



EFFECTS OF PANDEMIC IN MARKETS AND THE LESSONS LEARNT

**N. PAVITHRA^{1*}, K. M. NEELA¹, V. V. NIHARIKA¹,
J. ANAND PREM RAJAN¹, S. JOSE²
AND M. L. MOHAMMED KALEEM ARSHAN³**

¹Department of Applied Microbiology, School of Bio Sciences and Technology, Vellore Institute of Technology, Vellore, Tamil Nadu, India.

²Department of Mechanical Engineering, School of Mechanical Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu, India.

³Department of Biotechnology, Islamiah College (Autonomous), Vaniyambadi, Tamil Nadu, India.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration among all authors. Authors NP, KMN and VVN designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors NP, KMN, JAPR and SJ managed the analyses of the study. Author MLMKA managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

A major concern for developing and developed countries is the COVID-19 pandemic in the market. Presently the mode of transmission of the virus is through droplets, body fluids, food supplies in markets. It also discusses the prevention methods like social distancing, quarantine, and isolation, benefits, and risks of wearing face masks, duration of the virus on different surfaces, and its disinfection methods. The difficulties faced during harvesting, transporting, marketing, and storing of the food supplies and its alternative methods involved. It shares views on the impact of regional climate conditions on the global distribution of Covid-19. Additionally, it incorporates the transmission from human to animal and vice versa. This study relies on the interpretation of the data collected from markets, review articles, journals, and newspapers. The goal of this investigation is to determine the right strategies for minimizing retail transmission and improving everyday behaviors in order to be safe and stable.

Keywords: COVID –19; food supplies; pandemic; market.

1. INTRODUCTION

At the beginning of December 2019, many patients with viral pneumonia were found to be epidemiologically related to the Huanan seafood industry [1]. The first coronavirus epidemic was in Wuhan, Hubei Province. On 1 January 2020 The

Wuhan authorities agreed to close the market and forbid the trading in live animals in the wet markets of the region. The Wuhan authorities agreed to close the market and forbid the trading in live animals in the wet markets of the region. Unfortunately, no vaccine FDA has licensed, completed controlled studies and demonstrated the effect of this global pandemic on the

*Corresponding author: Email; npavi1999@gmail.com.

virus [2]. Worldwide Total no. of cases is 55.6M, recovered 35.8 M, and deaths 1.34 M to date 19th November 2020. Marketplaces have been at the forefront of corona-related protective action in many regions of the world. The dense, porous, stuffy marketplace (without proper ventilation) is seen as an essential risk of pathogens spreading more uncontrollably. The new war zone for the administration fighting the spread of the coronavirus pandemic in Chennai has become a wholesale market for fresh fruits, vegetables, [3]. Transport restrictions affected market access during this pandemic; labor shortages disrupted production; food outlet closures resulted in low demand from the market. Farmers were therefore unable to harvest the crop in time and some have abandoned it. Supply chains have been affected by restrictions on the movement of transport vehicles and by market closures [4,5,6,7,8]. The prices of agricultural commodities soared at the beginning of the lockdown due to panic purchasing. They began selling their supplies to their neighbours, purchased leased vans to sell fruits and vegetables with door delivery, or had a deal with web sites and supermarkets that marketed their items more expensively than they sold.

The current epidemiological trends suggest that the airborne route is that the most common route for transmission of the disease between human to human, and thus the potential risk of disease transmission is going to be very high in any crowded place or mass gatherings [9]. Viruses that spread across the respiratory tract, like influenza and Covid-19 when released from an infected person's nose and mouth, are in the form of small droplets. One cough can produce up to a few dozens or a few hundred droplets [10]. These particles can settle on humans, clothes, and objects surrounding them, but they can stay in the air like a variety of smaller particles. COVID-19 may impact a human, such as fruit or food packages, touching a surface or substance where the virus then hits their mouth, nose, or possibly their eyes [11]. However, this is also not known to be the most common manner in which the virus spreads. The risk of contamination with the virus from food items, food containers or bags is generally known to be very low and no cases of COVID-19 have been confirmed. Here we discuss the transmission of Coronavirus by other body fluids gastrointestinal (GI) symptoms associated with COVID-19; (ii) behavior of SARS-CoV-2 in the food channel; (iii) abundance of SARS-CoV-2 in urine and faeces; (iv) evidence that SARS-CoV-2 remains infectious after release from the body; and (v) whether feces and urine pose a risk to human health in sanitary environments, sewage systems, and waste water; [12] The A minimum distance of 1 m (3

