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Statistical Analysis on the Effects of Lockdown and Its Impact on Childhood Education During Covid-19

Abstract

The spread of Coronavirus in faster pace has made the World Health Organization to declare the outpour as Pandemic. Due to the drastic increase in the number of cases reported, it is clear that lockdown is most helpful to stop the spread of the disease. Our research focusses on the protective measures to be taken to safeguard against the coronavirus, positive and negative impacts of lockdown in the education of children and its management measures. All the data for our study are taken from the websites of WHO, Centers of Disease Control & Prevention, US Food & Drug Administration, National Air Quality Index of India, NASA and ISRO. The research was made on the Air Quality Index of Ashok Vihar, Delhi on the normal day and during the lockdown day, through this study its clearly evident that there was an enormous reduction in environmental pollution. Even though the government officials and the health care professionals are taking much pain to save people from this virus it is the duty of every citizen to follow the instructions in fighting against this dreadful coronavirus.

Keywords: Covid-19, Lockdown, Pollution, Air Quality Index, Childhood Education, Stress Management, Finance Management.

Introduction

The entire world is experiencing a massive breakdown due to the advent of this dreadful Corona Virus, which originated from the City of Wuhan, China in the late December 2019. This Virus is commonly known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). (Mayo Clinic, 2020). The ailment caused by this virus is called coronavirus disease – COVID-19, which causes common cold, cough, fever and affects the respiratory system. Like a forest fire, the whole world is affected in large number hence the World Health Organization (WHO) declared this widespread as a Pandemic. Many Public Health groups in various countries along with WHO are broadcasting the information about the Covid-19 cases in their websites. The Corona disease dashboard of WHO is shown in the figure 1 & 2.

Symptoms

The common symptoms of COVID-19 include fever, cough, running nose, difficulty in breathing, sore throat, tiredness, headache, decline in sense of smell and taste. (Mayo Clinic, 2020).

When a person experience any of the symptoms that represents the presence of COVID, the person should visit the nearby healthcare center to undergo the test and quarantine is compulsory. (U.S. Centers for Disease Control and Prevention (CDC), 2021).

Region Wise Statistics

[Source: World Health Organization]

The spread of Corona Virus devastated all the regions of the world. Impact of the disease has

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affected a huge amount of the population within a span of one year which is given in this study. Table 1 shows the Region wise Covid confirmed cases as on 11th July 2020 and 15th July 2021.

Figure 2 & 3 shows the Bubble map of the confirmed cases of last year and this year around the world.

Table 1.

Region wise covid confirmed cases

| REGIONS | NO OF CONFIRMED CASES As on 11-07-2020 | NO OF CONFIRMED CASES As on 15-07-2021 |
|-----------------------|--|--|
| AMERICA | 6397230 | 74,239,667 |
| EUROPE | 2888850 | 57,327,632 |
| SOUTH-EAST ASIA | 1255977 | 36,274,626 |
| EASTERN MEDITERRANEAN | 1097074 | 11,644,006 |
| AFRICA | 443412 | 4,465,623 |
| WESTERN PACIFIC | 239111 | 3,875,342 |

