assure the proper water supply or availability for rural/urban area for their different uses. Other than the cultural landscape our natural landscapes were more dependent on the proper water availability. Sufficient water availability for such water dependent landscape can survive in long term, flow of rivers stream may in full swing and this conservational approach is a better strategy to recover faster from the disasters, mitigate the impact of climate change and disrupters of sustainable development and economic growth.

Healthy environment provides incalculable benefits to the nature and society and water enrich the natural strength through mitigating flooding situations, regeneration of water bodies reservoirs and lakes, recharging ground water resource, agricultural productions, vegetation cover, including cultural and customs appreciation. Improving the environmental strength is not accepted only at national level but also the United Nations in his SDG-15 goals were clearly emphasizes the issues on land degradation, biodiversity loss, losing species and alarming rate of per capita water availability in various regions.

This water availability directly or indirectly affects each and every section of nature and society. May not only cover the natural ecosystem but also control the agricultural productivity, limit the industrial growth, domestic human needs and affects the livelihood opportunities. It can be understood through the major river basins of the globe. Our GBM (Ganga-Brahmaputra-Meghna) basin support the livelihoods of an about more than 80 million people of south and south-east Asian states. As COVID-19 hits the Brahmaputra riparian countries/region at different times and with different levels of severity, the importance of water cooperation over shared water resources varies time to time. These water relations during the COVID offering support and solidarity in the response and rebuilding phases. On the other hand, controlling or dominating water right nature may face the different phase of flood situation in South-eastern China (Yunnan, Wuhan, Xan-Jiang) and its changing water relations with nabouring downstream riparian states (Myanmar, India,

Bangladesh). This phase of COVID providing an opportunity of regional water governance that can address and respond to threats to water management and water security in the region. Water quality improves during the COVID situation and that effects the sediment load, pollutant and energy generation by the flowing river streams. It also affected by the low rate of water consumption in upper reach of water demand and provide the water assurance in term of quantity and quality of water. The COVID provide the opportunity for the water management and cooperation and recognize the importance of the sustainable environment, river health and the socio-economic well-being of the people dependent on the water livelihood.

## **7.0 COVID: OPPORTUNITIES TO STRENGTHEN WATER GOVERNANCE**

This phase of COVID-19 pandemic has impacted every aspect of our lives and society. This time we learned many harsh lessons to understand the establishment of complex systems of man and nature. This phase COVID-19 can be described as a threat multiplier for the people's existence, threats to our ambitions for a sustainable world order. Environmental challenges have also been described as a threat multiplier in changing economic societies. We have time to intersect various issues with water challenges that we face in pandemic time. Here we can get our water management right that recognize how it is interconnected and develop holistic-integrated solutions for recent quality/quantity challenges. Then we will have some chance to address the challenges that threaten to undermine our nature, culture, lives and livelihoods.

Water is indeed is an essential service, and it is a variable that, if we pull in the right direction, can have a positive knock-on effect at different (individual, region and state) spatio-temporal levels. Governments/NGO's, stakeholders and different organizations should be cognizant about COVID-19 that it is more than a health issue. Therefore, they deactivated response and recovery efforts against COVID-19. This is a receptacle moment that water sector has an opportunity to provide strong and effective leadership at this time. Organizations should prepare a policy framework and many efforts to ensure long-term positive outcomes of the COVID-19 legacy at various level in the society.

## **8.0 WAY FOREWORD**

It is a positive effort taken by the governments continues to give high priorities to the water sector and also taking regular and strong steps to move towards a more integrated and holistic approach to water security and management for the society. In November, 2019 the Water resource ministry announced the setting up of a new committee headed by famous water experts Mihir Shah to look into revising the existing National Water Policy (2012). The

committee unanimously resolved the updating the policy and providing recommendations to reform existing water governance structures and water regulatory frameworks of the country.

As we (arid or semi-arid state) faced summer in the shadow of the Covid-19 crisis, the committee rescheduled its work with different level and work on at limited extend too. The main agenda will be improving the institutional and structural changes required to straighten water governance and water resource management of India at various levels. Motive of the policy also focuses to finding creative solutions regarding water allocation, water uses, distribution of water and balancing among the different water sectors with rational approach, principles of equity, environmental sustainability to achieve social justice in the society. In that line of objective our budget (2020-21) was describes as access to water as one of the key aspects of an aspirational India along with access to the better education, health and employment. Even it is surprising that after 70 years of Independence water access remains an ambitious goal for millions of people in India.

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# CHAPTER 33

## A ROLE OF “SILENT CARRIERS” DURING THE COVID-19 ERA

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### ABSTRACT

The world health organization (WHO) has declared coronavirus (COVID-19) a global health issue and has emerged from China's Wuhan city since December 2019. Coronavirus infections are on the rise in almost all parts of the world, with every country working hard to stop the spread of COVID-19. The only question facing the whole world is why the number of COVID-19 infections is increasing day by day all over the world, there is not enough information regarding about how it is transmitting the infections, there is no clear information about what to do about it. In all of these conditions and situations, the role of the "Silent Carriers" person factor may be key and may be responsible for increasing the number of COVID-19 infections everywhere. In this context, the role and term "Silent Carriers" are briefly analyzed.

**Keywords:** COVID-19, Lockdown, Silent carriers, WHO

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### 1.0 INTRODUCTION

Infection with the Coronavirus (COVID-19), which began in the Wuhan city of China in November 2019, has spread around the whole world (Post, 2020). There are about 1.407Cr Coronavirus patients in the world up to July 2020 and about 5,99,341 patients have died but the recovery rate is good (Worldometers, 2020). The only question that remains is why the number of corona infections is increasing day by day, the whole world is trying to reduce the number of corona infections in different ways. The world health organization (WHO) has realized several guidelines to reduce the spread of the coronavirus infections, now it became a global health problem (Alhazzani et. al., 2020). Scientists around the world are researching the context of the coronavirus, revealing a variety of sources of corona infection, suggesting that an infected person may transfer an infection by sneezing, coughing, or touching and also other media (<https://www.vox.com/2020/4/22/21230301/coronavirus-symptom-asymptomatic-carrier-spread>) Therefore, lockdowns have been announced everywhere (Ma et al., 2020)

including safe distance, travel avoidance, use of masks, stay at home, work from home, etc. Lockdown is having a more impact on the country's economy (Snooks , 2020) and also other things (Jadhav et. al., 2020) but it seems to be beneficial in reducing Coronavirus infections, but why is the incidence of Coronavirus infection increasing even after many days of lockdown? This question is present in this situation, in all these factors you can't exclude a "silent carriers". A person infected with Coronavirus can be cured. But it remains to be seen whether the corona is infected. However, research has shown that Coronavirus infected many people who do not show any symptoms.

Coronavirus, which spreads its arms and legs all over the world, is now becoming more and more dangerous. This is because we are taking appropriate care of the Coronavirus positive people who have been detected and taking care not to infect anyone from that person. But there is more danger to Coronavirus 's silent career than to such a Coronavirus -positive person. Who are Coronavirus 's Silent Carriers and what are the risks and how to control it? Colds, fevers, and coughs are common symptoms of Coronavirus . If a foreign trip or high-risk zone contact and accompanying symptoms are seen, the person's Coronavirus is tested immediately. However, some of the current symptoms of the Coronavirus do not appear to be completely cured. This is because the corona does not show any symptoms even though it is present in the body and this is why a different question is present in front of all the medical experts. Coronavirus quietly enters a person's body and does not show any symptoms is becoming the "silent carrier" of the Coronavirus.

### **1.1 What is a silent career?**

According to the WHO, 70 percent of the world's Coronavirus patients are silent carriers. This means that 70 percent of the patients did not show any of the common symptoms of Coronavirus, such as fever, cough, or cold. Coronaviruses with these normal symptoms change their behaviors. During China, the South China Morning Post (Worldometers, 2020) found some Chinese government documents that mainly referred to as "Silent Carriers". Silent Carriers are people who have been Coronavirus infected, but they do not show any symptoms of Coronavirus and after many days they are the main cause of spreading the Coronavirus infections to the people around them. According to the literature survey, one-third of people infected with Coronavirus disease in China and around the world are silent carriers. In China at the end of February 2020, many Coronavirus patients were reported to be infected with no symptoms, isolated, and some were treated, but scientists found that the average person showed symptoms within five days but here some of found after three weeks, and much less. Quantitatively, this showed that they were all silent

carriers. According to WHO's guidelines to reduce COVID-19 infection, according to which people who do not have symptoms of corona infection will not be classified as corona infected, but China has not agreed to this. He acknowledged that China recognized Coronavirus infections and made it mandatory for them to be tested, which he said would help reduce the number of Coronavirus infections. So how to identify such silent carriers? Because anyone can be Corona's silent carrier. Changing the behaviors of a Coronavirus can make a strong person Coronavirus infected, we don't even know what happened, it will be cured, but it will infect a person with low immunity and pose a very high risk. At present, it is not possible to plan concrete measures on silent carriers, if you want to identify Silent Carriers, you have to test COVID-19, which is possible in a country with a small population. But in a country with a large population, it is not possible to test everyone. For example, India has a population of 140 crores. If 1 lakh test is done in one day, it will take about 40 years for all the people to complete the test, so it is not possible. To prevent the spread of COVID-19 infection, everyone needs to take care of themselves, become self-reliant, and follow the guidelines given by the government or the WHO.

