



IMPACT OF LOCKDOWN DUE TO COVID-19 ON HUMAN LIFE AND ENVIRONMENT IN INDIA

Manisha Deshpande (Asst Professor – Mathematics, PCCOE&R),
Hemant deshpande

Abstract

The Pandemic COVID-19 is causing lockdown with enormous changes in human life and the Environment. It has an impact on the economy and keeps on giving rise to unemployment. This research paper includes an Analysis of the Statistical Data obtained from the survey to come to a consensus to conclude what is the impact of COVID-19 pandemic lockdown on living being and the environment. The research also compares the results obtained from the statistical survey on Environmental changes, impact on Economy and understanding importance of self and social hygiene due to lockdown. The insight from article provides an account of the potential impact of COVID-19 in Indian society and helps one to draw measures to mitigate the effects of pandemic.

Keywords : COVID-19, Pandemic, Lockdown, Survey, Hygiene, Skills.

Introduction

The eruption of COVID-19 in Wuhan, China set the whole world in a situation of panic on how to control this Pandemic as there is no vaccine available for overcoming corona virus 2. Social distancing and taking hygiene related precaution was the only option available with all countries. 'With more than 1.36 billion population India is highly populated country in the world with population density of 414 people per km².' [1] COVID-19 situation was a sitting time bomb to be exploded had the lockdown not been imposed. In India first a one-day Isolation being declared on 21st March 2020 thereafter understanding the situation worldwide extended the lockdown for 21 days from 24th of March 2020 and continued the lockdown till 17th May 2020 to keep control on the pandemic in areas of high alerts considering the request from various state governments. Due to this lockdown various difficulties were faced by human beings as it was a period of more than two months. This research has a survey of how this Pandemic has helped human beings to explore the different technological advancement for sustaining daily life and how this has helped them to be more conscious of their own health and wellbeing. This research also studies the changes caused due lockdown on environment especially on Air and Water pollution. This survey also tries to explore the thought process of human beings on how the economy would be impacted due to this lock down. It explores the assertiveness of India's fight against COVID-19 compared to the rest of the world. Another facet of this survey is to look how the mortality rate has changed due this pandemic. This research will also compare the data obtained from the survey with actual research done in past and current that will help to take some precautionary steps for reducing the post pandemic effect.

Literature Survey

The study done in UK [2] showed that period utilized for employment-related activities had a drop of 17–43 minutes on average compared to before the pandemic. Although the trajectory of change was constant throughout population subgroups, the magnitude varies. There was a shift in negative side for time spent on employment activities for employee [2]. Also our survey results are in line with survey done in China [3] where the relationship between parents and children shows a positive trend due to quality time spent during lockdown. Lot of research has already been done on parent and child relationship comparing time spent by mother and father with children in



[4] which also states that quality time spent decreases with the age of child, the survey in paper [5] reflect increase in time period given for household work, child care, and family. Organization faced various challenges like (a) hiring freezes and layoffs; (b) salary freezes, cancelled bonuses, and pay reductions; (c) the nature of work (teleworking); and (d) an increase in employee stress and burnout. [6] The side effect of Pandemic lockdown was work from home which in turn helped the organization run employee engagement activities successfully. [7] In research paper [8] study about Knowledge, positive attitude and healthy a preventive practice of Type 1 Diabetes Mellitus young adults was carried out which should lack of proper awareness. The solution suggested was campaigns to be conducted in rural areas to spread correct knowledge about basic hygiene and utility of insulin/needled/syringes.

The paper [9] concluded that there is a need for regular educational interventions and training programs on infection control practices for COVID-19 across all healthcare professions. Occupational health and safety are of paramount importance to minimize the risk of transmission to healthcare students and professionals and provide optimal care for patients. The first evidence for this saying holds good is due to the pollution control report by IQAIR, Cities with historically higher levels of PM_{2.5} pollution witnessed the most substantial drops, including Delhi (-60%) [10]. In another research [12] among other pollutants, NO₂ (-52.68%) and CO (-30.35%) level had also reduced during-lockdown phase. About 40% to 50% improvement in air quality was identified just after four days of commencing lockdown.