feet) was advised by the WHO to reduce the proliferation of infection through liquid droplets that start when people talk, cough or sneeze [13]. WHO suggests that contacts, from the last point of exposure to the reported event, be quarantined for 14 days. At a minimum, to live at home for 14 days from the last time they had contact with the recorded event and physical distance exercise. They would become a confirmed case and should be isolated as such if they get unwell during their 14-day isolation period at some point and have tested positive for COVID-19. Knowledge is rapidly obtained that the use of face masks delays the transmission of SARS-CoV-2. Fabric masks do not give the user any protection from being contaminated. They shield the person wearing the N95-mask/ FFP2-masks, as > 95% of particles and droplets are held back when inhaled. As long as there is no exhaling valve, FFP2-masks still efficiently shield the environment. Masks of pipe to exhale, on the other hand, allow exhaled air to flow out unfiltered, with the immediate atmosphere polluted. As > 99% of droplets and particles are filtered as inhaled, the consumer is far more effectively protected by FFP3-masks than FFP2 [14]. FFP3-masks often protect the atmosphere in the absence of an exhaling valve. All regenerated masks preserved identical waterproof properties, microstructure and filterability compared to the respective new masks, according to tests on three common forms of masks (disposable medical masks, surgical masks, and KN95 grade masks). One study found that the COVID-19 virus remained viable up to 1 day on cloth and wood, up to 2 days on glass, 4 days on stainless steel and plastic, and up to 7 days a coating on the outer layer of a medical mask, with no infectious viral particles, were found from cotton clothing after four days and paper surface after five days. One research showed that the COVID-19 virus remained viable for up to 1 day on fabric and wood, up to 2 days on glass, 4 days on stainless steel and rubber, and up to 7 days on the outer layer of a surgical mask without infectious viral particles [15]. Liquid (sodium hypochlorite), solid or powdered (calcium hypochlorite) formulas are used in hypochlorite-based products. In order to produce a dilute aqueous chlorine solution during which dissociated acid (HOCl) is active, these formulas dissolve in water and serve as an antimicrobial compound used in spraying disinfectants and other no-touch methods. Routine application of disinfectants indoors by spraying or fogging (also referred to as fumigation or misting) is not recommended for COVID19. The spraying or fogging of certain chemicals, such as formaldehyde, chlorine-based agents or quaternary ammonium compounds, is not advised to have harmful health effects on workers of facilities in markets. Compared to warm and

tropical climates, the distribution of COVID-19 is predicted to be more associated with the actions of a seasonal respiratory flu virus in cool temperate climates [16]. The average monthly temperature and relative humidity were investigated in different parts of the world by 55. The results revealed that the number of cases positively correlated with temperature and negatively associated with humidity over time has doubled [17]. Coronaviruses have the most important genomes of all known RNA viruses (26.4 to 31.7 kb), giving them enormous plasticity to treat, absorb and modify genes, allowing hops between animal hosts. [18, 19]. Extreme acute respiratory syndrome (SARS)-associated coronavirus (SARS-CoV) isolated from a SARS-infected patient confirmed that domestic cats and ferrets are prone to infection. The virus from an infected animal, when housed together, can transmit to an uninfected animal efficiently [20]. The WHO said, however, that there are some instances of COVID-19 patients infecting their pets, or human-to-animal transmission. "Several susceptibility studies have shown that other animal species also are vulnerable to the virus and may be infected, including cats, ferrets,". In dogs, pigs, chickens and ducks, COVID-19 expressed poorly. The newest case of mass COVID-19 infection of animals happened on a mink farm in Puebla de Valverde in north-eastern Spain. Tests confirmed that 87 percent of the mink on the farm had contracted the virus. Both the capacity and the heterogeneity of the spread of diseases depend on the dynamics of a communicable disease epidemic. Usually, the propagation capacity of an infectious pathogen is measured by the number of reproductions (denoted as R). $R > 1$ estimates (i.e. supercritical outbreak), $R < 1$ estimates (i.e. subcritical outbreak), Transmission heterogeneity identification which guide efforts to avoid and minimize potential infections [21]. Having the right amount of nutritious food, such as many fruits and vegetables, lean protein and whole grains, is vital for health. Wearing FFP3 masks, using 60-70% Alcohol sanitizers, washing hands for 20 seconds regularly with soap and water, following the marking rules if any, avoiding travel in crowds, wash the vegetables and fruits only with water if you are consuming it raw, these precautions will help us to stay safe in the markets. Innovative diagnostics for SARS-CoV-2 are also important, not only for infected individuals, but also for food, surfaces and the environment.