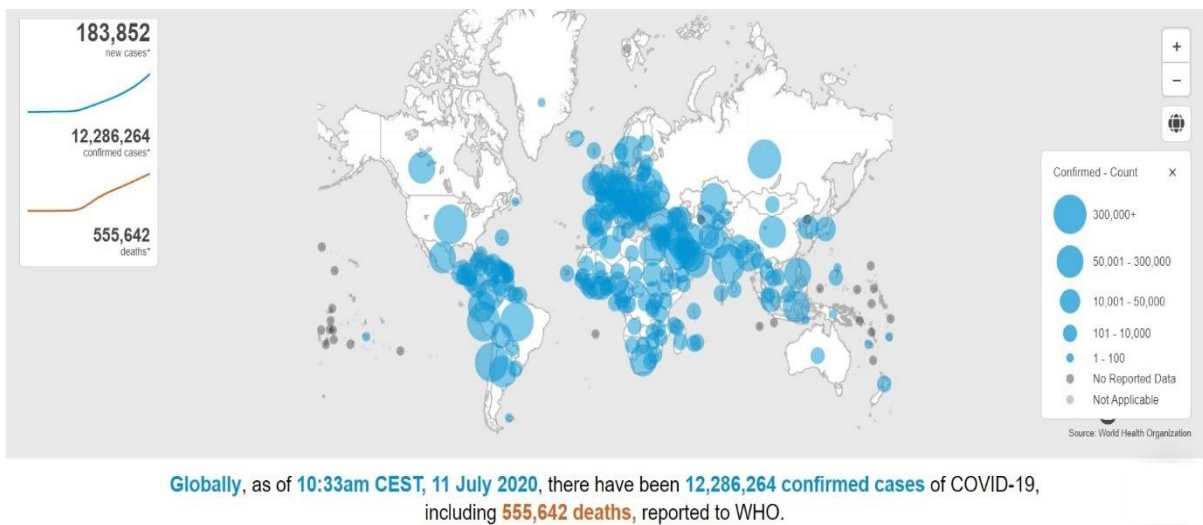


Figure 1.

Bubble Map of the World level Confirmed Cases as on 11-07-2020

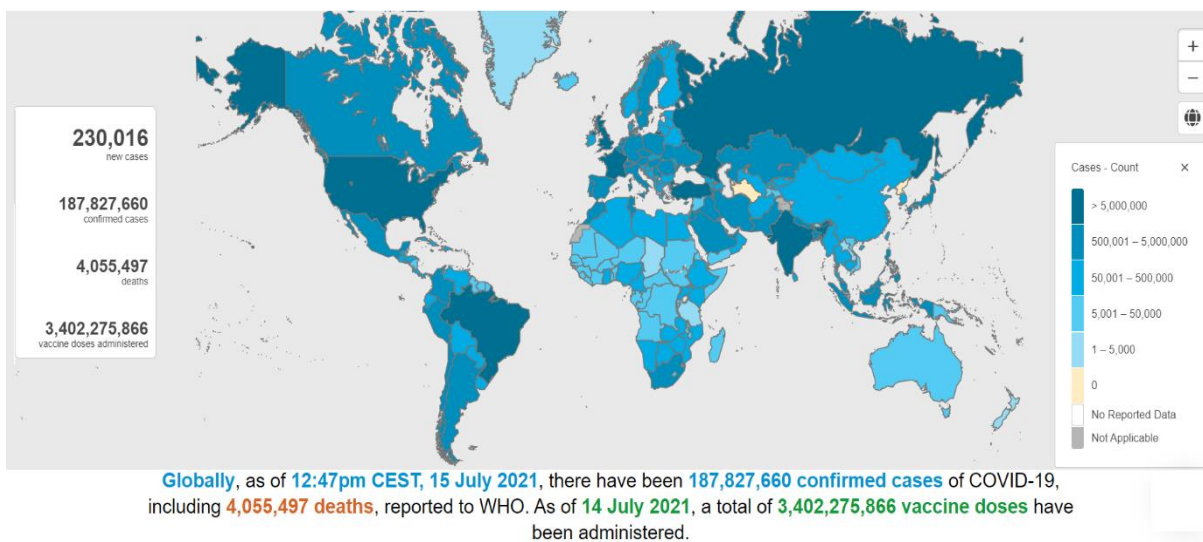


Figure 2.

Bubble Map of the World level Confirmed Cases as on 15-07-2021

Cases Confirmed in Top 10 Countries

[AS ON 11-07-2020 AT 02.19 PM]

The entire world experiences multiple waves of attack in the period of one year. Table 2 shows the Covid confirmed cases and the deaths in the

Top 10 Countries during the year 2020. The graphical data of the same is mentioned Figure 4. Similar data for the year 2021 is displayed in the Table 3 and Figure 5. (WHO, 2020).