Many countries including China, Italy, United Kingdom and Germany experienced falls in carbon dioxide and nitrogen dioxide of as much as 40%, greatly improving air quality and reducing the risks of asthma, heart attacks and lung disease [12].

The pandemic demonstrated that pollution lowers our resistance to disease. Research showed that tiny pollutant particles (PM_{2.5}), breathed over many years, sharply increased the chances of dying from the virus. Countries that averaged just one microgram per cubic meter more PM_{2.5} in the air had a COVID-19 death rate that was 15 percent higher [13] [16].

The particles penetrate the body, promoting hypertension, heart disease, breathing problems, and diabetes, all of which increase complications in corona virus patients. PM_{2.5} also weakens the immune system and triggers inflammation in the lungs and respiratory tract, adding to the risk both of getting COVID-19 and of having severe symptoms. [13][16] This observation confirmed a 2003 report that death rates due to SARS in China's most polluted areas were twice as high as in the least polluted ones [13][16]. Within the short period of lockdown, we experienced a clearer environment which created the image of real world that human need to maintain after pandemic. For example, people in India reported seeing the Himalayas for the first time from where they live; and in Delhi, levels of both PM_{2.5} and nitrogen dioxide fell more than 70 percent [13][16].

A noticeable improvement in natural water quality was found by researchers and scientist during lockdown. The longest freshwater lake Vembanad, showed significant improvement in surface water quality in terms of suspended particulate matter (SPM) [14]. The SPM concentration during the lockdown period decreased by 15.9% on average (range: 10.3% to 36.4%), up to 8 mg/l decrease compared with the pre-lockdown period. [14] Time series analysis of satellite image collections (April 2013 – April 2020) showed that the SPM quantified for April 2020 was the lowest for 11 out of 20 zones of the Vembanad lake. When compared with preceding years, the percentage decrease in SPM for April 2020 was up to 34% from the previous minima [14]. The water in Venice's canals also became much clearer, with small fish visible swimming around. [15] The quality of work life, during pandemic, its characteristics and various stages along with different factors are explained in [17]. The effect of pandemic on the employees of different sectors such as education, software industries, agricultural industries (Farmers) and real estate studied and analyzed by data analysis with mathematical modeling



through rough set theory, probability and graph theory.

There are different mathematical models used to study actual impact of COVID-19. The severity of the pandemic is measured by two pragmatic formulae known as the progressive recovery rate (PRR) and progressive mortality rate (PMR) [18]. By reducing dependent symptoms of COVID-16, the probability of having COVID-19 is studied in [19]. All types of viruses and their growth rates are defined through graph theory in work [20].

The article [21] makes an effort to evaluate the effect in both the short- and long-term. The fiscal year 2020–2021 has been designated as the short term. Five years, from 2020–2021 to 2024–2025, have been designated as the long term. Operationally, the evaluation of the effects on the economy has been defined as the effects on the important economic indicators listed below,

- GDP
- Unemployment rate
- Inflation rate
- Interest rate
- Industry output

Methodology used

We have used stratified sampling method to collect the sample of data across age group, different professions and geographical zones. A survey through online Google form is conducted on below mentioned questions. 551 responses were studied and analysis of the same is presented in study area of each question separately. Also, recommendations are suggested to sustain the positive results post lockdown achieved during lockdown period caused due to Covid-19. We have given 5 options for the participant to rate these answers with 1 being Poor/No and 5 being excellent/high impact.

Below are the questions included in the google form,

- 1) The quality time spent with family due to the lockdown caused by COVID-19, Pandemic. (Comparison of survey analysis and research data available)
- 2) Impact of lockdown in discovering hidden talent/skills of individuals.
- 3) How lockdown spread the awareness of self and social hygiene in better way? (Comparison of survey analysis and research data available)
- 4) Impact of Lockdown on Environment (Pollution control comparison of survey data with data from research sources).
- 5) Effect on economy of the country owing to Covid-19 related to difficulties faced by every participant. (Comparison of survey data with data from research sources).

