



# Pandemic Vaccination and Psychological Distress and Unexpected Breakdown in India: A Pre- Post Study of Covid-19

Milind Gurchal<sup>1</sup> and Ms. Arpita Alok Sikder<sup>2</sup>

Assistant Professor, Department of Contemporary and Environmental Studies (FC-EVS)<sup>1</sup>

KLE Society's Science and Commerce College, Kalamboli, Navi Mumbai<sup>1</sup>

SYBCOM Student, KLE Society's Science and Commerce College, Kalamboli, Navi Mumbai<sup>2</sup>

milind.g@klessccmumbai.edu.in

**Abstract:** *On December 2019, an outbreak of unknown origin of pneumonia in Wuhan, China came into existence. These cases were epidemiologically linked to the Hunan seafood wholesale market, Wuhan, China. People whose genome analysis showed it to be a novel Corona virus related to SARS- COV where getting isolated or admitted to the hospitals. Therefore this is named as severe acute respiratory syndrome coronavirus 2 (SARS- COV). The Global spread of SARS- COV covid 19 leaders of death per day ending with lacks of Dead per day leave the World Health Organization to declare Panda make on 12th March 2020. Till the time the world has paid enough that they can't be more measurable than this situation in this study we go through the origin of SARS- COV and its ability to infect human cell and safety issues then will focus the changes in Healthcare system vaccination update Lifestyle people coping with a breakdown and preparation for a second possible wave.*

**Keywords:** PNEUMONIA, SARD- COV, EPIDEMIOLOGY, COVID- 19, PANDEMIC

## I. INTRODUCTION

Corona virus disease 2019 (covid- 19) belongs to severe acute respiratory syndrome- Coronavirus- 2 ( SARS-COV ) is highly contagious viral illness which can be transmitted easily without even knowing It is a wide spread endemic disease in which number of disease table for a year or more worldwide. The incubation period means the symptoms that shows between 1 to 14 days or a mean period of 6 days in which virus can transmit the disease from one person to another without even knowing symptoms like flu headed body pain weakness can be transmitted via droplets or contact and even not following the rules 19 was declared as a public health emergency which eventually lead the whole world to make an announcement of lockdown. India's first locked down period was of 21 days which got extended day by day.

Three Indian medical students were the first cases of covid- 19 in India and were reported on 30 January 2020 with symptoms in 3 towns of Kerala. Those three students were returned from the epicenter of pandemic, Wuhan, China. The first lockdown in India was announced in Kerala on 23rd march 2020 and 25th March in the rest of the country over 90,000 where Daily cases dropping to below 15,000 in January 2021 however on March 2021. The devastating part started as the second way was the beginning of more horrible things that the first wave. There were shortages of bed in hospitals in India, shortages of medication and precautionary things, oxygen cylinder and mental trauma. On 31st April 2021, India became the first country to report over 4 lakh new cases in the 24 hour period. Vaccination program in India was started on 16 January 2021 with AstraZeneca vaccine ( Covishield) and covaxin. 2 doses where compulsory with a gap of 3 months India announce more than 720 million people where fully vaccinated but still they have to follow the restriction for social distancing wearing a mass and proper sanitization.

Keywords: Contagious, Widespread, Endemic, Incubation, Droplets, Transmitted, Lockdown, Symptoms, Medication, Precautions, Oxygen, Astrazeneca Vaccine, Covaxin.

## II. EPIDEMIOLOGY

Research is a way to find out and understand more about severity, transmissibility, cured cases hotspot zones and others related to covid 19. With the help of research it came out that the main mode of transmission of viruses from one person



to person is we are respiratory droplets. Soon after a secondary source of transmission was find out that is contacting within contamination surface or object. Some studies researches concluded that the age group between 10 to 15 and 55 to 70 were highly risked to be infected by virus with the help of research. Those who are having low immune system were also in the zone of risk. Covid 19 is a variant of SARS- COV, but still it has found that covid 19 has higher level of risk transmissibility and death rates. Covid- 19 (2.9) reported reproduction number is estimated to be highly risk able of SARS- COV (1.77) at this stage. Reports and researches describe the epidemiology of covid-19 in India using preliminary date data and table below.