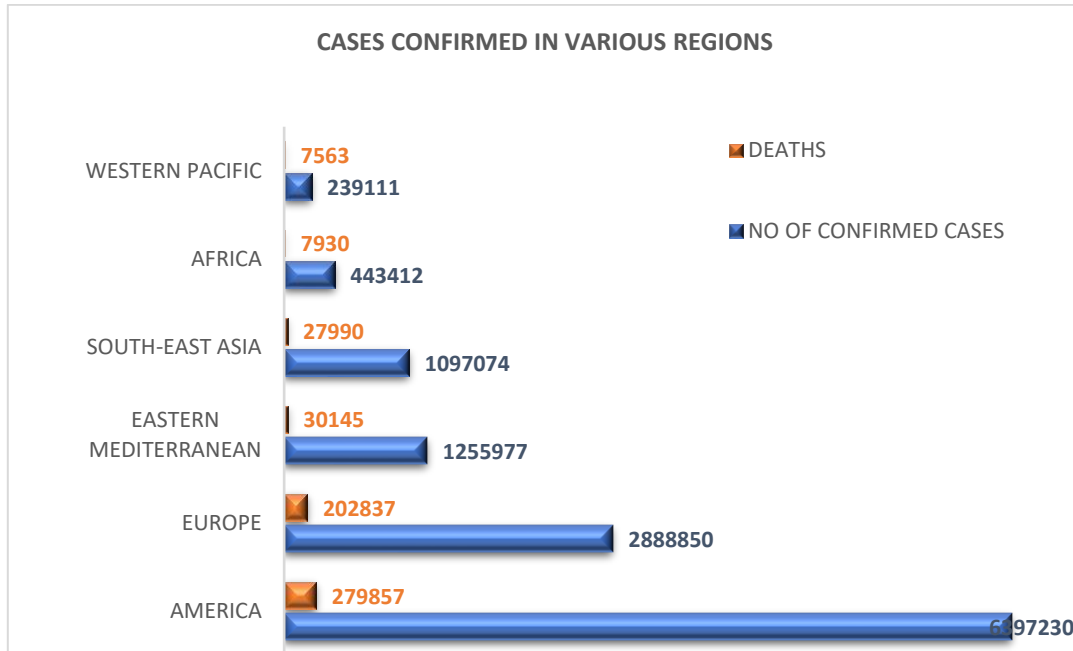


Figure 3.

Region wise covid confirmed cases [Source: World Health Organization]

Table 2.

Covid confirmed cases and Deaths in the Top 10 Countries as on 11th July 2020

| COUNTRY | NO OF CONFIRMED CASES | DEATHS |
|---------|-----------------------|--------|
| USA | 3097300 | 132683 |
| BRAZIL | 1755779 | 69184 |
| INDIA | 820916 | 22123 |
| RUSSIA | 720547 | 11205 |
| PERU | 316448 | 11314 |
| CHILE | 309274 | 6781 |
| UK | 288137 | 44650 |
| MEXICO | 282283 | 33526 |
| SPAIN | 253908 | 28403 |
| IRAN | 252720 | 12447 |

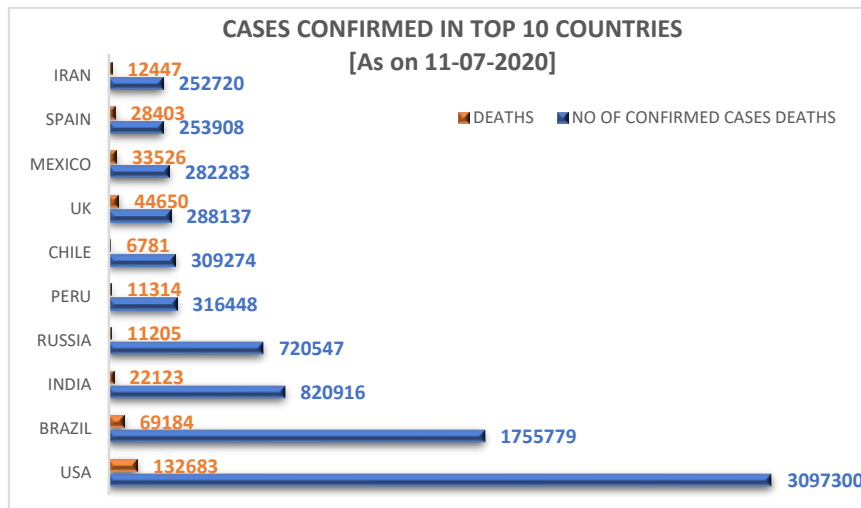


Figure 4.

Covid cases confirmed in the Top 10 Countries as on 11th July 2020
(Source: WHO, 2021, Accessed date: 11th July 2020)

Table 3.