## **2.0 CONCLUSION**

According to our study, Silent Carriers are a major factor in the transmission of COVID-19. So, far no concrete measures have been taken to control silent carriers. With a world population of about 770 million, it would not be possible to take everyone on the COVID-19 test. Countries with large populations and high densities such as India, Bangladesh, etc. are most at risk from Silent Carriers. If not addressed in time, COVID-19 could be transmitted to millions of people in the future, so everyone needs to take care of themselves and follow the guidelines laid down by the government.

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## CHAPTER 34

### NOVEL COVID 19: REVIEW ON THE ROLE OF PROTEOMICS IN TREATMENT

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#### **ABSTRACT**

The understanding of the OMICS including Genomics, proteomics and metabolomics of COVID-19 in pathogenesis is important for the production of drugs and vaccines. So, in this review, we have provided the newest features of COVID-19 to investigate the role of these factors in the pathogenesis.

**Keywords:** Proteomics, OMICS, COVID 19, Drug

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#### **1.0 INTRODUCTION**

Innovation encompassing genomics, or the investigation of a creature's genome and its quality use, has progressed quickly bringing about a bounty of promptly accessible genomic information. Despite the fact that genomics is incredibly significant, proteins are at last answerable for controlling most parts of cell work. The field of proteomics, or the investigation of the full exhibit of proteins delivered by a creature, has become the head field for the recognizable proof and portrayal of proteins. However the errand of portraying a proteomic profile is increasingly mind boggling, to some degree on the grounds that numerous interesting proteins can be created by a similar quality item and in light of the fact that proteins have progressively assorted substance structures making sequencing and distinguishing proof increasingly troublesome. Proteomic profiles of a specific life form, tissue or cell are affected by an assortment of ecological upgrades, including those welcomed on by irresistible illness. The expectation of this audit is to feature utilizations of proteomics utilized in the investigation of pathogenesis, etiology and pathology of irresistible issue.

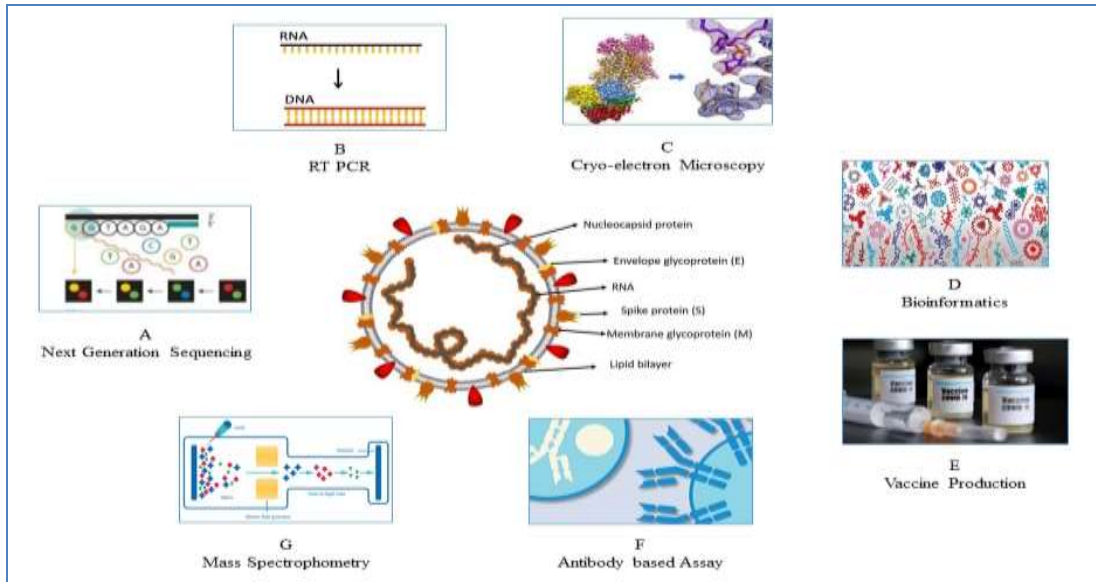
A tale coronavirus was as of late found and named SARS-CoV-2. Human contamination can cause coronavirus infection 2019 (COVID-19), which has been quickly spreading far and wide. SARS-CoV-2 demonstrates a few similitudes to different coronaviruses. In any case, treatment choices and a cell comprehension of SARS-CoV-2 contamination are deficient. The sub-atomic instruments basic host cell adjustment upon SARS-CoV-2 contamination can give knowledge to the improvement of treatment choices for COVID-19.

## 1.1 SARS-CoV-2 Proteins

A common CoV contains at any rate six ORFs in its genome. With the exception of Gammacoronavirus that lacks nsp1, the first ORFs (ORF1a/b), around 66% of the entire genome length, encode 16 nsps (nsp1-16). ORF1a and ORF1b contain a frameshift in the middle of which produces two polypeptides: pp1a and pp1ab. These polypeptides are prepared by virally encoded chymotrypsin-like protease (3CLpro) or fundamental protease (Mpro) and a couple of papain-like protease into 16 nsps. All the basic and embellishment proteins are interpreted from the sgRNAs of CoVs. Four fundamental basic proteins contain spike (S), film (M), envelope (E), and nucleocapsid (N) proteins are encoded by ORFs 10, 11 on the 33% of the genome close the 3'-terminus. Besides these four principle auxiliary proteins, distinctive CoVs encode uncommon basic and embellishment proteins, for example, HE protein, 3a/b protein, and 4a/b protein. These develop proteins are liable for a few significant capacities in genome upkeep and infection replication.

There are three or four viral proteins in the coronavirus film. The most plentiful auxiliary protein is the layer (M) glycoprotein; it traverses the film bilayer multiple times, leaving a short NH<sub>2</sub>-terminal space outside the infection and a long COOH end (cytoplasmic area) inside the virion.<sup>4</sup> The spike protein (S) as a sort I film glycoprotein comprises the peplomers. Truth be told, the primary inducer of killing antibodies is S protein. Between the envelope proteins with exist an atomic cooperation that most likely decides the development and creation of the coronaviral layer. M assumes a prevalent job in the intracellular arrangement of infection particles without requiring S. Within the sight of tunicamycin coronavirus becomes and creates spikeless, noninfectious virions that contain M yet without S. The nucleocapsid protein (N-protein) and spike protein (S-protein) are encoded by all coronaviruses, including the coronavirus (SARS-CoV-2, COVID-19) that was first identified in Wuhan City, China, in December 2019.

Components behind the pathogenesis of the serious intense respiratory disorder coronavirus 2 (SARS-CoV-2) disease and its dismalness and mortality are remarkable and complex (Tay et al., 2020), with just scarcely any experiences offered from past science. By prudence of its emphasis on frameworks science, omics advancements are very much ready to address the pandemic in manners that offer new robotic experiences into the pathogenesis of dangerous irresistible maladies (Eckhardt et al., 2020). In this specific circumstance, the omics-scale considers are approaching consistently to disentangle the riddles of SARS-CoV-2 (Figure 1).



**Figure 1: Systems-level and structural biology techniques to unravel the puzzles of SARS-CoV-2.**

Next-generation sequencing, real-time PCR, cryoelectron microscopy (A–C), and bioinformatics (D) have already demonstrated the potential in SARS-CoV-2 diagnostic research. Efforts are currently ongoing using mass spectrometry and antibody-based assays toward research to understand its clinical profile and inform therapeutics and vaccine development (E–G).

## 1.2 Nucleic Acid Sequencing and Cryo-EM Structure Ignited the Spark

The full-length nucleic corrosive successions of the SARS-CoV-2 from different natural examples, including oral swabs, blood, bronchoalveolar lavage liquid, and refined secludes empowered phylogenetic portrayal and quick finding of this novel pathogen (Lu et al., 2020; Wu et al., 2020; Zhou et al., 2020). In spite of the fact that the spearheading genomic portrayal investigations of the pathogen are at first done on a predetermined number of patients in China, the ensuing sequencing of the SARS-CoV-2 clinical secludes from different populaces and topographical destinations is likewise giving extra and more extensive omics experiences.

The accessibility of the entire nucleic corrosive arrangements of the SARS-CoV-2 from various patient populaces is additionally giving new insights with respect to the chance of nonuniformity of the pathogen around the globe. Intriguingly, a phylogenetic system examination of SARS-CoV-2 nucleic corrosive tested from various pieces of the world shows the nearness of three focal variations in the genome of the pathogen (Forster et al., 2020).

Another achievement in SARS-CoV-2 research is accomplished with the fruitful foundation of the cryoelectron microscopy structure of the spike (S) glycoprotein (Wrapp et al., 2020). Spike protein assumes an essential job in the early strides of this viral disease, and, thus, is a promising objective from both symptomatic and remedial points of view. Taken together, these discoveries gave a genuinely necessary hint of something better over the horizon for a more profound comprehension of the SARS-CoV-2 pathogenesis and its initial and exact determination and treatment.