We have surveyed using a two questionnaire and circulated in social media among known people (to make the data more authentic), regarding what type of bags they carry, will they wash them, what timings they usually prefer to go to markets, weekdays or

weekends. What type of payments they prefer, to pay? Are they sanitizing the cash after receiving it from the sellers? Are sanitizers kept in the entry of markets; how often sellers and people use sanitizers, are sellers wearing gloves, and masks properly. Are vegetables touched and given by sellers or the buyers. How they disinfect their vegetable and fruits, whom do they prefer to send to buy veggies, where do they prefer to buy. What is the distance they maintain in crowded places? What are the precautions they take before going to markets like masks, sanitizers, social distancing, and gloves? The frequency of them going to the markets, will they shower after coming from a crowded place like markets. What problems did they face in markets and what did they learn to follow? Mode of payment you do when you go to market? How will the seller return you the change? Which day of the week do you prefer to go to the market? Which market you choose often to buy veggies in your area? Is sanitizer kept in the entry of the market? How often the sellers use the sanitizer? Are sellers wearing masks properly? Are sellers wearing gloves? Is the vegetable given by the sellers itself or taken by you? We have got 285 responses from the first survey and 202 responses for the second survey and we have graphically represented the results of both the survey.

2. MATERIALS AND METHODS

Based on a survey carried out within India between 1 April and 6 October 2020, a cross-sectional analysis was carried out. Major congested 83 hotspots were selected for the present study.