Covid confirmed cases and Deaths in the Top 10 Countries as on 11th July 2021

| S.No. | COUNTRY | NO OF CONFIRMED CASES | DEATHS |
|-------|----------------|-----------------------|---------|
| 1 | UNITED STATES | 33,604,822 | 602,820 |
| 2 | INDIA | 30,946,074 | 411,408 |
| 3 | BRAZIL | 19,151,993 | 535,838 |
| 4 | RUSSIA | 5,857,002 | 145,278 |
| 5 | FRANCE | 5,705,384 | 110,440 |
| 6 | TURKEY | 5,493,244 | 50,324 |
| 7 | UNITED KINGDOM | 5,191,463 | 128,481 |
| 8 | ARGENTINA | 4,682,960 | 99,640 |
| 9 | COLOMBIA | 4,548,142 | 113,839 |
| 10 | ITALY | 4,273,693 | 127,808 |

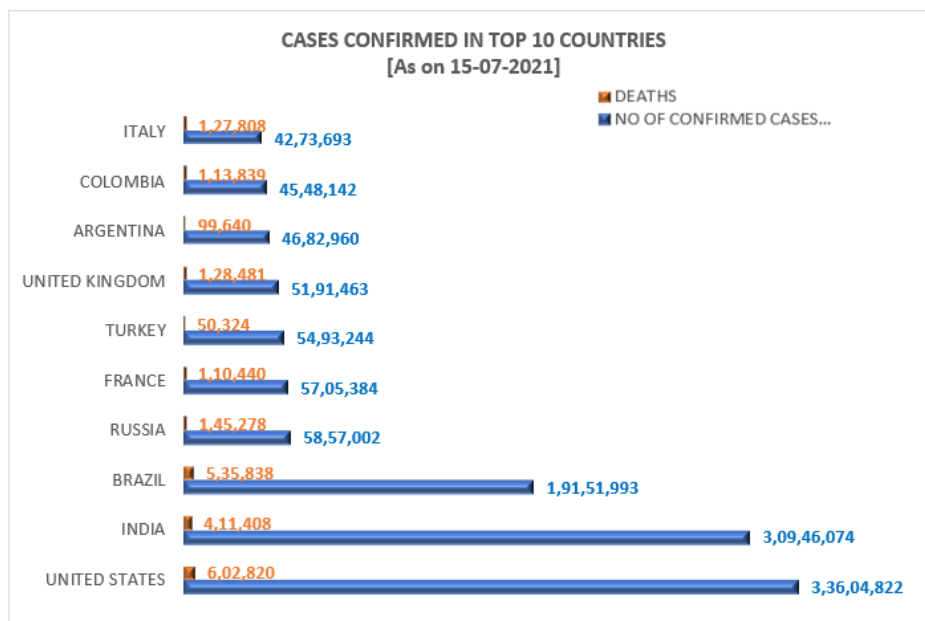


Figure 5.

Covid cases confirmed in the Top 10 Countries as on 15th July 2021
(Source: WHO, 2021, Accessed date: 15 July 2021)

Spreading of the Deadly Virus

The Covid-19 virus spread largely from one individual to another, especially from the droplet containing mucus or saliva that is let out from the respiratory region of the affected person while sneezing, coughing or speaking. (U.S. Centers for Disease Control and Prevention (CDC), 2021). The virus is taken up when an individual comes in contact with the respiratory droplet and imbibes the infection once it reaches the lungs via nasal region or mouth. The spread also occurs when an individual comes in close proximity with the affected person. People with previous history of long-lasting illness such as cardiac illness, reduced immune system, diabetes are more prone to this contagion. (Mayo Clinic, 2020).

Precautions

The basic protections for Covid-19 are:

- **Washing Hands Frequently**

The first and foremost gateway for the transmission of coronavirus is through the human hands. Innocently if the unaffected person touches the common object present in the environment with their hands that contains the respiratory droplet of the affected person, and touches the nose, mouth or eyes with the same hands the person gets affected (Mayo Clinic, 2020). Therefore, washing of hands is very important whenever a person comes in contact with any common object present in the environment or visits any public places (Centers for Disease Control and Prevention, 2019).