Year	Month	Total cases	Active cases	Discharge cases	Death
2020	January	1	1	0	0
	February	3	3	0	0
	March	1,397	1,238	124	35
	April	33,050	23,651	8,325	1,074
	May	1,82,143	89,995	86,984	5,164
	June	5,66,840	2,15,125	3,34,822	16,893
	July	16,38,870	5,45,318	10,57,806	35,747
	August	36,21,245	7,81,975	27,74,801	64,469
	September	62,25,763	9,40,441	51,87,825	97,497
	October	81,37,119	5,82,649	74,32,829	1,21,641
	November	94,31,691	4,46,952	88,47,600	1,37,139
	December	1,02,66,674	2,57,656	98,60,280	1,48,738
2021	January	1,07,46,183	1,68,784	1,04,23,125	1,54,274
	February	1,10,79,979	1,59,590	1,07,63,451	1,56,938
	March	1,21,49,335	5,52,566	1,14,34,301	1,62,468
	April	1,87,62,976	31,70,228	1,53,84,418	2,08,330
	May	2,80,47,534	20,26,092	2,56,92,342	3,29,100
	June	3,03,62,848	5,37,064	2,94,27,330	3,98,454
	July	3,15,75,929	3,96,745	3,07,55,519	4,23,665
	August	3,27,68,880	3,70,640	3,19,59,680	4,38,560
	September	3,37,39,980	2,77,020	3,30,14,898	4,48,062
	October	3,42,73,300	1,59,272	3,36,55,842	4,58,186
	November	3,45,87,822	1,00,543	3,40,18,299	4,68,980
	December	3,48,38,804	91,361	3,42,66,363	4,81,080

SOURCE: <https://www.sciencedirect.com/science/article/pii/S2772809922000077>



State	Cases	Active cases	Discharge	Death
Maharashtra	11,45,840	3,02,135	8,12,354	31,351
Andhra Pradesh	6,01,462	88,197	5,08,088	5,177
Tamil Nadu	5,25,420	46,610	4,70,192	8,618
Karnataka	4,94,356	1,03,650	3,83,077	7,629
Uttar Pradesh	3,36,294	68,235	2,63,288	4,771
Delhi	2,34,701	31,721	1,98,103	4,877
West Bengal	2,15,580	24,336	1,87,061	4,183
Odisha	1,67,161	33,026	1,33,466	669
Telangana	1,67,046	30,673	1,35,357	1,016
Gujarat	1,64,051	13,156	1,50,040	855
Assam	1,50,349	28,208	1,21,613	528
Kerala	1,22,214	34,380	87,345	489
Gujarat	1,18,926	15,975	99,681	3,270
Rajasthan	1,09,473	17,495	90,685	1,293
Haryana	1,03,773	21,014	81,690	1,069
Madhya Pradesh	97,906	21,631	74,398	1,877
Punjab	90,032	21,568	65,818	2,646
Chhattisgarh	77,775	36,036	41,111	628
Jharkhand	67,100	13,703	52,807	590
Jammu and Kashmir	59,711	20,239	38,521	951
Uttarakhand	37,139	11,714	24,965	460
Goa	26,783	5,612	20,844	327
Puducherry	21,428	4,744	16,253	431
Tripura	20,949	7,162	13,559	228
Himachal Pradesh	11,190	4,146	6,946	98
Chandigarh	9,256	3,085	6,062	109
Manipur	8,430	1,841	6,538	51
Arunachal Pradesh	6,851	1,871	4,967	13
Nagaland	5,306	1,193	4,098	15
Meghalaya	4,356	1,983	2,342	31

State	Cases	Active cases	Discharge	Death
Andaman and Nicobar Islands	3,604	174	3,378	52
Ladakh	3,576	972	2,558	46
Dadra and Nagar Haveli and Daman and Diu	2,831	221	2,608	2
Sikkim	2,274	463	1,789	22
Mizoram	1,534	585	949	0

SOURCE: <https://www.sciencedirect.com/science/article/pii/S2772809922000077>

Keywords: Severity, Hot Spot Zones, Contamination, Reproduction.

### III. TRANSMISSION

Many domestic, wild animals like cattle, pig, bats are serve as hosts for Corona virus but the main transmission started from, Wuhan, China. A background story of China included that at a time there were vegetation problem and people living there was starving which eventually lead them to convert or to consume domestic animal wild animal and small creatures for the survival which is now a common and traditional eating lifestyle. The three main transmission roots for covid-19 are 1. Droplets transmission 2. Contact transmission 3. Aerosol transmission. Also one study the digestive system as a potential transmission. Severe cases were experiencing progressive respiratory failure due to alveolar damage inside lungs that is patience could not breathe properly.

KEYWORDS: DOMESTIC/ WILD ANIMALS, STARVING, EATING LIFESTYLE, CONATCT, AEROSOL.

### IV. PREVENTION AND VACCINATION

Public health and preventive approaches were the strategies to Cope up with covid -19 and have more focus on testing process, severity proper medications, personal hygienic measure, isolation, quarantine and social distance. Initially the first preventive measure introduced not only in India but the whole world was wearing a mass and sanitization in a proper way. Travel restriction, school measures/closure, place closure/ measure where levied. The biggest way of prevention was lock down so that there will be minimal person to person contact. Research demonstrated- surgical mask can reduce the risk of virus exposure by average of 6 times also the interview question period ranges between 2 to 14 days who have low symptoms and can be self-isolated.