## **2.0 POSSIBILITIES OF OTHER OMICS TECHNOLOGIES**

The fruitful nucleic corrosive sequencing of the infection presently gives the stick to the proteomics and metabolomics networks (Gordon et al., 2020; Shen et al., 2020; Wang et al., 2020). One sensible undertaking is to outline humoral counter acting agent reaction to SARS-CoV-2 proteins, which may help in creating neutralizer based measures for analytic and restorative advantages. An investigation by Wang et al. (2020) exhibited a SARS-CoV-2 proteome microarray for mapping COVID-19 counter acting agent communications. The creators characterized some serological antibodies that may kill this viral section into have cells through the angiotensin changing over compound 2 (ACE2) receptor. Critically, the creators additionally saw that numerous economically accessible antibodies for SARS-CoV proteins can likewise adequately target SARS-CoV-2 proteins.

A far reaching SARS-CoV-2 human protein–protein connection map is accounted for by Gordon et al. (2020) utilizing partiality filtration mass spectrometry. The creators characterized 332 high-certainty SARS-CoV-2 human protein–protein connections, among which 66 human proteins or host variables could be focused by a few existing FDA-affirmed medications or medications in clinical preliminaries. The fair coordinated multiomics concentrates alongside the host–pathogen interactomics examinations can prompt distinguishing proof of helpful focuses for this novel disease, which is basic for sedate repurposing and furthermore for the advancement of new medications and antibodies for rewarding SARS-CoV-2 of every an exact and effective way. What's more, accentuation ought to likewise be given to profile the host proteome and metabolome utilizing blood (serum or plasma), nasopharyngeal swab, and bronchoalveolar lavage liquid examples from patients experiencing SARS-CoV-2 for understanding its mind boggling pathogenesis and host resistant reactions against the infection. To this end, an ongoing report by Shen et al. (2020) (preprint) extensively examined the SARS-CoV-2–incited adjustments in serum proteome and metabolome in nonsevere and serious COVID-19 patients. The creators

watched dysregulation of macrophage, platelet degranulation, and supplement framework pathways, alongside a monstrous metabolic concealment in patients with COVID-19.

Another examination explored the SARS-CoV-2-incited modifications in Caco-2 human cell proteome and watched balances in have protein amalgamation and digestion (Bojkova et al., 2020). In these examinations, a near investigation of SARS-CoV-2 patients with SARS-CoV, ordinary occasional influenza, or regular virus would be basic to order the particular and vague reactions (Ray et al., 2014). Longitudinal framework level investigations including SARS-CoV-2 patients at an asymptomatic stage and during the early febrile, defervescence, and gaining strength phases of the disease will be exceptionally enlightening to anticipate how an asymptomatic or nonsevere patient may advance toward serious indications. Such transient examinations can give the depictions of short lived and suffering modifications in our body and furthermore help in distinguishing prognostic markers for a disease (Ray et al., 2017).

There is significant grouping homology (~79%) between SARS-CoV and SARS-CoV-2 (Lu et al., 2020; Zhou et al., 2020). Of note, cross-balance of the SARS-CoV-2-S-driven section by sera from gaining strength SARS-CoV patients is additionally watched (Hoffmann et al., 2020). Along these lines, until the profound inclusion multiomics informational indexes for the pathogen and contaminated patients are accounted for satisfactorily, the accessible omics information assets on SARS-CoV could likewise be a helpful reference for SARS-CoV-2 for ensuing bioinformatics examination and displaying.

### **3.0 CONCLUSION AND FUTURE PERSPECTIVES**

A significant trouble for the frameworks level atomic investigations of SARS-CoV-2 is the amazingly infectious nature of the pathogen that regularly restricts the arrangements for the preparing of clinical examples in sequencing and mass spectrometry-based top of the line look into offices. A dire combined exertion from the clinicians, social insurance laborers, atomic science analysts, and institutional biosafety or morals bodies and allotment of the devoted research offices (to maintain a strategic distance from or limit defilement dangers) can dodge this obstacle. With everything taken into account, multiomics and basic science procedures are foreseen to assume an essential job in viable clinical administration of the pandemic.



## CHAPTER 35

### **BUILDING RESILIENCE OF CHILDREN DURING COVID 19 PANDEMIC: IT'S IMPORTANCE AND SOME MEASURES TO BE TAKEN**

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#### **1.0 INTRODUCTION**

The virus 'Severe Acute Respiratory Syndrome Coronavirus 2' (SARS-COV-2), which is generally known as 'Coronavirus' has been spreading to almost all the countries that lead to the 'Covid-19 Pandemic' in 2020. (WHO, 2020). Though 'COVID 19' disease mainly affects human health and a major challenge for medical science, it is indirectly affecting the whole system of human activities and creating obstacles in every sector of our life. The enforcement of lockdown, isolation of the affected individuals and quarantine of the suspects, etc. to stop the spreading of the virus not only create obstacles for the adults but also creating a huge problem for the children. Moreover, the virus is more dangerous for children below the age of 10 years. Like all other sectors, Schools have been closed in many countries, and children become bound to stay at their homes for the safety of their life. The sudden changes in the lifestyle have created huge challenges for the children to maintain their process of learning and to cope up with this sudden adversity. Therefore, children's resilience has become one of the major concerns that will determine their capacity to deal with this adversity.

Commonly, Resilience is defined as a successful adaptation despite having adverse situations and risks (Masteen,2001). It makes an individual capable to cope up, to thrive during setbacks, and acquire positive outcome despite experiencing the chronic stresses derived during the adverse situations. The individual with a low level of Resilience always tends to affect in the worst manner from the high stress caused by setbacks and more likely to perform negative results.

#### **2.0 IMPORTANCE OF BUILDING RESILIENCE OF THE CHILDREN DURING COVID-19 PANDEMIC**

Unlike the others, children are also most affected by the Covid-19 Pandemic. According to the UN's policy brief on the impact of COVID-19 on children (15 April, 2020), all children comprises of all ages, among all countries have been affected by this pandemic

and for some children, the impact will be for a lifetime (UN, 2020). The children in the poorest countries, in the poorest neighborhoods, and the children already in vulnerable families will be most affected by this pandemic. The children are affected by three main channels: Infection of the virus, the sudden socioeconomic impacts of the measures that are taken to stop the transmission of the virus, and the potential long term effects of the pandemic (UN,2020). Despite those, children's learning also dramatically affected. There was no historical precedent of the worldwide closure of schools as during the COVID-19 pandemic. The Pandemic creates many challenges and stress for the children in their learning as well as staying every day inside the home. Without proper resilience to deal with the sudden changes and adversities, the children will not be capable to cope up and thrive during the Pandemic situations. Therefore, parents and other people should be a concern and help the children to develop their resilience to make them capable to become optimistic, energetic, and thrive despite the hardship of this Covid-19 Pandemic.

### **3.0 SOME MEASURES CAN BE TAKEN TO BUILD CHILDREN'S RESILIENCE**

#### **3.1 Improve Connections**

Building a strong sense of security among the children is a major requisite to build resilience among the children. To build a sense of security we need to develop the relationships of the children with their parents, family members, friends, or with the other individuals of the community. Children who are with a close tie to the family, friends, teachers, and with other members of society feel a strong sense of security which prevents them from seeking destructive measures while having setbacks (Ginsburg & Jablow, 2011). Though during the time of Covid-19 Pandemic, it is not possible to give the proper environment to interact them with their friends or other peoples, still the parents or family members can fill up the gap by adapting some special measures, such as-

- i. Giving proper care and love to the children that they can feel more connected and secure with the family.
- ii. Avoiding blaming the children for not studying or wasting their time.
- iii. Providing adequate provision to connect online with their friends that they cannot get the chance to feel loneliness due to the absence of their close friends.

#### **3.2 Develop Competence**

Competence is the ability to actually perform a task, if someone is said to have the competence in some work area then it means, he is actually able to handle the situations and perform the work with proper skills. Children can't become competent without developing

some skills that enable them to trust their judgments, face difficult situations, etc. (Ginsburg & Jablow, 2011). Competence develops children's confidence to adjust in situations and help them to become resilient. In this Covid-19 pandemic, children need to encourage if they initiate any work by their effort. They need to provide chances where they can learn different skills to become competent in different areas. The competence will help the children to be more confident to adjust in hard situations of their future life.

### **3.3 Foster Coping Skills**

According to the glossary at [alleydog.com](http://alleydog.com), 'Coping refers to the human behavioral process for dealing with demands, both internal and external, in situations that are perceived as threats.' Children who can cope up with the stress can better able to overcome various life challenges. It is seen that during the Covid-19 crisis, children are facing various difficult situations. Therefore, they need to give the chance to face their challenges to learn the positive skills to cope up with the challenges (FitzGerald, 2020). Sometimes, they must be given opportunities to make their own decisions and own initiations to solve their problems.

### **3.4 Use Positive Discipline**

The Pandemic make everyone anxious and worried. The children may not know to express their anxiety and stresses, which may be reflected in their behavior. The children may become more irritable because of not meeting their friends, no space for outdoor sports, etc., (AAP, 2020). To manage this, parents should take positive disciplinary actions, like-redirect bad behaviors, make provisions for creative plays, use rewards & privileges instead of punishment. This will make them optimistic, feel cared for, and help them to learn how to manage a tough time optimistically.