New Findings and Discussions

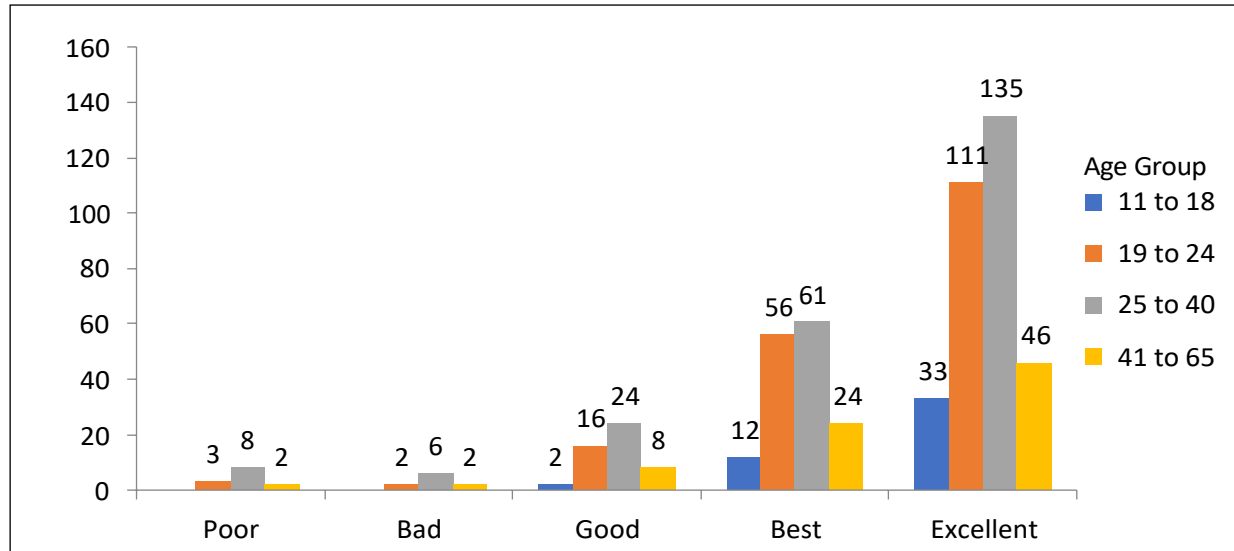
1. The quality time spent with family due to the lockdown caused by COVID-19, Pandemic. With lockdown imposed by the Government from last week of March to Mid May 2020 the production industry as well as the ITES industry were shut for this period. This forced everyone to stay at home and help break the chain or cycle of corona spread.

With regular working time and combined with travelling time being saved in lockdown the average time person spent at home increased dramatically, this in-turn meant time being spent with family increased.

This survey studied the impact of lockdown on quality time spent with family. Fig1.1 and Table 1.1 Shows the comparative time spent by different age group. The results were overwhelming with the



maximum quality time spent by age group 25-40 with respect to number of participants out of the whole sample space. If comparison is down among age groups considering the count of participants the