Vaccine is a type of antidote which provide positive/ active immunity against infection disease. The procedure of introducing vaccination to India started from January 2021 as a first dose and second dose after 3 months of 1st door person. Till date India has administered around 2.19 billion doses including first dose, second dose and booster dose. At the beginning only 18+ years age group and above allowed to take vaccination but now vaccines are recommended for everyone who is who is 6 months and older. Boosters were allowed only for 5 years and above. Vaccination drive began all over India and lakhs of people were getting vaccinated every day. Covaxin and Covishield are the two types of vaccination against covid- 19 which were introduced at the beginning and later the Russian Vaccine was introduced named as SPUTNIK V.

Keywords: Hygenic, Quarantine, Closure, Measure, Surgical Mask, Immunity, Boosters, Covishield

SOURCE: [dashboard.cowin.gov.in](https://dashboard.cowin.gov.in)



Date	Dose I	Dose II	Total
16th January- 22nd January	12,43,021		
23rd January - 29th January	20,53,174		
30th January -5th February	19,59,205		
6th February - 12th February	26,55,911		
13th February -19th February	16,35,695	7,18,191	23,53,886
20th February -26th February	16,12,852	17,01,102	33,13,954
27th February -05th March	31,02,624	10,38,626	41,41,250
06th March -12th March	69,38,876	17,04,077	86,42,953
13th March -19th March	1,14,99,065	19,44,122	1,34,43,187
20th March -26th March	1,40,64,862	11,69,387	1,52,34,249
27th March -02nd April	1,26,86,406	9,25,025	1,36,11,431
03rd April -09th April	2,14,33,466	20,13,233	2,34,46,689
10th April -16th April	1,68,91,271	29,60,570	1,98,51,841
17th April -23rd April	74,92,999	34,58,180	1,09,51,179

**V. PSYCHOLOGICAL DISTRESS: ( A PART OF COVID )**

Covid- 19 and lockdown created a big Hustle- Bustle in everyday life of every single person. However report concluded that the main reason of psychological distress are losing jobs, staying miles away from home and dear ones, non availability of foods and other supplies no way of income and all the situations as horrible as we can't even think. According to some reports mental health difficulties such as anxiety and depression played a miserable role during covid- 19. The foremost and the beginning of anxiety fear stress is covid-19 continuous report. Fear increased due to fake verified and unverified information about covid- 19 and spreading of outbreak result into reduction of social contact, social support and social activity. Children were impatient which lead them to irritation. Parents were combining and managing there personal life with professional life which changed their lifestyle and made more impatient. Small vendors, shops small business suffered a big loss and eventually had to shut.

Sl no	Contributing factor	f (%)	No psychological distress	Psychological distress	OR	95% CI		P-value
						Lower	Upper	
Fear of getting Covid-19 disease								
1	Yes	679 (44.2%)	306 (19.9%)	373 (24.3%)	1.507	1.197	1.897	0.000
	No	858 (55.8%)	509 (33.1%)	349 (22.7%)		Ref		
Feeling stressed due to lockdown								
2	Yes	759 (49.4%)	293 (19.1%)	466 (30.3%)	2.627	2.096	3.292	0.000
	No	778 (50.6%)	522 (34%)	256 (16.6%)		Ref		
Worried for wearing mask & frequent hand washing								
3	Yes	450 (29.3%)	190 (12.4%)	260 (17%)	1.301	1.012	1.673	0.087
	No	1087 (70.7%)	625 (40.6)	462 (30%)		Ref		
Worried as organization is not allowing work from home								
4	Yes	228 (14.8%)	113 (7.3%)	115 (7.5%)	1.194	0.866	1.647	0.280
	No	1309	702 (45.7%)	607 (39.5%)		Ref		