### **3.5 Providing appropriate information**

Children's curiousness will be increase during the time of the pandemic to know why this is happening. Therefore they should be given the appropriate information according to their age that they can know the truth without threatened. Some talks among the elders, exposure to some media coverage, social media conversations may be traumatic for them or maybe less age-appropriate for the children (Edex, 2020). Therefore, parents should talk with children about any frightening news simply & honestly (AAP,2020). It will prevent the children from becoming victims of threatening messages or information from any sources.

### **3.6 Resilience Building Stories**

Various stories of positivity, hope, and resilience provide important mental support to fight with the negativity about the pandemic (Jessica Dym Bartlett, J. D & Vivrette, R. 2020). In this time of the Covid-19 pandemic, children should be encouraged to read motivational

writings, such as- storybooks, online magazines. etc.. Parents or family members can tell them various stories of human success in overcoming pandemics in history, other motivational stories of resilient people, etc. they can be encouraged to watch motivational videos on online platforms, such as- youtube, etc.

### **3.7 Physical Exercises**

Physical exercises help children to strengthen their brains and make them more resilient to adversity (Hurley, K. 2018). Though outdoor team sports are the best option for resilience building exercise, in this Pandemic situation, it may not be possible. Therefore, the children can be encouraged to play with their family members or sibling in the home courtyard. Children should be encouraged to do Yoga exercise inside their home including meditation practices. These practices will make them physically fit and active as well as will increase the engagement in other activities.

## **2.0 CONCLUSION**

Children are more likely to be affected than adults by the Covid-19 pandemic. It is not only by the infection of the disease but by the different mental stress, hardships, and challenges that derived from the changes of the environment, threatening news, physical distances from friends, school community, etc. This can make a very high negative impact on the children's mental health and wellbeing. Therefore, parents and other family members or guardians should help in building the resilience of the children that they can make themselves capable to thrive during this Covid-19 Pandemic and also become resilient to face upcoming hazards after the end of the Pandemic.

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## CHAPTER 36

# ASYMPTOMATIC TRANSMISSION OF COVID-19: A CASE STUDY OF CORONA SURVIVAL

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### ABSTRACT

The ongoing outbreak of COVID-19, which was first detected in Wuhan, China, became a public health emergency when thousands of people were infected around the world. Coronaviruses are transmitted by close contact between people or inhalation, mostly via infected droplets that are produced by coughing, sneezing and talking. The disease is mild in most people, but in some cases, especially in elderly people or those with a medical history, it may lead to acute respiratory distress syndrome (ARDS), pneumonia and multiple organ dysfunction. This study reports a case of a patient infected with SARS-Cov-2, along with previous medical condition, who was successfully treated. This case highlights that an asymptomatic patient infected with Covid-19 transmitted the disease to a patient already suffering from high levels of diabetes and thyroid, which severely impair the immune system.

**Keywords:** *Asymptomatic, SARS-CoV-2, ARDS*

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### 1.0 INTRODUCTION

We have been listening to the very old phrase Health is Wealth from the past few decades and currently, we are not capable enough to take good care of our health. When the whole world was bidding adieu to 2019 and had several resolutions and dreams to fulfill in the upcoming year, China, on the other hand, closed all its transport, trade, and any means of communication among people. The WHO reported the outbreak of coronavirus or Covid-19 a public health emergency on January 30 and a pandemic on March 11. With the tremendous rise in the cases since January, the world came to a stop all the countries ordered a stop on any movement whatsoever all the governments declared a lockdown but with only essential services allowed. The strain that causes Covid-19 is a severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Around 80% of patients with Covid-19 infection have mild symptoms and make a full recovery, only a significant proportion of patients progress to pneumonia, and about half of these cases will develop acute respiratory distress syndrome (ARDS) and death, while in some cases no symptoms develop. The most common symptoms that patients face are fever, cough, fatigue, loss of smell and shortness of breath. Initial reports from China suggested that people with medical comorbidities and age more

than 65 years are risk factors for poor outcomes. (Ghosh, 2020; Wikipedia; Wang, Luo, Bu, & Xia, 2020)

## **2.0 CASE REPORT**

Every new day, the same headline popped the highest single-day jump, creating fear and anxiety in the minds of the people. One such case is discussed here.

In June 2020, a 26-year-old young man was infected with SARS-Cov-2, but had no symptoms of the novel coronavirus. He went to the grocery shop on 3 June to purchase some essentials wherein he met one of his colleagues who later discovered that he was positive for coronavirus, but to stop this mind consuming thought he decided to get himself tested after 5 days of coming in contact with a positive person, although till then he did not have any symptoms and was doing uncommendably well. As he was worried about his mother, who was a diabetic patient. On 8 June, he got himself tested and the same day his mother who is 45 years old, started having dry cough, a problem in breathing, and even fainted a few times. The next day, his mother condition started deteriorating, and she had sore throat, severe wheezing, worsening dyspnea and low fever.

On June 10, he tested positive for Covid-19 but had zero symptoms. However, his mother condition worsened, as it now progressed into a high-grade fever, about 102-103°F. She had been suffering from diabetes and thyroid for the past 15 years. Therefore, on consulting a doctor, he advised them a test for Covid-19 named SARS COV-2 RNA RT-PCR, which is a nasopharyngeal swab and blood test that includes CBC, LFT, CRP, SGPT and blood sugar. Going for a Covid-19 test requires Aadhar Card. The next day, her face became pale and dull and witnessed body pain and headache.

On June 12, she also tested positive for Covid-19, and became very weak with the attack of this virus within her body. On consultation, the doctor warned them for oxygen saturation (SPO<sub>2</sub>) should not be less than 95% or else she will need to be hospitalized, as she was a diabetes patient. The medicines prescribed by the doctor were- HCQS (200mg), Limcee (500 mg), Zincovit, Pan (40 mg), Dolo (650mg), Vitamin C and Multivitamin capsules. In addition, to keep a record of body temperature after every 2-3 hours, steam inhalation, plenty of fluids and home isolation for at least 2 weeks. She also had to take an injection of insulin named human mixtard 30/70 (40 units) and Glizid-M Metformin (1gram) along with her daily prescription of thyroid. The blood test report was normal, with Haemoglobin level- 11.1 gm/dl, Total Leucocytic Count (TLC)- 6100/cumm, Platelet Count- 181000/cumm, Neutrophil-57%, Lymphocyte- 40%, SGPT- 24.5 IU/L and blood glucose was also normal. As the Covid test was conducted by government-approved pathology

laboratories, the District Surveillance Officer (DSO) got in contact with them. As the mother was a diabetic patient, a constant need for oxygen check was required and the DSO felt that the mother would need to be kept under observation. Next day On June 13, she lost her taste and smell of food and fever did not come down and faced breathing difficulties and was required to put on oxygen.

As the patients decided to self-isolate and do all treatment at home because of much chaos at the hospitals, so they took treatment from Max Hospital, which provided them care at home and get expert medical care at their doorsteps. In the treatment, inclusions were – an essential medical kit (thermometer, SpO2 probe), 3 nurse visits (on boarding, 7<sup>th</sup> day and 14<sup>th</sup> day) checking oxygen level, tele review with a doctor every third day, home delivery of medicines and detailed guidelines on self-monitoring isolation, personal and home hygiene. On 14 June, the mother's sugar level increased, for which the diet was completely controlled and monitored by the doctor and the dosage of insulin was further increased to maintain the sugar level. Being a diabetic patient immune system is weak and makes it harder for the body to fight the virus. The next day fever started lowering, but all other symptoms worsened. They were daily in contact with the doctor and nurse. On June 15, symptoms started lowering and the appetite of the mother also started coming back to normal and she was able to smell and taste. Now, every other day symptoms were getting better than the previous day. In addition, they lived in a joint family so all the other family members quarantined themselves, as they all came in contact with each other, which again became very difficult for family members, as all were anxious and depressed. Both patients took all the medicines, did the required workout, and had proper water intake as prescribed. Although the young man, till now, did not have a single symptom of coronavirus. Both took good enough precautions to stay away from coming in contact with an infected person, yet even the thought of it infuriated them and made them question themselves what if they would have never moved out. As the lab from which they were tested was government approved, all the details were sent to the Delhi government and every day they received a call from a government doctor asking about their condition, and for precaution, the home isolation board was placed in front of their house. As per the rule, 14 days quarantined was there.

Finally, on 21<sup>st</sup> June both the patients again went for the Covid test as prescribed by the doctor and the next day, their report came negative. Asymptomatic transmission of covid-19 is very risky as the patient suffering from it does not develop any symptoms but can cause problems for their family members and can transmit them without knowing. Even after numerous hurdles and problems, both of them defeated the life-threatening virus and are now



healthy and safe. Although the impact of the virus living in their body did pay off young man would till date have some moments in his day wherein he would get anxious and his mother, on the other hand, was not allowed to work for several hours at a go she even lost 3-4 kg's and had problems like breathlessness and fatigue. Having thyroid and being a diabetes patient for several years and still had the courage and will to defeat the bad and win over it.