- **Social Distancing**

Experiencing a social life with a distance is a tough task. But in this current scenario shaking hands, hugging each other and having close contact even with friends, relatives, colleagues should be avoided. While standing in a queue, visiting markets, attending wedding ceremony and in all crowded areas, it is necessary to follow the rules of social distancing. Maintaining a proper social distance will help in a greater way to restrict the spread and save everyone from this pandemic.

- **Cleansing with Sanitizers**

The main purpose of washing hands is to destroy the germs and maintain cleanliness. Every time washing hands with soap and water may not be feasible. (Centers for Disease Control and Prevention, 2020). Therefore, the purpose of washing hands gets fulfilled to an extent by the usage of sanitizers. Sanitizers contains 60% of

alcohol that has the ability to kill the germs or viruses. Usage of a pocket sanitizer will be a better option in the work place, during travel and in the situations where there is limited access to water.

- **Wearing Mask/Face Shield**

The major spread of the virus can be stopped by wearing a face mask or face shield. The most important parts to be covered to safe guard a person are mouth and nose. (World Health Organization, 2020). Therefore, using a proper multi layered mask satisfies the need. FDA and CDC recommend wearing of N95 mask for the health workers who are more likely to be exposed while treating the Covid Patients (US Food & Drug Administration, 2021). Surgical mask is one of the types of protective covering that can be used by the general public which helps to block the virus particles transmitted to others or received from others. The effectiveness of the surgical mask increases if it worn properly without any gap and it can be used only once. (World Health Organization, 2020) Fabric mask also protects against acquiring infection, which can be reused by washing and sterilizing. (US Food & Drug Administration, 2021).

Air Quality During Lockdown Period

The World Health Organization has announced the spread of coronavirus a Pandemic from 11th of March 2020. In order to safe guard the lives of the people, all the Countries of the World insisted everyone to stay at home. This historic announcement led most of the nations to declare lockdown in the most affected areas. The rules of the lockdown period become intense based on the increase in the number of affected cases reported. Due to this lockdown, the economy of most of the countries experiences a decline.

Though there were many negative sides owing to lockdown, many positive things also happened during this period such as, refreshed environment, spending valuable time with family, reviving the hidden talent and many more.

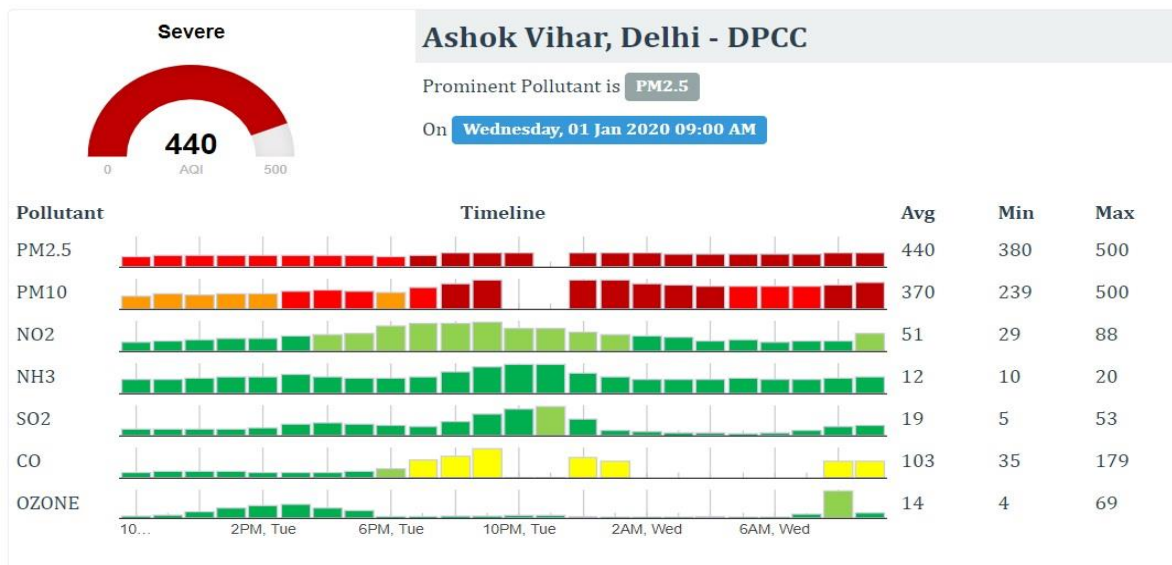


Figure 6.
High Air Quality Index in the Capital City of India before Lockdown Period on 01-01-2020