Sl no	Contributing factor	f (%)	No psychological distress	Psychological distress	OR	95% CI		P-value	
						Lower	Upper		
		(85.1%)							
			Worried due to home quarantine						
5	Yes	246 (16.0%)	99 (6.4%)	147 (9.6%)	0.779	0.571	1.064	0.117	
	No/NA	1291(84%)	716 (46.6%)	575 (37.4%)		<b>Ref</b>			
			Compromise of financial security						
6	Yes	686 (44.6%)	343 (22.3%)	343 (22.3%)	0.896	0.711	1.129	0.353	
	No	851 (55.4%)	472(30.7%)	379 (24.7%)		<b>Ref</b>			
			Feel compromised in meeting food need						
7	Yes	599 (39%)	320 (20.8%)	279 (18.1%)	<b>1.455</b>	1.147	1.845	0.002	
	No	938 (61%)	495 (32.3%)	443 (28.8%)		<b>Ref</b>			
			Awareness through mass media reduces stress						
8	Yes	959 (62.4%)	531 (34.5%)	428 (27.9%)	<b>1.307</b>	1.038	1.645	0.023	
	No	578(37.6)	284 (18.5%)	294 (19.1%)		<b>Ref</b>			
			Stressed due to continuous COVID 19 related news						
9	Yes	962 (62.6%)	445 (29%)	517 (33.6%)	0.815	0.636	1.045	0.106	
	No	575 (37.4%)	370 (24.1%)	205 (13.3%)		<b>Ref</b>			
			Think less risk in comparison to other country						
10	Yes	744 (48.4%)	368 (23.9%)	376 (24.5%)	0.839	0.670	1.051	0.126	
	No	793 (51.6%)	447 (29.1%)	346 (22.5%)		<b>Ref</b>			
			Worried due to non availability of treatment						
11	Yes	1055 (68.6%)	505 (32.8%)	550 (35.8%)	0.769	0.593	0.997	0.048	
	No	482 (31.4%)	310 (20.2%)	172 (11.2%)		<b>Ref</b>			
			People will stigmatise if develop COVID 19						
12	Yes	1039 (67.6%)	502 (32.7%)	537 (34.9%)	<b>1.469</b>	<b>1.154</b>	<b>1.871</b>	<b>0.002</b>	
	No	498 (32.4%)	313 (20.4%)	185 (12%)		<b>Ref</b>			
			Feeling nervous as vulnerable for getting infection						
13	Yes	569 (37%)	274 (17.8%)	295 (19.2%)	1.184	0.923	1.519	0.184	
	No	968 (63%)	541 (35.2%)	427 (27.8%)		<b>Ref</b>			



Sl no	Contributing factor	f (%)	No psychological distress	Psychological distress	OR	95% CI		P-value	
						Lower	Upper		
Inadequate supply of mask, hand sanitizer, hand wash solution									
14	Yes	500 (32.5%)	230 (15%)	270 (17.6)	1.442	1.123	1.850	0.004	
	No	1037 (53.3%)	585 (38%)	452 (29.4)					Ref
Worried as steps of govt is inadequate towards control & prevention of COVID 19									
15	Yes	541 (35.2%)	246 (16%)	295 (19.2%)	0.947	0.743	1.207	0.659	
	No	996 (64.8%)	569 (37%)	427 (27.8%)					Ref
Online education of child									
16	Yes	267 (17.4%)	143 (9.3%)	123 (8%)	0.634	0.411	0.979	0.040	
	No	297 (19.3%)	190 (12.4%)	107 (7%)					Ref
	Not applicable	973 (63.3%)	482 (31.4%)	491 (31.9%)					0.556
Abnormal reaction of child									
17	Yes	251 (16.3%)	109 (7.1%)	142 (9.2%)	1.083	0.778	1.509	0.000	
	No	324 (21.1%)	220 (14.3%)	104 (6.8%)					Ref
	Not applicable	962 (62.6)	486 (31.6%)	476 (31%)					1.876
Domestic violence									
18	Yes	72 (4.7%)	33 (2.1%)	39 (2.6%)	0.862	0.504	1.475	0.588	
	No	1465(95.3%)	782 (50.9%)	683 (44.4%)					Ref

**Binary model of psychological distress related to COVID 19 outbreak.**

SOURCE: <https://www.sciencedirect.com/science/article/pii/S0883941721001539>

Keywords: Hustle- Bustle, Horrible, Mental Health, Anxiety, Depression, Fear, Impatient, Reasons.

**VI. METHODOLOGY**

Study include a primary base data collected by taking online survey. A survey on knowledge, awareness and hygienic matters about covid-19 was conducted through Google form with a set of questionnaire and and compulsory to perform. Multiple choice type question and was administered to obtain the required information for the research. Expected response for the survey was 100 but in total received 73 responses.

**VII. RESULTS/ OUTCOME**

Questionnaire included general questions related to covid-19.

Figure 1 represents the summary of first question about how many respondents know about covid- 19 out of 73 responses all respondents know about what covid- 19 is.

Figure 2represents how many respondents are aware about the first case. Majority of the respondent are away i.e 49.3% respondents actually know the first reported date. As 27 January is closed to 30 January somehow 30.1% respondent are



in favor of 30 January, 15.1% respondents are in support of answer 20 December 2019 and remaining 5.5% for 1<sup>st</sup> December 2019.