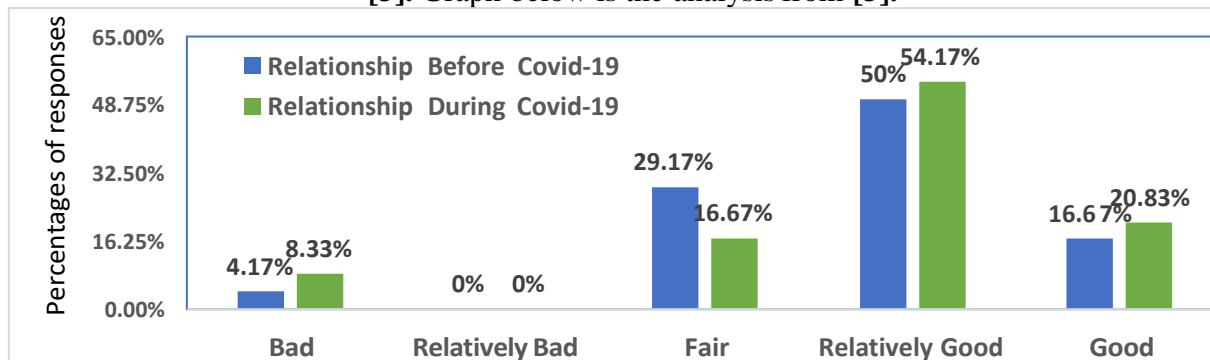


Children between 11-18 have spent excellent time during pandemic. This reflects that time spent by parents with their children is quiet less in daily life. This survey has definitely has helped parents to understand the importance of personal-professional life work balance.

Fig 1.1 Quality time spent age group wise

Quality Time Spent with Family					
Age Group	Poor	Bad	Good	Best	Excellent
11 to 18			2	12	33
19 to 24	3	2	16	56	111
25 to 40	8	6	24	61	135
41 to 65	2	2	8	24	46
Age Group	Percentage wise				
11 to 18	0.00%	0.00%	4.26%	25.53%	70.21%
19 to 24	1.60%	1.06%	8.51%	29.79%	59.04%
25 to 40	3.42%	2.56%	10.26%	26.07%	57.69%
41 to 65	2.44%	2.44%	9.76%	29.27%	56.10%

Table 1.1 :These statistics obtained in (Table 1.1) from our survey agrees with results mentioned in [2] [3]. Graph below is the analysis from [3].





State of Relationship

Children's view on relationship with their parents before and during COVID-19

2. Impact of lockdown in discovering hidden talent/skills of individuals

Due to increasing cases of the Covid-19 pandemic within the country, colleges and different instructional establishments were closed, that allowed students and lecturers to continue with their learning and teaching activities from the comforts of their homes. Lockdown has given us the possibility to do fascinating things, and learn new skills and gain more knowledge. Experiments are happening to handle the pandemic as necessity is the mother of invention. During the lockdown period, everything came to a standstill which, gave a golden opportunity for people to use this time period more productive way to discover new skills of individuals by exploring new hobbies and talents like skills in art and craft, dance, music, technical ability etc. this will help people to get better opportunity enhancement in employment and reduces stress.

Many individuals generally are unaware about the skill set or talents they have within them, it's only when people spare time on practicing these skills they realize about their own expertise. The current survey of 551 participants shows the percentage variation in identifying the hidden skills across different age groups. The age group 19-24 shows the highest percentage in identifying their skills in the lockdown period reflected below in Fig 1.2 as well as Table 1.2. This is the student fraternity of undergraduate and postgraduate who could grow technically as well as artistically during the lockdown period.