2.1 Study Area

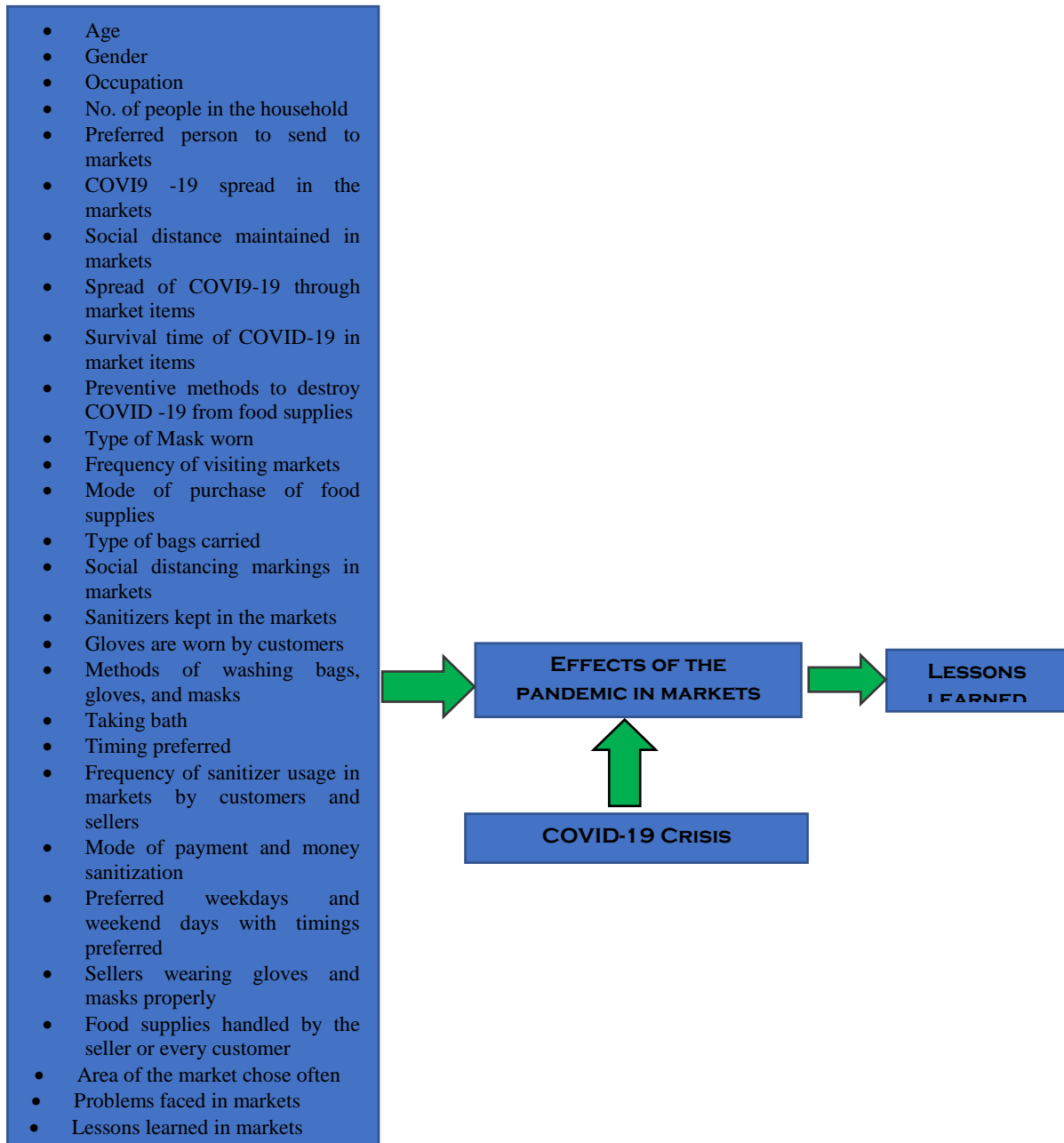
1. India Basthi Road, Hosur, Tamil Nadu 635109, India
2. NICE Ring Road, Bangalore, Karnataka 560056, India
3. Soap factory Road, Pipeline, Old Soap Factory Road, Kanakapura, Karnataka 562117, India
4. 5th Main Rd, Konanakunte, Bangalore, Karnataka 560062, India
5. 1-10, Kalahasthipuram Road, Hosur, Tamil Nadu 635109, India
6. Rourkela, Sundargarh, Odisha, 769042, India
7. #39, Swagath Road, Tilak Nagar, Jayanagar, Bangalore, Karnataka 560069, India
8. Sreekrishna Lane, Ambalamukku, Kowdiar, Thiruvananthapuram, Kerala 695003, India