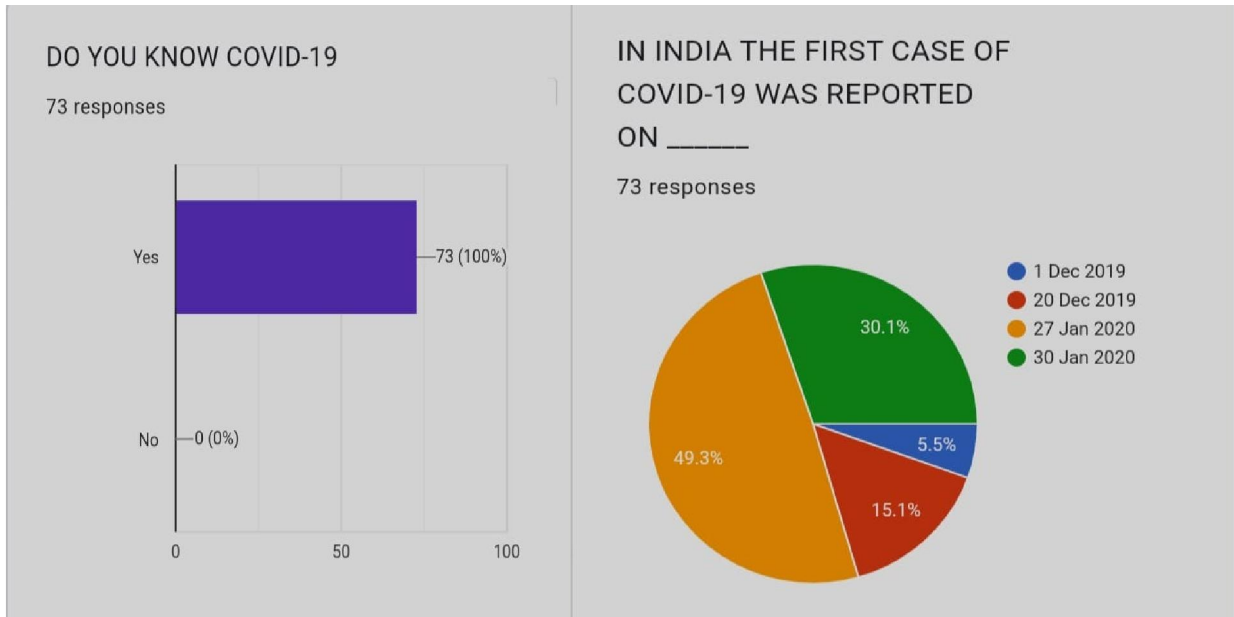


Figure .1

Figure .2

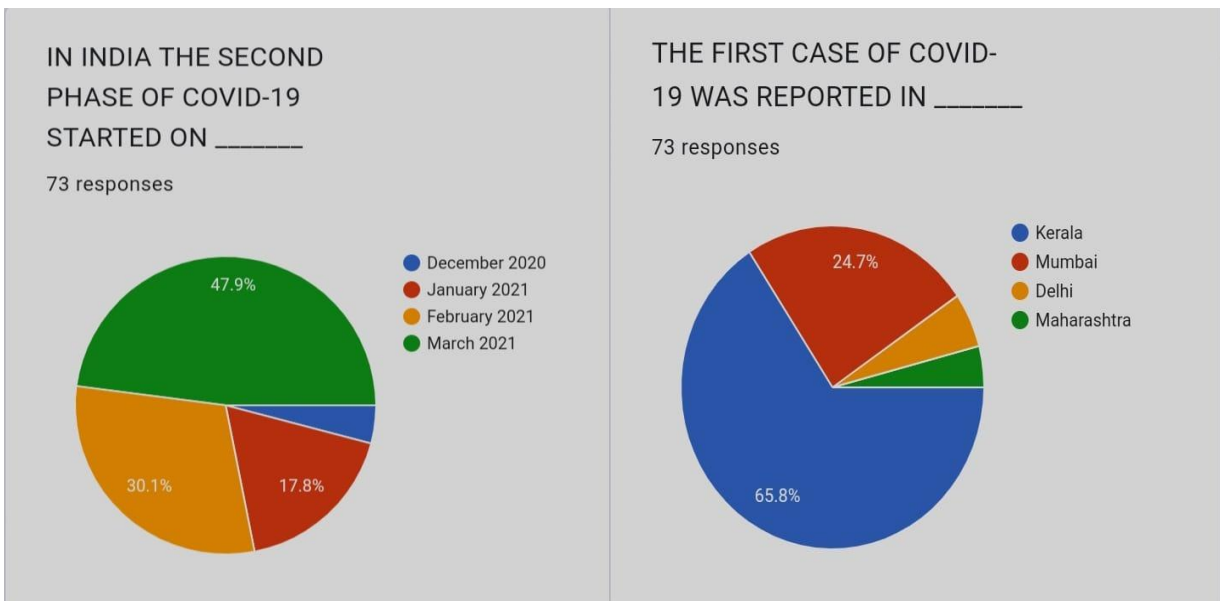


Figure .3

Figure .4

Figure 3 shares the responses of beginning of 2nd phase. Most of the respondents' i.e 47.9% respondents are aware about the second phase however 30.1% respondents rely on option- February 2021. Further 17.8% believed that the second phase was started on January 2021. Less than 6% believe for December 2020.