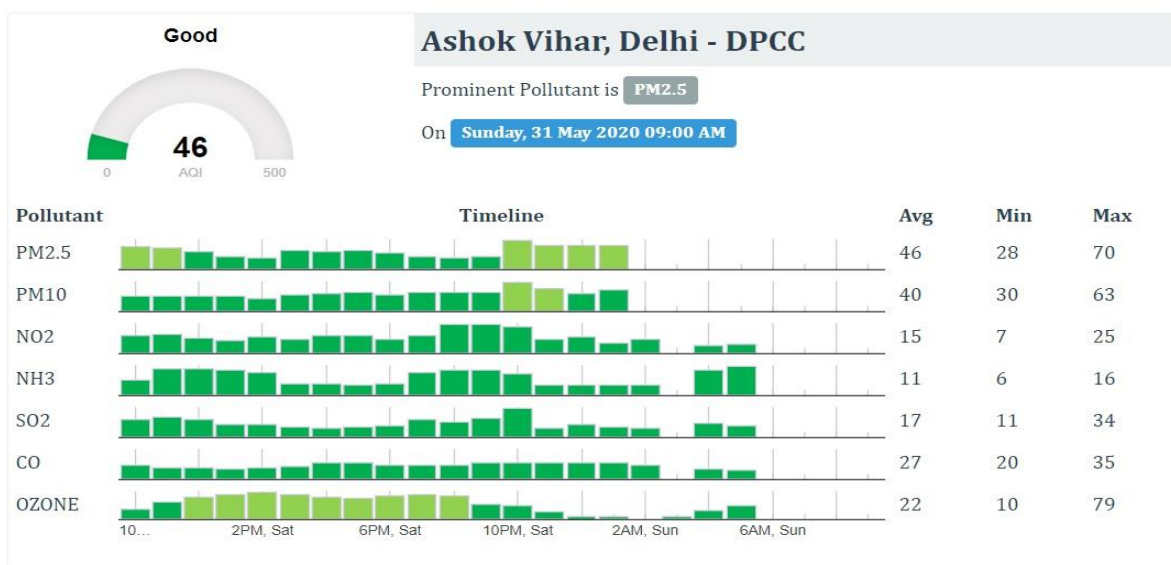


Figure 7.
Less Air Quality Index in the Capital City of India during the Lockdown period on 31-05-2020

| AQI | Remark | Color Code | Possible Health Impacts |
|---------|--------------|-------------|---|
| 0-50 | Good | Green | Minimal impact |
| 51-100 | Satisfactory | Light Green | Minor breathing discomfort to sensitive people |
| 101-200 | Moderate | Yellow | Breathing discomfort to the people with lungs, asthma and heart diseases |
| 201-300 | Poor | Orange | Breathing discomfort to most people on prolonged exposure |
| 301-400 | Very Poor | Red | Respiratory illness on prolonged exposure |
| 401-500 | Severe | Dark Red | Affects healthy people and seriously impacts those with existing diseases |

Figure 8.
Air Quality Index Standards as per Central Pollution Control Board, India

During the lockdown, pollution in the world is drastically reduced because of the shutdown of the industries, less usage of automobiles, less human population in the environment. The Air Quality Index depends on the composition of particles involved in the atmosphere. The AQI depends on the following particles:

PM_{2.5} – Particulate Matter of 2.5 Micrometers diameter

PM₁₀ – Particulate Matter of 10 Micrometers diameter

NO₂ – Nitrogen Dioxide

NH₃ – Ammonia

SO₂ – Sulphur dioxide

CO – Carbon Monoxide

O₃ – Ozone

In order to understand the amount of pollution present in the air, Ashok Vihar, Delhi is taken for reference. The Air Quality Index has been tested before and during lockdown period. Figure 6 shows the AQI of a part of Delhi during the 01st January 2020, this bar chart shows the high intensity of the pollution. Then the figure 7 shows the same during the lockdown period on 31st May 2020. It is clearly evident that AQI index is very less at the time of Covid period lockdown by looking the graph Central Pollution Control Board. (Ministry of Environment, Forests and Climate Change, 2021). Figure 8 shows the Air Quality Index standards released by the Central Pollution Control Board, India.