9. Kammanahalli Main Rd, Hulimavu, Bangalore, Karnataka 560083, India
10. Court Road, Bellary, Karnataka 583101, India
11. Porcupine Castle Resort Rd, Bettakeri, Karnataka 571211, India
12. Sarakapalli Link Rd, Sarakapalli, Tamil Nadu 635114, India
13. Plot no 61/B, LB Nagar Uppal Road, Mamata Nagar, Nagole, Hyderabad, Andhra Pradesh 500068, India
14. 2nd Cross Rd, Dollars Layout, Bangalore, Karnataka 560078, India
15. Attibele-Rayakottai Road, Tamil Nadu 635113, India
16. S Road, Guwahati-781005. India.
17. Municipality Rd, Chengannur, Kerala 689121, India
18. Cheelur Cross, Bangalore, Karnataka 562117, India
19. Ramankary Temple Road, Ramankary, Kerala 689595, India
20. Attibele-Rayakottai Road, Tamil Nadu 635113, India
21. Old Market Rd, Visvesvarapuram, Bengaluru, Karnataka 560004, India
22. 2nd Main Rd, Bengaluru, Karnataka 560076, India
23. Pattan, Baramulla District, Jammu and Kashmir, 193121, India
24. National Highway 46, Konavattam, Vellore, Tamil Nadu 632013, India
25. SPS Periasamy Street, Virudhunagar, Tamil Nadu 626001, India
26. 759122 Angul Orissa India
27. Royal Town Main Road, Mathigiri, Hosur, Tamil Nadu 635110, India
28. BANAVARAM, Big Ali Puran, Vellore, Tamil Nadu 632001, India
29. Ammaneswaran Koil Street, Indra Nagar, Pollachi, Tamil Nadu 642002, India
30. Ranger Office Road, Mani Nagaram, Cumbum, Tamil Nadu 625516, India
31. Suranjandas Road, Bhoomi Reddy Colony, New Thippasandra, Bangalore, Karnataka 560075, India
32. 15th Main Rd, Padmanabha Nagar, Bengaluru, Karnataka 560070, India
33. Old Market Rd, Visvesvarapuram, Bengaluru, Karnataka 560004, India
34. Chikka Banavar Railway Station Road, Mallasandra, Jalahalli West, Bangalore, Karnataka 560015, India
35. Kollam-Theni Hwy, Perunna, Changanassery, Kerala 686102, India
36. Sarjapuram Rd, Bengaluru, Karnataka 635103, India
37. 3rd Street, Rangarajapuram, Rangaraja Puram, Kotturpuram, Chennai, Tamil Nadu 600025, India
38. Bihar 2nd Main, Kathreguppe, India
39. Basavangudi, Bengaluru, Karnataka 560085, India
40. Bazaar Main Rd, Sastri Nagar, Madipakkam, Tamil Nadu 600091, India
41. SRIT Rd, Pachapalayam, Tamil Nadu 641010, India
42. Kammanahalli Main Rd, Hulimavu, Bangalore, Karnataka 560083, India
43. Andrahalli, Bangalore – 560091,
44. 1st Ring Road, Rajkot, Gujarat 360005, India,
45. Bangalore - Salem - Madurai - Kanyakumari Road, Sipcot Ph. I, Hosur, Karnataka 635126, India,
46. Karnataka-580006, Coimbatore - Ooty - Gundlupet Highway, Lakshmi Nagar, Koundampalayam, Coimbatore, Tamil Nadu 641030, India,
47. Kade Keri, Thungani, Karnataka 562117, India,
48. Kalahasthipuram Road, Hosur, Tamil Nadu 635109, India,
49. N Masi St, Madurai - Main, Madurai, Tamil Nadu 625001, India,
50. 31st Cross Rd, 7th Block, Jayanagar, Bangalore, Karnataka 560082, India,
51. National Highway 217 to Orissa, Raigarh, Chhattisgarh 496001, India,
52. 42 haltu main roads Kolkata 700078, India
53. AH43, Tamil Nadu 623526, India,
54. RAJALAKSHMI COLONY, TVS Nager to Koundampalayam Road, EB Colony, TVS Nagar, Coimbatore, Tamil Nadu 641025, India,
55. Ganga, Ghaziabad, Uttar Pradesh 201005, India,
56. Boxibazar Main Rd, Medinipur, West Bengal 721101, India,
57. 2nd Cross Rd, Dollars Layout, Bangalore, Karnataka 560078, India,
58. Ottupatrai, Coonoor, The Nilgiris District, Tamil Nadu, 643102, India,