Figure 4 is a summarized response for first case of covid- 19 in India. 65.8% responding believe that Kerala is the first place to report covid- 19 in India and actual it is right also. However 24.7% believe that it is Mumbai. Further less than 7% believe it is Delhi and the least chosen option is Maharashtra.

With figure 5, there is an analysis related to hygienic and prevention matter. 68.5% respondents are in favor of all the measures that is wearing mask, social distancing. However wearing mask 11% and social distancing 11% are equally important as shown in the pie chart somehow only 9% responding believe in sanitization but sanitization is equally important.

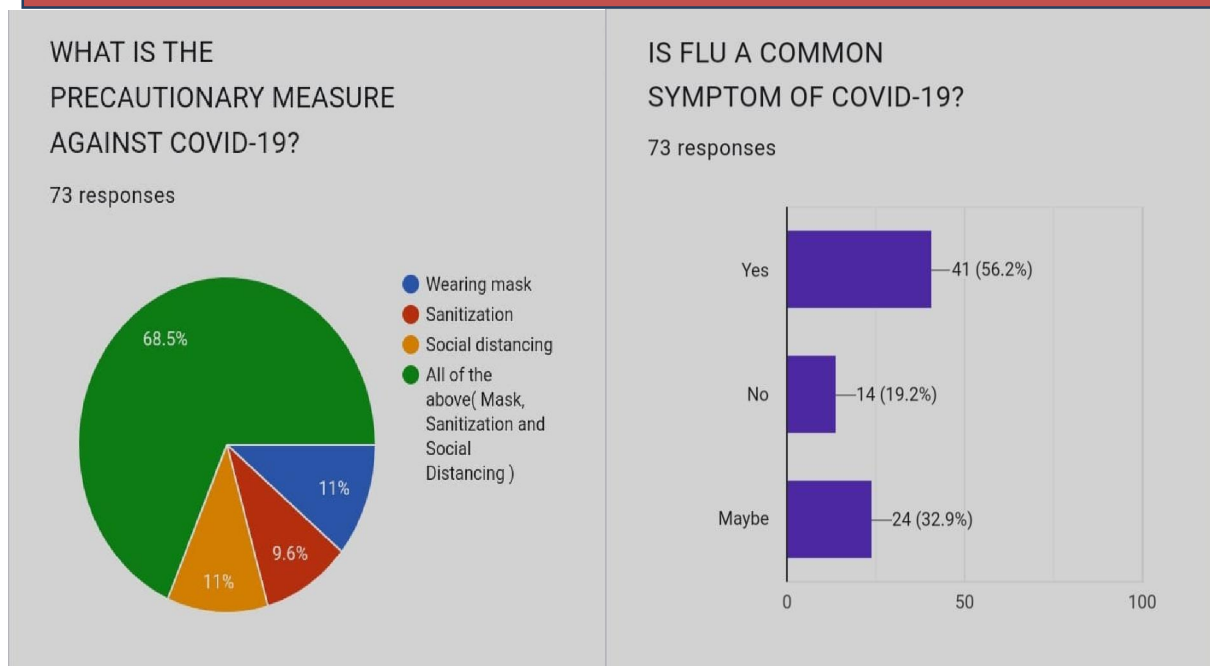
Figure 6, represent opinions of respondent for flu as a Common symptom or not for covid 19. Out of 73 respondents, 41 respondents that is 56.2% has a personal opinion that flu is actually a common symptom of covid. 19.2% believe that flu is not a common symptom and for the 32.9% respondents are not sure about flu as a symptom.

Figure 7, explain the opinions of respondents for the main reason of virus transmission from person to person. 2 options were presented with the following question. Majority of respondents that is 56.2% are sure that the main mode of virus transmission is respiratory droplets however 43.8% choose the secondary mode of transmission that is the spread is due to the contact of contaminative surface and object.

In figure 8 the questions was related to the incubation period. After the first phase, self-isolation and quarantine period were administered which was 14 days at the start and reduced gradually to 5 days. According to that 61.6% were sure about 14 days incubation period but a second majority 19.2 person believe it 7 days. Further 15.1% believe its 5 days and 5% had chosen 12 days as incubation period.