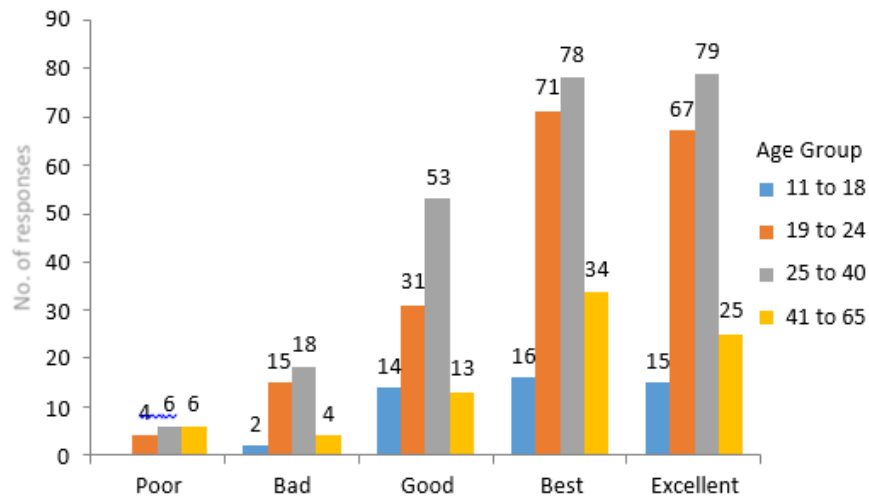


Fig 1.2 Discovering hidden talent/skills age group wise

Discovering hidden talent/skills					
Age Group	Poor	Bad	Good	Best	Excellent
11 to 18		2	14	16	15
19 to 24	4	15	31	71	67
25 to 40	6	18	53	78	79
41 to 65	6	4	13	34	25
Age Group	Percentage wise				
11 to 18	0.00%	4.26%	29.79%	34.04%	31.91%
19 to 24	2.13%	7.98%	16.49%	37.77%	35.64%
25 to 40	2.56%	7.69%	22.65%	33.33%	33.76%
41 to 65	7.32%	4.88%	15.85%	41.46%	30.49%

Table 1.2

3. How lockdown spread the awareness of self and social hygiene in better way?

The awareness of people in India before Covid-19 towards health and hygiene was low. Common man was least bothered about maintaining his health on regular basis by having a proper schedule for exercising, or having a proper diet to boost the immune system. Awareness programs had to be arranged at various levels to spread the importance of Health, Hygiene and diet especially among girl’s students in colleges. However due to this pandemic people are now more aware about the importance of maintaining a good diet, regular exercise and having a strong immune system which could protect them against such a life-threatening pandemic.

From the research in [9] it was found that the awareness of medical Professional on Infection control practices needs to be improved so a question aroused that what will be the understanding of common man about hygiene maintenance. So, in the current survey we posed a question to all category pupils on how lockdown has helped to spread awareness of self and social hygiene in better way?

The below (Fig 1.3) and Table 1.3 data shows significant improvement in self and social hygiene awareness during Pandemic. This was possible as a huge campaign was undertaken by various government organizations, social welfare organizations, social media crusaders, NGO’s and celebrities to spread the awareness during lockdown. “Prevention is better than cure”, is understood the best by all during this pandemic lockdown.

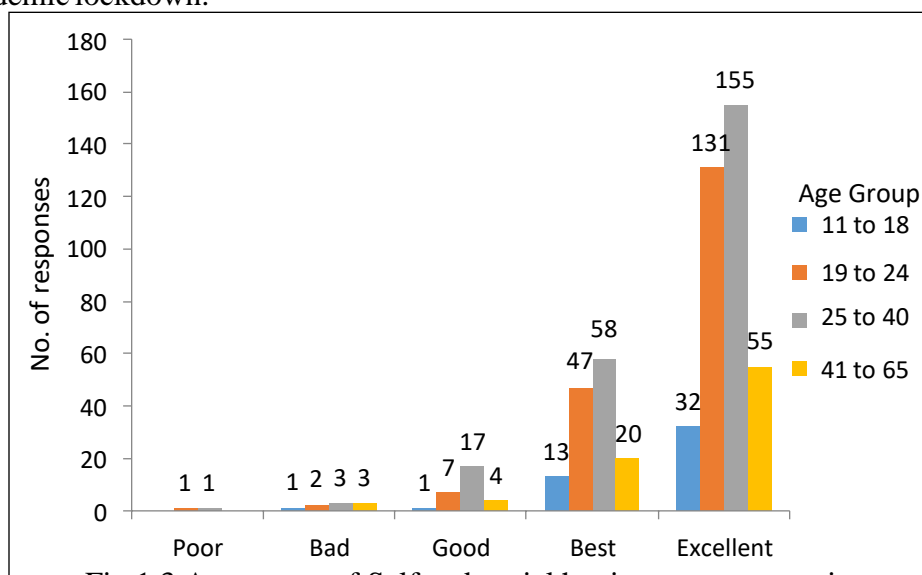


Fig 1.3 Awareness of Self and social hygiene age group wise

Awareness of Self and social hygiene age group wise					
Age Group	Poor	Bad	Good	Best	Excellent
11 to 18		1	1	13	32
19 to 24	1	2	7	47	131
25 to 40	1	3	17	58	155
41 to 65		3	4	20	55
Age Group	Percentage Wise				
11 to 18	0.00%	2.13%	2.13%	27.66%	68.09%