### **3.0 DISCUSSION**

Covid-19 is caused by a novel type of coronavirus. The standard method for diagnosing SARS-Cov-2 is the SARS-Cov-2 virus nucleic acid RT-PCR test from nasopharyngeal swabs. On this basis, COVID-19 was diagnosed by the positive results of the E Gene and S Gene of SARS-Cov-2 from a nasal and throat swab. However, the test kits of Covid-19 have many limitations because there are many interference factors during collection, preservation and transportation of the swab specimen, and have reported high false negative rates.

If initial testing is negative in a patient in spite of all the risk factors for infection, patients are highly suggestive of a repeat test of Covid-19 or determining the presence of infection for further management and infection control. The incubation period is usually 1-14 days and recovery may take 2 to 6 weeks. In the current case patient had no symptoms of the virus and hence was asymptomatic but transmitted the disease to his mother unknowingly. His mother, who was also infected by the virus, was already a type 1 diabetic patient and hypothyroidism because of which Covid-19 became a bigger challenge for her. Majorly people infected with SARS-Cov-2 and diabetes have a risk factor for hospitalization and mortality. Diabetes patients have an increased risk of infections, including influenza and pneumonia. Poor glycaemic control involves several aspects of the immune response to viral infection and the potential to infect the lungs. Diabetes and hypertension are the major comorbidities of COVID-19, and for treating angiotensin-converting enzyme (ACE) inhibitors are used. The risk of patients can be reduced by having good glycaemic control, but due to the COVID infection, it causes loss of glycaemic control and treatment becomes difficult during fever, use of drugs like glucocorticoids and unstable food intake. To maintain the glycaemic level, frequent blood glucose is monitored. Diabetes keeps the body in a low-level state of inflammation, which makes the body healing process slower to any infection.

Therefore, patients with diabetes need close attention to reduce the risk of fatalities. People suffering from type 1 diabetes already need daily dosage of insulin to sustain their life, and it increases the risk of more severe medical complications from Covid-19. Although

there is no specific study showing that the immune system is weakened due to the thyroid or that people with thyroid are at greater risk.

In my case, after systemic treatment from 08 June to 22 June, the lady recovered from SARS-Cov-2 infection even if she had a previous medical history and how unknowingly virus was growing. (WHO, 2020; Lorenz, 2020; Schleicher, Lowman, & Richards, 2020; Apollo; Madsbad)

#### **4.0 CONCLUSION**

It is aptly said that where there is a will there is a way, the lady never lost hope she never gave up upon herself and fought with it every single day even though the thought of it made the family's blood run cold yet she defeated the virus. This paper reports how an asymptomatic patient transmitted the virus to his mother, who was already a diabetic patient, and how well they self-quarantined and saved their life with great help from doctors and nurses, who are doing a commendable job. From the beginning of this pandemic, we have been hearing wash your hands, keep yourself clean, practice social distancing and many such things, but all of this is not just, I would like to add on to the list that, be strong and do not lose your hope do what is well required take the necessary precautions but do not lose your will stay as bold and confident as the lady, keep her as an example as despite going through 2 major difficulties she had her will strong and her mind focused as to she had to defeat the evil and overcome it and so she did.

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# CHAPTER 37

## DEFEATING COVID-19: A CASE STUDY OF A PUNJAB POLICE OFFICER

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### **ABSTRACT**

Covid-19 or Coronavirus is the deadliest virus which has resulted in world-wide pandemic. This dangerous pandemic has resulted in loss of lives, health, wealth, pausing the world wide growth of economies. In order to cope up with this pandemic, Punjab Police has worked above their capacities, day & night to prevent the spread of covid-19 from one person to another & to save the society. This chapter is dedicated to a Punjab Police Officer who himself got infected with covid-19 while performing his duties day & night to save the society from this deadliest pandemic. The data used in this chapter is purely primary in nature based on questions asked from Mr. Neeraj Kumar, SHO, Police Station, Division A, Ram Bagh, Amritsar. Therefore, this chapter reveals the case study of a Punjab Police Officer who courageously won the battle against covid-19 infection and survived it.

*Keywords: Case Study, Punjab Police, Covid-19*

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### **1.0 INTRODUCTION**

The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. These droplets are too heavy to hang in the air, and quickly fall on floors or surfaces. You can be infected by breathing in the virus if you are within close proximity of someone who has COVID-19, or by touching a contaminated surface and then your eyes, nose or mouth.

### **2.0 OBJECTIVES OF THE STUDY**

- i.** To make people aware about the survival story of our reputed police officers from covid-19.
- ii.** To guide the society regarding the precautions to be taken to beat covid-19 & its spread.
- iii.** To create awareness among the society regarding the self-motivation and will power as the primary thing to beat covid-19.

### **3.0 CASE STUDY**

Corona virus was first discovered in the city of Wuhan of China in Dec, 2019. This

virus is caused due to the virus named as SARS-COV-2. WHO declared covid-19 as world pandemic on 11<sup>th</sup> March, 2020. In order to combat the spread of corona virus in Punjab, the Punjab Police has worked whole heartedly & bravely so that every individual of society is safe and healthy. Regardless of the danger of themselves being infected from this virus, they never failed to fulfill their duties. They not only helped people to be safe in their homes, they also helped them to provide for all basic amenities such as ration, medicine, water and maintained law & order.

So, this study is the case study of a high profile Police Officer: MR. Neeraj Kumar, SHO, Division A Police Station, Amritsar, who got infected with Covid-19 while performing his duties & serving the society. In word to word conversation with Mr. Neeraj Kumar, we encountered with the following aspects:

Mr. Neeraj Kumar is posted as SHO in Division A Police Station, Amritsar for the 3<sup>rd</sup> time and is currently serving as SHO from last one year. While serving the people and maintaining law & order, he felt general symptoms of covid-19 such as: cough, fever & breathing problems. He came to know about his infection on 20<sup>th</sup> June, 3 days after he had given sample for covid-19 voluntary as he had some symptoms of the virus. After being tested for covid-19, he was immediately hospitalized and was under observation & medication for 23 days. He was observed to be at a very critical stage when admitted to hospital. Being in hospitalized as the only source of survival and motivation, Mr. Neeraj Kumar never back step to appreciate the staff & medical teams of hospital who were so devoted towards their job, overgoing all odds. The medical teams and staff of hospitals were always covered with PPE kits, masks & always covered from head to toe. The remedies that they took to treat covid-19 were water steam (2 times a day), Vitamin C tablets, Zinc tablets.

Mr. Neeraj Kumar, SHO, was able to win over covid-19 with the help of his self-motivation, family support and motivation & dedication of medical teams. According to Mr. Neeraj Kumar, SHO, one cannot beat any odd unless & until they are self-motivated to find a solution & go through all difficulties. And this was what helped Mr. Neeraj to stay strong mentally & physically.

As per his personal experience, people should follow the precautions such as wearing masks, social distancing, washing and sanitizing hands again & again (20 seconds), etc, to prevent the spread of covid-19. The foremost thing that is mandatory for a person to beat this deadliest virus is self-motivation, family support, support of medical teams & will power.

As per the recent researches covid-19 not only affect your lungs but it also affects your other body organs such as: brain, heart & kidney. It also results in clotting of blood. So,

coming to the conclusion, one must not take covid-19 as a joke and should be very serious about the safety of their health as well as of their families. Moreover, one must be very careful and should take all the precautions to safeguard themselves and their loved ones.

#### 4.0 OUTCOMES AND OBSERVATIONS

- i. It is observed that we can win over this pandemic with self-motivation, will power, family support & motivation by the medical staff.
- ii. These police officers and the medical staff are acting as warriors to fight against coronavirus pandemic.
- iii. The only way to prevent the spread of coronavirus is by adopting precautions such as: wearing masks, social distancing, washing and sanitizing hands again & again (20 seconds), etc

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## CHAPTER 38

### STRATEGIES TO COMBAT COVID-19

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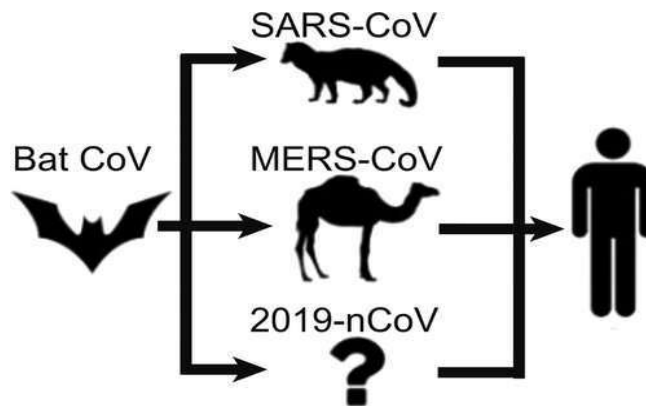
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#### 1.0 INTRODUCTION

An infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) originated from the Hunan seafood market in Wuhan, China where 120 wildlife animals across 75 species are sold, and rapidly spread up to 109 countries. The zoonotic origins of SARS-CoV-2 is not confirmed. The researchers strongly proposed that bats are the most likely natural reservoir of SARS-CoV-2, but jumped from the bats to an “intermediate host” before infecting humans. This host is speculated to be an endangered pangolin, the most commonly illegally trafficked animal. Nonetheless, to eradicate the virus, more work is required to be done in the aspects of the identification of the intermediate zoonotic source that caused the transmission of the virus to humans.