Figure .5

Figure .6



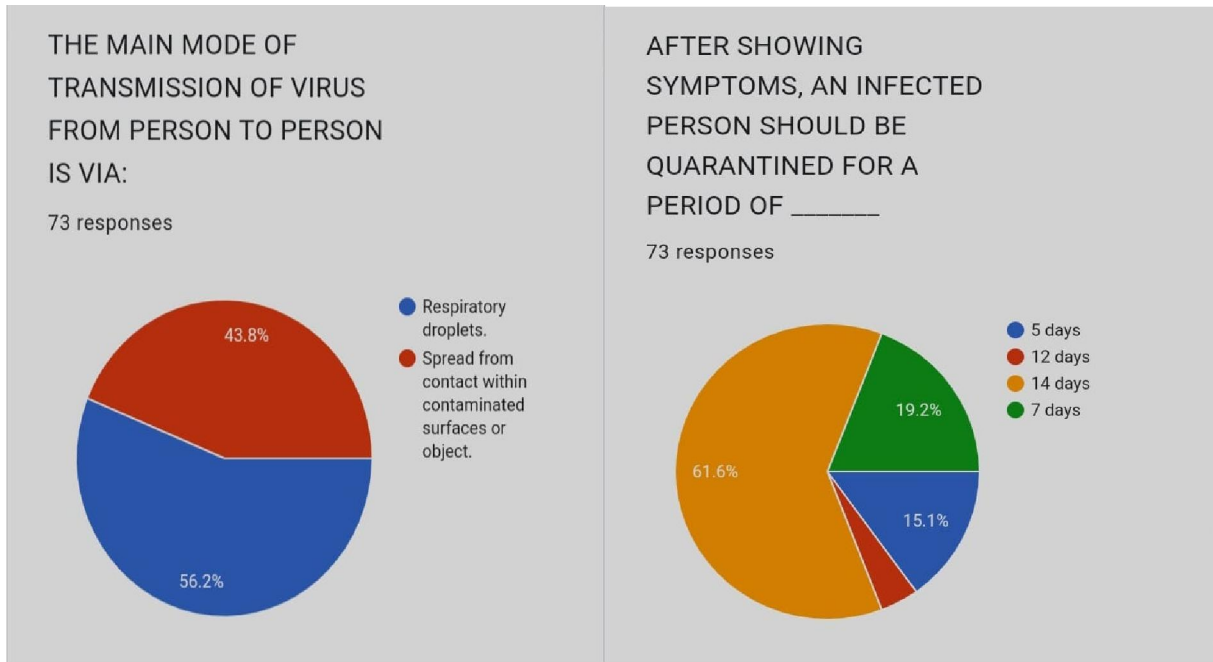
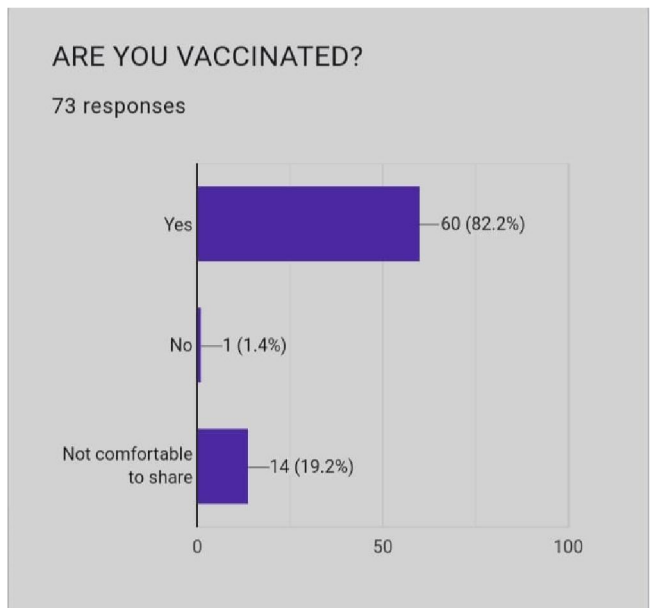


Figure .9



Lastly the most common question was asked - are the respondents vaccinated or not? 82.2% respondents are vaccinated. Only one respondent is not vaccinated may be due to underage or any health related issue. 19.2% are not comfortable to share their vaccination status.

VIII. CONCLUSION

This paper has presented the study of covid 19 outbreak in India and how mental illness is also a part of covid-19. Corona virus disease has affected not only in India but all around the world in various ways. A new and sometimes dreadful health in less which is originated in a life animal eatery market in China that is transmittal and spreading briskly not throughout that country only (China) but also the whole world which made everyone's life pathetic. However Public Health measures implementations and vaccination has gradually reduced almost all uncertainties.

Although the direct level of threat from covid 19 is reduced currently, but still there is a concern about the threat of future waves of infections in any form and unexpectedly. But somehow by concluding all the studies and researches the world has to start the preparation for second possible pandemic.