19 to 24	0.53%	1.06%	3.72%	25.00%	69.68%
25 to 40	0.43%	1.28%	7.26%	24.79%	66.24%
41 to 65	0.00%	3.66%	4.88%	24.39%	67.07%

Table 1.3

4. Impact of Lockdown on Environment

During the lockdown declared by many countries due to pandemic COVID-19 people were forced to focus on the saying “Earth is healing”, Regular reports of this improve quality have definitely spread the awareness about environment (Pollution control) which is reflected in the survey done. Below Fig 1.4 and Table 1.4 is the analysis geographically Zone wise on effect of Lockdown on pollution control.

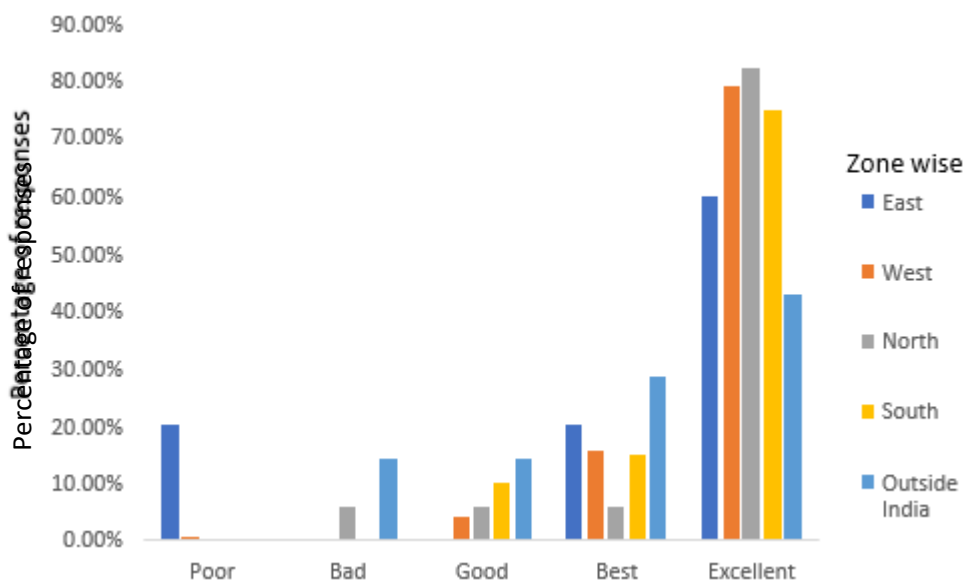


Fig 1.4 Impact of lockdown on environment Zone wise

Effect of Lockdown on Environment (Pollution Control)					
Zone	Poor	Bad	Good	Best	Excellent
East	1	0	0	1	3
West	3	1	21	79	398
North	0	1	1	1	14
South	0	0	2	3	15
Outside India	0	1	1	2	3
Zone	Percentage wise				
East	20.00%	0.00%	0.00%	20.00%	60.00%
West	0.60%	0.20%	4.18%	15.74%	79.28%
North	0.00%	5.88%	5.88%	5.88%	82.35%
South	0.00%	0.00%	10.00%	15.00%	75.00%
Outside India	0.00%	14.29%	14.29%	28.57%	42.86%

Table 1.4

This survey results agree with the research mentioned in [10] [11] showing excellent improvement in air pollution control in north zone of India which includes Delhi. Overall, the survey also shows



better and clearer air in all parts of India. The survey also has some participants from outside India that agrees with statistics in literature survey.

5. Effect on economy of the country owing to Covid-19

On March 12, 2020, WHO issued a pandemic declaration for COVID-19. This terrible disease continues to spread throughout the world today. The global community as well as the Indian economy have experienced an unparalleled shock as a result of the Covid-19 epidemic. The multiple global lockdowns effectively put the globe on hold and pressed the pause button for everything.