Source :American Chemical Society

*Chengxin Zhang et al.; "Protein Structure and Sequence Reanalysis of 2019-nCoV Genome Refutes Snakes as Its Intermediate Host and the Unique Similarity between Its Spike Protein Insertions and HIV-1"; J. Proteome Res.; 2020*

## **2.0 POTENTIAL STRATEGIES TO COMBAT COVID-19**

Due to the absence of immunity among most of the population and high virulence, Covid-19 quickly spread across the globe and has permeated all aspects of life.

### **2.1 Need for Institutional and Political Harmony**

Steps must be taken to enhance cooperation between international and national health agencies in order to respond to the goal of improving health for everyone. This is a time when all political parties should forget their political and ideological differences to face this pandemic as a nation rather than groups of people. Success in ensuring global health security depends on timely and effective government responses where the epidemic first appears; effectiveness of international mechanisms; and on governments' stepping up to their responsibilities in regard to a robust health infrastructure. The global emergency due to pandemic has generated scientific efforts around the globe unifying scientists from government, academia and the pharmaceutical industry to accelerate the discovery of vaccines and treatments.

### **2.2 Developing Public Health Communication Strategy**

A succinct communication strategy is required to focus on reassuring the people about steps taken by the government and simultaneously, making them aware of the gravity of the situation. The Ministry of Information and Broadcasting should prepare uniform public service messages breaking different myths about COVID-19. Local self-help groups, NGOs should be contacted to create awareness in far-off areas where people have no or limited knowledge about the pandemic.

### **2.3 Economy Matters, Life Matters More**

It is difficult to manage COVID-19 issue and economy simultaneously. The government's first priority should be to save as many lives as possible even if it means the economy will recover slowly. Injection of liquidity is needed for those who fall in poverty band and the small firms/ businesses that have to pay their bills and salaries.

### **2.4 Health Care**

Testing and screening at mass level is required to limit the **Covid-19** outbreak. Safety concern of health care staff should be addressed on priority. Caring for Covid 19 patients not only places them at personal risk for infection, but also poses a threat to their emotional well-being. Hospitals and Medical facilities and hospitals should start telemedicine for the patients who have ailments other than COVID-19. This would help patients with compromised immunity system to avoid unnecessary exposure to the pandemic. The government should do

a need assessment of trained technical staff and fill in the gaps. Also, the government needs to focus on remote areas where there are no health facilities so that any potential cases in remote areas may be referred for immediate screening.

## 2.5 Containment Plan as pre-cautionary measures

Self-isolation and social distancing are very important to slow down the spread of a highly contagious disease and thereby reducing pressure on health services. There is a need to guide people in social distancing and self-isolation. The detection of COVID-19 cases and/or deaths outside of known chains of transmission is a strong signal that social distancing measures, such as closures of schools, quarantine of affected areas, cancellations of mass gatherings, should be implemented. The early, coordinated and comprehensive implementation of measures, quarantines and closures is likely to be more effective in combating the spread of the disease than a delayed implementation.

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## CHAPTER 39

### STRATEGIES TO STRENGTHEN IMMUNITY NATURALLY

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#### **ABSTRACT**

Coronavirus is said to damage the respiratory system, Pranayamam, the breathing exercise, improves functioning of lungs and circulate the oxygen rich blood to the whole body and keep the body active and mind fresh. Due to pandemic with the ban on mass gatherings in play grounds, parks and stadiums. But the role of yoga to avoid stress cannot be negligent. Experts and yoga gurus suggest people to do yoga regularly to strengthen immunity, which is considered be the first medicine to fight the dreaded COVID-19. Therefore, the present chapter aims at to suggest some measures to boost and strengthen the immunity system by following healthy eating and hygienic practices. Further, focus of the chapter is on various yoga poses that helps to improves functioning of lungs and helps pumping of oxygen-rich blood to all cells of the body.

**Keywords:** Immunity, diet habits, yoga, COVID-19

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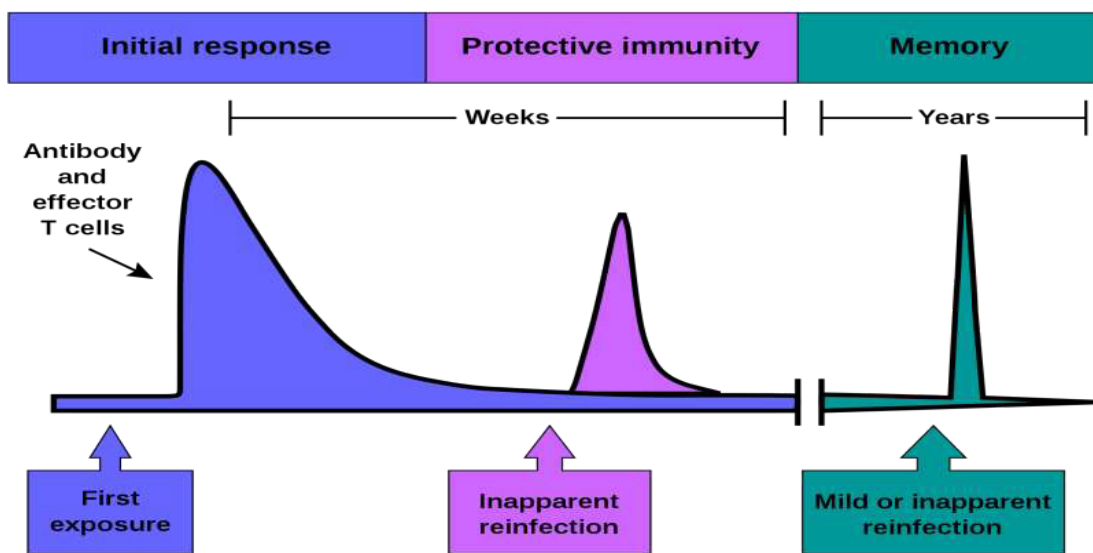
#### **1.0 INTRODUCTION**

A novel coronavirus named SARS-CoV-2 has been identified as the causative agent of a global outbreak of respiratory tract disease, referred to as coronavirus disease 2019 (COVID-19) (Chan et. al., 2020 & Huang et. al., 2020 7 Guo et. al., 2020). COVID-19 is characterized by fever, cough, dyspnea, and myalgia, but, in some patients, the infection results in moderate to severe acute respiratory distress syndrome (ARDS), requiring invasive mechanical ventilation for a period of several weeks. Patients with COVID-19 may present with lymphopenia (Huang et. al., 2020), but the disease has also been associated with immune hyperresponsiveness referred to as a “cytokine storm” (Mehta et. al., 2020). We are all well aware of the effects of psychological stress on the body and the immune system altogether. Long-term and chronic stress leads to persistently high cortisol and corticosteroid levels, which cause resistance to cortisol and impaired anti-inflammatory effects on the immune system.

#### **1.1 How coronaviruse attack on humans?**

When we're stressed, the immune system's ability to fight off antigens is reduced. That is why we are more susceptible to infections. The stress hormone corticosteroid can suppress the effectiveness of the immune system (e.g. lowers the number of lymphocytes). Stress affects the function of the immune system, the body's natural means of fighting off

infection. Stressed individuals produce lower levels of antibodies when exposed to pathogens. They also produce higher levels of cytokines, inflammation triggering chemicals secreted when fighting infections. In vitro studies have shown one stress hormone, norepinephrine (NE), decreases functionality and proliferation of immune cells including thymus-derived lymphocytes (T cells). Figure 1 reveal that as the immunity level goes down same does the memory level. The time-course of an immune response begins with the initial pathogen encounter, (or initial vaccination) and leads to the formation and maintenance of active immunological memory.



**Figure1: Immune System**

*Source: [https://en.wikipedia.org/wiki/Immune\\_system](https://en.wikipedia.org/wiki/Immune_system)*

Corona viruses attacks on humans due Lack of sleep, poor nutrition, and life stress all lead to a weakened immune system and vulnerability to sickness. Stress, more than anything, leads to a breakdown in the body’s ability to defend itself against bacteria and viruses. When stressed, the hormone cortisol stays in the blood for extended periods of time, which the body develops resistance to, leading to increased inflammation. It means main focus should be to improve the immunity. Therefore, the present chapter aims at to suggest some measures to boost and strengthen the immunity system by following healthy eating and hygienic practices. Further, the main focus of the chapter is on various yoga poses that helps to improves functioning of lungs and helps pumping of oxygen-rich blood to all cells of the body.