**REFERENCES**

- [1]. CORONAVIRUS DISEASE ( COVID 19 ): A SCOPING REVIEW  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7175649/>
- [2]. **Dandona R**, Sagar R. COVID-19 offers an opportunity to reform mental health in India. *Lancet Psychiatry*. 2021;8(1):9-11  
<https://www.ncbi.nlm.nih.gov/pubmed/33341174>
- [3]. **Kalpana P**, Patel K, Yasobant S, **Saxena DB**. Water, Sanitation, and Hygiene (WASH) during COVID19 pandemic in India: Practicability in poor settings! *Soc Sci Humanit Open*. 2021;4(1):100195  
<https://www.ncbi.nlm.nih.gov/pubmed/34308337>
- [4]. Mujumdar MS, Mandal KD. Early Transmissibility Assessment of a Novel Coronavirus in Wuhan, China. (Preprint).
- [5]. Khanna RC, Cicinelli MV, Gilbert SS, Honavar SG, Murthy GVS. COVID-19 pandemic: Lessons learned and future directions. *Indian J Ophthalmol*. 2020;68(5):703-10  
<https://www.ncbi.nlm.nih.gov/pubmed/32317432>
- [6]. A STUDY OF COVID 19 VACCINE DRIVE/ [https://www.researchgate.net/publication/https://www.researchgate.net/profile/M-Kamraju-2352903714\\_A\\_Study\\_on\\_Covid-19\\_Vaccination\\_Drive\\_in\\_India/M\\_KAMRAJU/MOHD\\_AKHTAR\\_ALI/APRIL\\_2021](https://www.researchgate.net/publication/https://www.researchgate.net/profile/M-Kamraju-2352903714_A_Study_on_Covid-19_Vaccination_Drive_in_India/M_KAMRAJU/MOHD_AKHTAR_ALI/APRIL_2021).
- [7]. THE COVID 19 PANDEMIC/ <https://www.tandfonline.com/doi/full/10.1080/10408363.2020.1783198>
- [8]. SITUATION OF INDIA IN COVID 19 PANDEMIC: INDIA'S INITIAL PANDEMIC STAGE / <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7730885/>
- [9]. [https://www.uptodate.com/contents/covid-19-epidemiology-virology-and-prevention - H1963533542](https://www.uptodate.com/contents/covid-19-epidemiology-virology-and-prevention-H1963533542)
- [10]. <https://bmcinfectdis.biomedcentral.com/articles/10.1186/s12879-022-07928-9>
- [11]. EPIDEMIOLOGY, CLINICAL MANIFESTATIONS AND DIAGNOSIS, CAUSES, PREVENTION AND CONTROL OF DISEASE/ <https://idpjournal.biomedcentral.com/articles/10.1186/s40249-020-00646-x/tables/4>
- [12]. EPIDEMIOLOGICAL IMPACT OF COVID 19 IN INDIA: COUNTRY WITH SECOND FOREMOST POSITIVE CASES IN INDIA/ <https://www.sciencedirect.com/science/article/pii/S2772809922000077>
- [13]. Jesus TS, Kamala Kannan SK, Bhattacharyya S, Bogdan ova Y, Arango-Lasprilla JC, Bentley J, Landry MD, Papadimitriou C, Refugee Empowerment Task Force and International Networking Group of the American Congress of Rehabilitation Medicine. Preparedness, Response and Systemic transformation (PRE-RE-System): a model for disability-inclusive pandemic responses and systemic disparities reduction derived from a scoping review and thematic analysis. In *J Equity Health*. 2021;20(1):204
- [14]. <https://www.ncbi.nlm.nih.gov/pubmed/34521433>
- [15]. SasmithaPanigrahi/ SujataMohapatra/ Asha P.Shetty/ Renju SussaneBaby/ Arvind Kumar Singh/ <https://www.sciencedirect.com/science/article/pii/S0883941721001539>
- [16]. **Bassi S**, **Nazar GP**, Joshi N, Sharma N, Pandian A, Mohan D, **Mohan S**, Patel S, Ali MK, McNeill A, Tandon N, Mohan V, **Prabhakaran D**, **Arora M**. Anxiety and Depression Among Adult Tobacco Users During the COVID-19 Restrictions in India. *BMC Public Health*. 2021 ;-(-):[Epub ahead of print]  
<https://www.researchsquare.com/article/rs-806234/v1>
- [17]. **Kalpana P**, Patel K, Yasobant S, **Saxena DB**. Water, Sanitation, and Hygiene (WASH) during COVID19 pandemic in India: Practicability in poor settings! *Soc Sci Humanit Open*. 2021;4(1):100195  
<https://www.ncbi.nlm.nih.gov/pubmed/34308337>