Since the instruction given by the Government of every country to Stay Home Stay Safe, almost every individual spent valuable time with their family that has never been possible in this busy world. Some started connecting with friends via various communication technologies and renewed their relationship. Even some of them started to give life to their passion and childhood hobbies.

24/7 Management

Covid-19 Pandemic has led to extended lockdown for controlling the spread of the disease. Almost each member of the family stays at home throughout the day. Initially this period was filled with fun and enjoyment, as days passed the scenario started changing and stress level shoots up due to the monotonous regular routine. In this covid season, most of the organizations have given the privilege of working from home to their employees. The following are the management methodologies that could be followed to have work life balance for various cases.

Managing Kids at Home

Kids love to play all the time, especially during their vacation at home. They tend to play outside most of the time. In this period to make

them to stay at home becomes a tough task. They get bored, restless and irritated not knowing what to do. This boredom can be eliminated by making them play indoor games, providing limited screen time, engaging with activities, motivating them to discover their field of interest, making arts & crafts and so on. If both father and mother are working, it will be very hard to manage the kids. In that case, parents can try to follow a proper schedule to make the kids engaged with a well-planned agenda. In spite of their working schedule, parents should also make sure they spend ample amount of time in the non-working hours.

Stress Management at Home

Most of the men & women work from home for their organization in this period. Women are prone to more stress than men, as they are in need to balance both family and work. (Mattioli et al., 2021). To provide food for their kids & family members on time and also need to keep up the deadlines given by their employer. This hectic work pressure pushes the working men & women into depression, anxiety and they are in need of fresh air to breath. For this very reason, people tend to go for outing to refresh during their weekends on normal days (Okhrimenko et al., 2021). During this lockdown period, a good mental health can be attained by going for a walk, having movie time at home, listening to music, reading books with positive vibes. Even few personalities started to showcase their passion through online medias.

Financial Management

Covid season has brought a decline in the economy and caused an increase in unemployment in the public. To overcome the tough situation, the budget can be planned in an effective manner by reducing the unnecessary expenses (Afifah, 2021). Even the unrestricted expenses such as spending on entertainment, transport, shopping, and dining can be subjected to savings. The expenditure on luxury should be cut down and only essentials should be purchased. Everybody should have the habit of saving so that it will act as a backup during the adversities.

Childhood Education Management

Covid has opened up a new teaching and learning methodology by adopting online education. For children in kindergarten, their basic education itself has commenced online during the lockdown. This creates lot of stress and health related issues in children (Alamoodi et al., 2019). The type of education undertaken by children in

the lockdown has lot of impact on the children's health where many children are facing lot of eye related diseases as they focus on the screen for a lot of time (Alzubi et al., 2018). As Children are very comfortable with the traditional method of going to school to pursue their education, this new normal of pursuing their studies online has reduced their concentration and interest in studies as the faculty are not in a position to track their student's attentiveness in attending online classes and performance in examination.

Conclusion

During this pandemic period, every individual in the world has learnt many lessons. The jumping Dolphins in the sea, clear water in the rivers, blossoming flowers in the public parks are some of the refreshing scenes of the Mother Earth during this crisis period. This period has enabled the Nature to revive its features. In this context, the air pollution in the world has extremely reduced which is proved by the study. Even in the post-covid season, certain possible measures of this period can be followed and make this world a pollution free environment.

At the same time, stress has been increased in all the people due to the pandemic. Many stress bursting plans were also studied to improve the lifestyle in the outing banned situation. Children are happy that their parents are with them, spending an ample amount of time by playing and giving them more attention. But at the same time the children in kindergarten are feeling very stressful with the online mode of Education. Not only the Children pursuing their Early Education even the children in higher grades require lot of dedication and motivation to overcome all the odds in the pursuing their education online.

Financial management holds the key as it is the most important to run our lives and family. In this study, some tips to save money or how to spend money were also discussed. On the whole, our lives have to move on in whatever crisis situation. The world has come across many pandemics and it has successfully confronted everything. Each individual has to face their problems in an optimistic manner. Self-motivation and encouraging others can help to gain confidence.

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