## **2.0 STRATEGIES TO BOOST STRENGTHEN IMMUNITY NATURALLY**

There are so many ways to strengthen immunity naturally. We should follow healthy food habits and basic hygiene practices. Some of these practices are discussed below:

- i.** Get enough sleep (Minimum 6 to 8 hours of sleep). Sleep and immunity are closely correlated.
- ii.** Eat more whole plant foods
- iii.** Eat more healthy fats
- iv.** Eat light, unprocessed, vegetarian food at the right time.
- v.** Eat more fermented foods or take a probiotic supplement.
- vi.** Add ginger, turmeric, black pepper to your daily diet.
- vii.** Limit added sugars
- viii.** Engage in moderate exercise
- ix.** Stay hydrated
- x.** Make sure to drink at least 2 to 3 litres of water daily.
- xi.** Manage your stress levels
- xii.** Follow basic hygiene practices.
- xiii.** Manage your stress levels

## **3.0 IMPORTANCE OF YOGA TO BOOST THE IMMUNITY**

Along with a daily healthy food habits and basic hygiene practices and protocol we should also perform some physical activities daily. When sick, antibiotics and other medicine can help the body recover from the disease. However, what medicine fails to do is improve the body's immune system. This is where yoga comes to the rescue! Yoga is one of the most effective and time-tested natural immunity boosters that can lead to a healthy, sickness-free body. Yoga lowers stress hormones and strengthens the nervous system while also stimulating the lymphatic system, which removes toxins from the body. Yoga calms the mind and can contribute to deeper, regulated sleep, which is crucial for wellness; sleep is one of the most important factors in healing and maintaining a healthy immune system. Yoga helps you look younger and boosts your immunity as well. Practicing the form helps reduce stress and gives on a healthier lifestyle.

Yoga helps to boost immunity. Regular practice of yoga shows effective results. Different asanas boost immunity, build the body's strength and increase energy levels. It

brings down anxiety and stress level infuses positivity and freshness in the mind and body. We should take deep yogic breath following the rules as given below:

### **3.1 Deep Yogic Breath – 5 to 7 breaths -How to do it**

- i. Empty the lungs of air.
- ii. Breathe in quietly through the nose for 4 seconds.
- iii. Hold the breath for a count of 7 seconds.
- iv. Exhale forcefully through the mouth, pursing the lips and making a “whoosh” sound, for 8 seconds.
- v. Repeat the cycle up to 5-7 times.

### **3.2 Simple yoga poses that boost immunity during COVID-19**

According to Psychology Today new research published in the Journal of Behavioral Medicine suggests that yoga can be a helpful way to boost your immune system and decrease inflammation in the body. It is not possible during lockdown to attend yoga classes due to the ongoing global pandemic. All nations following the social distance norms due COVID -19 outbreak and officials are on duty to stop the people creating crowds and mass gatherings. Therefore, group practice of the ancient Indian form of YOGA is not recommended. But the benefits of YOGA cannot be ignored especially in these times with increased anxiety due to increasing death rates and decreased physical activity due to lockdown. The ancient practice which has its roots in India has been found to lower blood pressure and pulse rate of participants over the age of 40 who practised yoga for five years, according to a study, conducted by the Government Medical College, Nagpur, and published in Indian Journal of Physiology and Pharmacology.

Prime Minister Narendra Modi in his message on the sixth International Day of Yoga that “world is feeling the essence for yoga more than ever owing to the coronavirus pandemic and the ancient Indian practice is helping a large number of patients across the globe defeat the disease. Mr. Modi said that “Yoga enhances our quest for a healthier planet. It has emerged as a force for unity and deepens the bonds of humanity. It does not discriminate. It goes beyond race, colour, gender, faith and nations. Anybody can embrace yoga.” In his nearly 15-minute address, the Prime Minister said that “due to the pandemic, the world was feeling the need for yoga more than ever. “If our immunity is strong, it is of great help in defeating this disease. For boosting immunity, there are several methods in yoga, various ‘asanas’ are there. These ‘asanas’ are such that they increase the strength of the body and strengthen our metabolism,”. Talking about the benefits of ‘pranayama’, Mr. Modi said it is very effective and has countless variations like ‘Sheetali, Kapalbhati and Bhastika’. “All


these forms of yoga help a lot in strengthening our respiratory and immune systems,” he said, urging people to include ‘pranayama’ in their daily routine.

Studies have also shown that yoga can decrease the secretion of cortisol, which is the primary stress hormone. A study, published in the journal *Complementary Therapies in Clinical Practices* found that participation in a two-month yoga class can lead to significant reduction in anxiety in women who suffer from anxiety disorders.

Former MP and senior doctor of Maharaja Institute of Medical Sciences (MIMS), Vizianagaram D.V.G. Sankara Rao said that “health and fitness help protect people from coronavirus”. He further explains “I have been practising yoga for the last two decades. It makes us active and helps us take up new challenges. I made many doctors and friends practice it regularly at home during the lockdown period. In the absence of a vaccine for COVID-19, improving immunity is the only way to fight the virus,” (The Hindu, June 20, 2020).

Therefore, to reduce stress and strengthen immunity naturally take a look at the simple yoga poses as shown in Table 1 that boost immunity during COVID-19. We should follow this sequence daily so that best results can be achieved.

**Table 1: Simple yoga poses that boost immunity during COVID-19**

		
<p>Figure 1: Bhastrika (Bellows Breath) – 2 rounds of 20 breaths</p>	<p>Figure 2: Marjari Asana (Cat pose) Marjariasana or cat pose is an asana where Marjari = Cat, Asana = Posture or Pose.</p>	<p>Figure 3: Half ‘W’ heel Pose</p>
		
<p>Figure 4: Hastapadasana or Ardha Uttanasana (Standing forward bend – Hand to knee/toe)</p>	<p>Figure 5: Trikonasana (Triangle pose)</p>	<p>Figure 6: Ardha Matsyendrasana or Vakrasana (Half spinal twist)</p>

<p>Figure 7: Paschimottasana (Seated forward bend)</p>	<p>Figure 8: Shishuasana (Child's pose)</p>	<p>Figure 9: Bhujangasana (Cobra pose) &amp; Dhanurasana (Bow pose)</p>
<p>Figure 10: Dhommukhswanasana (Downward dog pose)</p>	<p>Figure 11: Makarasana (Crocodile pose) with humming sound for mental relaxation</p>	<p>Figure 12: Setubandhasana (Bridge pose)</p>
<p>Figure 13: Sarvangasana or Vipritkarni (Shoulder stand or simple leg lift)</p>	<p>Figure 14: Matsyasana (Fish pose)</p>	<p>Figure 15: Natarajasana (Supine spinal twist)</p>
<p>Figure 16: Pawanmuktasana (Wind-release pose)</p>	<p>Figure 17: Yog nidra (Relaxation)</p>	<p>Figure 18: Nadishodhan pranayama (Alternate Nostril Breathing)</p>

Source: websites

### 3.3 Yoga Apps Guides

In present scenario (during COVID-19 Panedemic), when yoga classes are in essence but are out of bounds, it can be a great and cost effective idea to utilise the numerous yoga

apps out there in the market. Here is a list of such apps that can guide of all age groups. There is no time binding we can perform various asanas the right way according to our schedule.

### **3.3.1 Daily Yoga essentially**

Available on both Android and iOS for free with in-app purchase option available. The app offers over 500 asanas, over 70 yoga programmes and more than 500 yoga, Pilates and meditation sessions. It also allows users to create a private yoga plan for a cycle of seven days. The app has a 4.7 star rating on Android and a 4.8 star rating on the App Store.

### **3.3.2 Pocket Yoga**

The app offers detailed voice and visual instructions to help users through each pose. It has over 200 illustrated images to highlight correct posture and alignment. It also contains a dictionary that speaks about the benefits and techniques of various postures. The app, which can be purchased for Rs 250 on Android and \$2.99 on the App Store offers between 27 different sessions of varying duration and difficulty. The app is rated 4.3 on Android and 4.8 on iOS.

### **3.3.3 Minute Yoga**

Available for free with in-app purchases, the app is ideal for those looking for quick and regular yoga sessions. The app provides clear images for every pose along with detailed instructions to ensure that all the poses are performed correctly. The app has a timer function that ensures all poses are performed for the current duration and do not take longer than 5 minutes. The app has a 4.7 rating on iOS devices and 4.5 rating on PlayStore. While the app is free to use, it offers an optional premium level for monthly or annual subscription for iOS users.

### **3.3.4 Office Yoga**

Promoting fitness at work, the yoga app is for people who have sedentary lifestyle spending hours sitting on a chair at the workstation. The app available in English, French, Dutch, Spanish, Italian and a host of other languages offers 16 yoga exercises. Users get 30 seconds per exercise, and 10 seconds rest between exercises. Some of the key features include daily workout, stretching exercises, back and lower body exercise, standing yoga etc. The app is rated 4.2 on Android and 3.3 on iOS.

### **3.3.5 Down Dog**

With over 60,000 different configurations, Down Dog allows users to explore a brand new yoga practice every time they hit the mat. Beginner friendly, it starts a user's journey in the world of yoga with Vinyasa, Hatha, and Restorative. Users can choose from 6 different

yoga teachers to be guided in the poses. The app has a 4.8 star rating on Android and 4.9 stars on iOS.

#### **4.0 CONCLUDING REMARKS**

Antibiotics work and help the body to recover from the disease. But antibiotic medicine fails to improve the immune system of human body, even they damages the disease tolerating capacity of the body. Therefore, the exercise, robotics and yoga gives great results. In yoga all the body parts get stretched and become active. So yoga is a rescue. Yoga is one of the most effective and time-tested natural immunity boosters that can lead to a healthy, sickness-free body. Yoga lowers stress hormones and strengthens the nervous system while also stimulating the lymphatic system, which removes toxins from the body. Yoga calms the mind and can contribute to deeper, regulated sleep, which is crucial for wellness; sleep is one of the most important factors in healing and maintaining a healthy immune system. Yoga helps you look younger and boosts your immunity as well. Practicing the form helps reduce stress and gives on a healthier lifestyle.