Of the largest economies in the world. During 4Q, India's real GDP fell to its lowest level in more than six years. Consequently, the numerous flaws in the international system have been shown by the COVID-19 or Corona virus Pandemic. India's growth rate decreased to 3.1 percent as a result of COVID-19, according to the Ministry of Statistics, as indicated by the Chief Economic Government of India advisor. The influence of this epidemic on the major Indian economic sectors is the main topic of the literature study is mentioned below,

Summary of Key Indian economic Indicators Projections [22]

Sr No	Economic Indicator	Current (Mar/Apr 2020 Position)	Projection for 2020-21	Projection for 2024-25 on the Basis of 3 Possible Recoveries		
				Strong	Moderate	Weak
1	GDP growth	5%	-0.55%	7.45%	3.45%	1.45%
2	Unemployment	8.76%	20.13%	12.13%	16.13%	18.13%
3	Inflation	2.99%	6%	8%	10%	14%
4	Base lending rate	8.15%	6.65%	8.65%	4.65%	2.65%
5	Industrial production index	0%	-3.96%	4.04%	0.04%	-1.96%

In Fig: 1 .5.1 shows the impact on how this pandemic has affected various Indian industries [23].

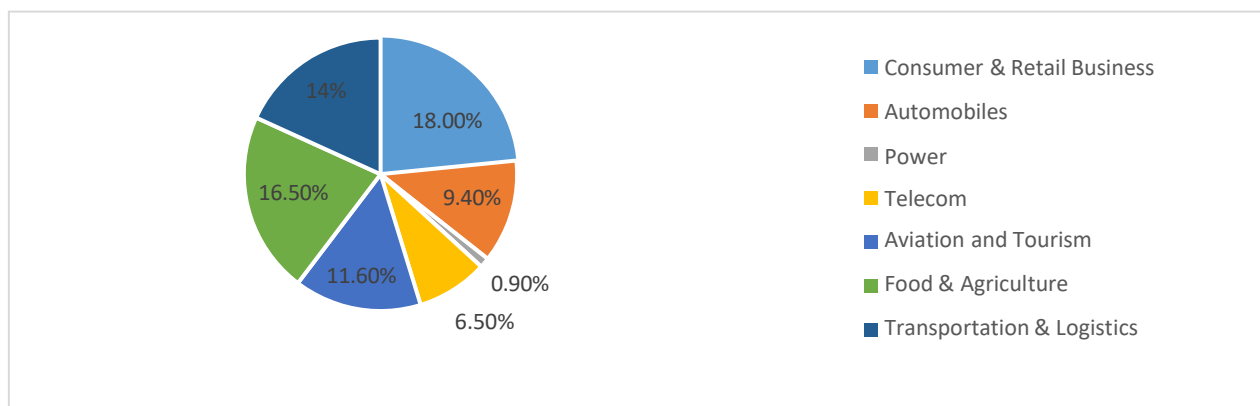


Fig: 1.5.1 Contribution to GDP by Different Sectors

The survey conducted had a question to find impact on economy in different professions due to lockdown caused by Covid19. Results of the same are represented below in Fig 1.5.2 and Table 1.5.2

It shows a very high impact on most of the professions. Information Technology Enabled Services (ITES) with highest percentage followed by Medicine. The daily wagers were highly affected economically,

this fact is supported by the survey results. In Sample size of 6,5 participants said they had high impact on their monthly wages. This survey also shows the awareness of economic impact on the nation due to such pandemic.