The literature and personal experiences reveals that yoga calms the body. We should do deep breathing after every set of asanas. We should do a set of asans at a time for getting more advantage of yoga. This regulates blood circulation and activates good energy in the body. It also helps to get rid of problems like blood pressure, diabetes and chronological stress. surya namaskar is very effective to build a healthy body as it enrich as with new energy and charge the body for whole day. Starting the day with surya namaskar will keep mind and body fresh and active. The other asans brings stretch in body which helps us to get rid of undesired musculoskeletal pains and problems caused due to stressful situation of COVID-19. During this pandemic time parents should also practice yoga and explain its importance to children. There are so many yoga user friendly online and offline apps that can be used at home during COVID-19. A plethora of online content is available on various websites of educational and yoga gurus' websites to learn yoga. During pandemic COVID-19, government of India and MHRD has also issued e-pamphlets, postures and flyer to educate people about the importance of yoga.

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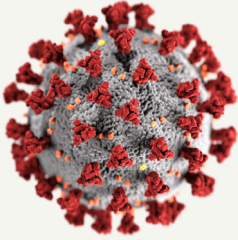
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# POSTURE 1

## IMPACT OF COVID-19 ON LIFESTYLE

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**Impact of COVID-19 on Lifestyle**



**Social Impact**

- Social distancing with our peers and family members
- Closure of the hotels, restaurants and religious places
- Closure of places for entertainment such as movie and play theaters, sports clubs, gymnasiums, swimming pools etc.
- Disruption of celebration of cultural, religious and festive events
- Cancellation of national and international travelling plans
- Postponement of sports and tournaments

**Healthcare**

- Challenges in the diagnosis, quarantine and treatment of suspected or confirmed cases
- Overload on doctors and other healthcare professionals, who are at a very high risk
- Requirement for high protection PPE kits
- Disruption of medical supply chain
- Patients with other disease and health problems are getting neglected

**Economy**

- Slowing of the manufacturing of essential goods
- Disrupt the supply chain of products
- Losses in national and international business
- Poor cash flow in the market
- Significant slowing down in the revenue growth

## POSTURE 2

# HOW TO REDUCE MENTAL STRESS DURING LOCKDOWN

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**HOW TO REDUCE MENTAL STRESS DURING LOCKDOWN**  
Stay Mentally Fit during COVID-19 using Following Strategies

**Use proper precautions**

- Don't Go outside from Your Home without any Reason
- STOP RIGHT NOW.
- 2m Abstand halten
- Washing hands

**BEWARE OF COVID-19 FAKE NEWS**

Don't read COVID-19 news constantly

**TIPS FOR FINDING REAL NEWS**

- Look for trusted sources
- Check the article's date
- Check the author and their past works
- Read the entire article
- Check for satire
- See if the article was posted by multiple sources
- Use fact-checkers

**GOOD COVID-19 SOURCES**

- The Centers for Disease Control and Prevention (CDC)
- The World Health Organization (WHO)
- The European Commission
- The Ramstein Air Base COVID-19 website

**Exercise daily**

**RELAX AND REGULAR EXERCISE CAN REDUCE STRESS**

**Stay connected with family**

**Give Time to Your Family**

**Eat fresh Vegetables and Fruits**

**Avoid Alcohol and Smoking**

**NO SMOKING ALCOHOL**

**Join Motivational Virtual classes**

**Keep Your Home Clean**

**Read good books**

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# POSTURE 3

## MENTAL HEALTH AND COPING DURING COVID-19

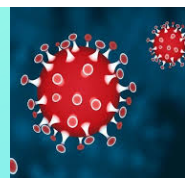
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### MENTAL HEALTH AND COPING DURING COVID-19



#### Symptoms of COVID-19

- Fever
- Dry cough
- Fatigue
- Sputum production
- Shortness of breath
- Sore throat
- Headache
- Muscle pain or joint pain
- Chills
- Nausea or vomiting
- Nasal congestion
- Diarrhea
- Haemoptysis
- Conjunctival congestion

#### Here's what to do if you suspect to have COVID-19

- Stay home if you
- have mild symptoms
- Seek medical care
- for more serious symptoms
- Take precautions
- when visiting the doctor
- Wear a face mask
- when around others
- Practice good
- hygiene

#### Stress during an COVID-19 can cause

- Fear and worry about your own health and the health of your loved ones
- Fear and worry about financial situation or job
- Fear and worry about loss of support services you rely on.
- Changes in sleep or eating patterns.
- Difficulty sleeping or concentrating.
- Worsening of chronic health problems.
- Worsening of mental health conditions.
- Increased use of tobacco, and/or alcohol and other substances.

#### Practice daily Yoga to boost immunity during COVID-19

- Deep Yogic Breath – 5 to 7 breaths
- Bhastrika (Bellows
- Breath) – 2 rounds of 20 breaths
- Marjari Asana (Cat pose)
- Ardachakrasana (backbend)
- Trikonasana (Triangle pose)
- Shishuasana (Child's pose)
- Bhujangasana (Cobra pose)
- Dhanurasana (Bow pose)
- Setubandhasana (Bridge pose)
- Matsyasana (Fish pose)
- Natarajasana (Supine spinal twist)
- Yog nidra and Relaxation

#### Along with a daily practice of the Yoga protocol:

Make sure to drink at least 2 to 3 litres of water daily.  
Eat light, unprocessed, vegetarian food at the right time.  
Add ginger, turmeric, black pepper to your daily diet.

Minimum 6 to 8 hours of sleep.  
Follow basic hygiene practices.  
Keep social distance

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## POSTURE 4

### EVERYDAY FOODS TO BOOST IMMUNITY DURING COVID-19

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## EVERYDAY FOOD TO BOOST IMMUNITY DURING COVID-19

### 1 CITRUS FRUITS

A further sign of health is that we don't become undone by fear and trembling, but we take it as a message that it's time to stop struggling and look directly at what's threatening us, said Pema Chödrön.



### 2 RED BELL PEPPERS

Ounce for ounce, red bell peppers contain almost 3 times as much vitamin C (127 mg Trusted Source) as a Florida orange (45 mg Trusted Source). They're also a rich source of beta carotene.



### 3 BROCCOLI

Broccoli is supercharged with vitamins and minerals. Packed with vitamins A, C, and E, as well as fiber and many other antioxidants



### 4 GARLIC

It adds a little zing to food and it's a must-have for health.



### 5 GINGER

Ginger may help decrease inflammation, which can help reduce a sore throat, nausea and inflammatory illnesses.



### 6 SPINACH

Spinach is packed with numerous antioxidants and beta carotene, which may both increase the infection-fighting ability of our immune systems.



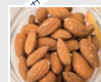
### 7 YOGURT

Yogurt can also be a great source of vitamin D, that helps regulate the immune system and is thought to boost our body's natural defenses against diseases.



### 8 ALMONDS

Vitamin C and D most important to boost immunity. When it comes to preventing and fighting off colds, vitamin E tends to take a backseat to vitamin C. However, this powerful antioxidant is key to a healthy immune system.



### 9 SUNFLOWER SEEDS

Sunflower seeds are full of nutrients, including phosphorus, magnesium, and vitamins B-6 and E.



### 10 TURMERIC

Its concentrations of curcumin, which gives turmeric its distinctive color, can help decrease exercise-induced muscle damage. Curcumin has promise as an immune booster



### 11 GREEN TEA

Green tea really excels in its levels of epigallocatechin gallate (EGCG), another powerful antioxidant. In studies, EGCG has been shown to enhance immune function.



### 12 PAPAYAS

Papaya is another fruit loaded with vitamin C. Papayas also have a digestive enzyme called papain that has anti-inflammatory effects



### 13 KIWI

Like papayas, kiwis are naturally full of a ton of essential nutrients, including folate, potassium, vitamin K, and vitamin C. Vitamin C boosts the white blood cells to fight infection, while kiwi's other nutrients keep the rest of your body functioning properly.



Keep in mind that you don't want to have more than the daily recommended amount of zinc in your diet. Too much zinc can actually inhibit immune system function.

Stay Home...Stay Safe

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The world is witnessing the invincibility of the invisible threat i.e. COVID-19, which has shaken the world to its core. It is unlikely for any economy to come out of this pandemic unscathed. Mitigating the impact and suppressing the spread of the virus is a major challenge for the already ailing Indian Economy. It has affected all the areas of Indian economy like Education Sector, Gross Domestic Product, Employment and Wages, Industrial Production, Inflation, Poverty, Stock Market, Banking and Financial Services, India's Exports and Global Trade, Investment, Public Debt, Small Businesses, Laborers and Workers, NBFCs & DISCOMs, Agricultural Sector & Farmers, lifestyle & culture of work. This book aims to study the impact of outbreak on the Indian economy and the policy response of the government to combat the virus.

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