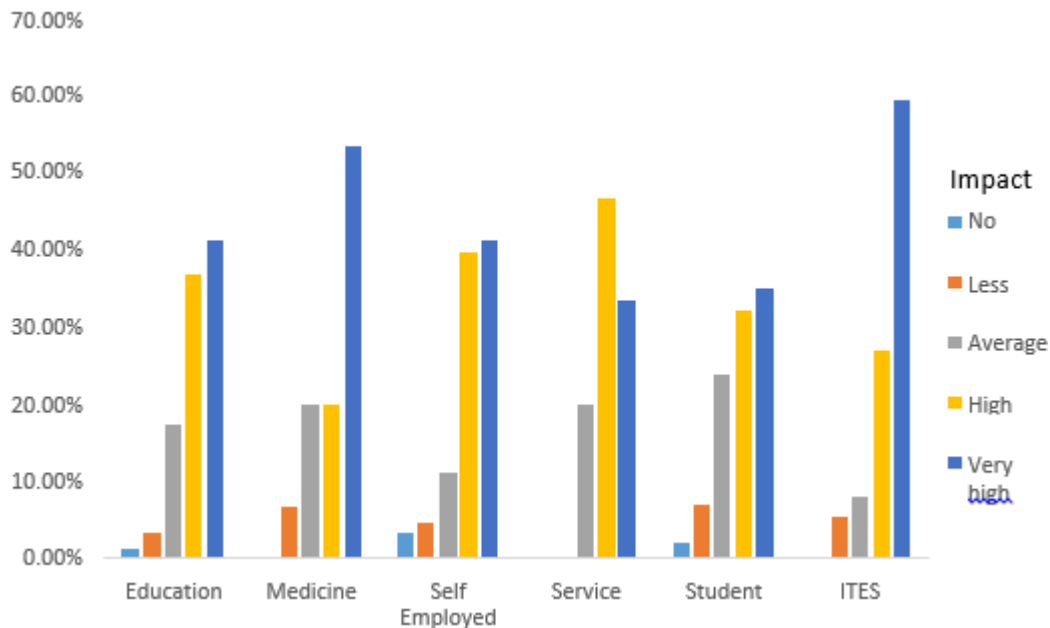


Fig 1.5.2 Impact on Economy on various professions due to lockdown.

Sector	No	Less	Average	High	Veryhigh
Education	2	6	31	66	74
Medicine		1	3	3	8
Self Employed	2	3	7	25	26
Service			6	14	10
Student	4	14	48	65	71
ITES		2	3	10	22
Sector	Percentage wise				
Education	1.12%	3.35%	17.32%	36.87%	41.34%
Medicine	0.00%	6.67%	20.00%	20.00%	53.33%
Self Employed	3.17%	4.76%	11.11%	39.68%	41.27%
Service	0.00%	0.00%	20.00%	46.67%	33.33%
Student	1.98%	6.93%	23.76%	32.18%	35.15%
ITES	0.00%	5.41%	8.11%	27.03%	59.46%

Table 1.5.2

Conclusion

From the survey and literature study it is clearly visible that family bonding and relation have enhanced by spending quality time with Children and Senior citizens in the family. Post lockdown parents have been able to manage their work and family time then that will help all members in the family including themselves in stress management. This survey has studied the impact of lockdown in discovering hidden talent/skills of individuals which has provided an improvement of opportunity in employment, exploring new skills and reduction in anxiety.



This survey has posed a question on awareness of people about Health and Hygiene due to this pandemic situation and more than 90% have agreed on its improvement in huge amount. To sustain this awareness post Covid it is important that regular counseling through sessions by doctors have to be conducted in schools. Initiatives by government should be taken in reference to this for introducing a separate time slot for such activities. Also, to inculcate the understanding in these young children, teachers and students should follow these practices in schools. We can explore platforms like NSS for wider reach of awareness as well as activities by students can be conducted.

As all the means of transportation air, road and water have been almost shutdown due to lockdown, a noticeable reduction in Pollution has been measured. The work however of certain industries such as ITES, Education, Medical has still continued to work efficiently. So, from the survey and literature study it has been suggested to continue with hybrid working model for ITES or compulsory use the pool transportation option for less usage of road transport. This has definitely reduced the air pollution to certain extent in west zone of India which has maximum ITES sector.

The survey on impact of Covid-19 on economy concludes that there has been significant impact on every individual not only socially but also economically. The economic impact has been seen across all professionals. For the first time it has been seen both central and state level governments extending their support to all daily wagers and hawkers by providing direct cash transfers as part of relief fund to their bank accounts. The government schemes have to be strengthened to help the needy in such pandemic situations.

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