59. College Road, Vuyyuru, Andhra Pradesh 521165, India,
60. Attibele-Rayakottai Road, Tamil Nadu 635113, India,
61. Bangalore-Salem - Madurai - Kanyakumari Road, Sipcot Ph. I, Hosur, Karnataka 635126, India,
62. Flat no 223, 4th Main Road, Vivek Nagar, Bangalore, Karnataka 560047, India,
63. Anaimalai - Poolankinar Road, Anaimalai, Tamil Nadu 642104, India,
64. Kambur Vilakku - Ayvathanpatti Rd, Ayvathanpatty, Tamil Nadu 625106, India,
65. 17th cross, 26th main, murthappa gardens, 6th phase, 17th cross Rd, J P Nagar, Bangalore, Karnataka 560078, India,
66. Mahatma Gandhi Road, SRM University, SRM Educational Institutions, Potheri, Kattankulathur, Tamil Nadu 603203, India,
67. 4th Cross Road, Vignan Nagar, SBM Colony, Anthivadi, Hosur, Tamil Nadu 635110, India,
68. Paika Pinnakkanadu Road, Pattimukku, Pinnakkanad, Kerala 686508, India,
69. Cheelur Cross, Bangalore, Karnataka 562117, India,
70. Taneja Aerospace Road, Belagondanahalli, Karnataka 635110, India,
71. Arkavathi River Road, Nanjamba Agrahara, Kempgowda Nagar, Bangalore, Karnataka 560019, India,
72. Unnamed Road, Narajole, West Bengal 721211, India,
73. Rourkela - 769014 Odisha, Royal Town Main Road, Mathigiri, Hosur, Tamil Nadu 635110, India,
74. JP Nagar 6th Phase last stop, 1st Phase, J P Nagar, Bangalore, Karnataka 560078, India,
75. Vaduthala, Ernakulam – 682022,
76. Thennamara Street, BANAVARAM, Big Ali Puran, Vellore, Tamil Nadu 632001, India,
77. Hosur-Thally Road, Belagondanahalli, Tamil Nadu 635110, India
78. Ranger Office Road, Mani Nagaram, Cumbum, Tamil Nadu 625516, India,
79. Old Guddadahalli, Guddadahalli, Bangalore, Karnataka 560026, India,
80. 6th Main Rd, Rajaji Nagar Industrial Town, Rajajinagar, Bangalore, Karnataka 560079, India,
81. 2nd Main Rd, Bengaluru, Karnataka 560076, India,
82. Kadakeri, Thungani, Karnataka 562117, India,
83. Civil Rd, Rohtak, Haryana 124001, India,

The focuses were on the impact of coronavirus (pandemic) in the markets and its effects on the consumers and the drastic changes in the lifestyle of the population from maintaining good hygiene like wearing masks to using disinfectants, etc. To test this hypothesis, a survey was conducted. The survey was based on a questionnaire structured as follows: five questions to classify the participants' sociological profile (age, gender, profession, number of household individuals, and location in the pin code); one question was related to which person usually they prefer to send to markets; four questions meant the (spread, social distancing, survival of the virus, and preventive methods to remove virus in food supplies); seven questions related to the preventive measures followed by sellers and respondents (a type of masks and gloves worn, type of bags carried, social distancing markings in markets, frequency of sanitizers usage, bath, handling of food supplies; seven questions related to the preferred buying method, the frequency of going to markets, weekdays and weekends, timings preferred, payment method, money sanitized. The questionnaire was disseminated through social media channels like WhatsApp and Instagram.

The nature of the survey and the study goals is made accessible to all respondents. 285 answers were received. In accordance with the research hypothesis and argumentative-narrative sketch, the data was compiled, tabulated and analysed. We used Excel software (version 365, Microsoft Corporation, Redmond, WA, U.S.A.) to better visualise and analyse the collected data, based on this graphic projection, we conducted a descriptive analysis that led to anthropological conclusions about the purchasing behaviour of customers and their changes and lessons learned.



LOCKDOWN POLICY FOLLOWED IN INDIA:

Lockdown 1.0	March 24 th -April 14 th	21 days of lockdown	500 COVID positive cases
Lockdown 2.0	April 15 th - April 20 th	6 days of lockdown	10,000 COVID positive cases
Lockdown 3.0	April 21 th - May 17 th	27 days of lockdown	90,927 COVID positive cases
Lockdown 4.0	May 18 th - May 31 st	19 days of lockdown	1,73,763 COVID positive cases

Unlock 1.0 / Lockdown 5.0-May 31st to June 30th -566840 (Government of India 30th May) [22]

Phase I - shopping malls, restaurants, hotels, religious places, hospitality services will be allowed with effect from 8th June 2020.

Phase II-Educational Institutes will be opened on the basis of state and UT feedback.

Step III-cinema theaters, swimming pools, theme parks, auditorium bars, assembly halls, gymnasiums, international passengers, large gatherings, rails will be allowed based on the Covid situation during that time.

Night curfew. Lockdown in containment zones is limited. States and UTs may ban such practices outside the containment zones on the basis of an evaluation of the situation and may enforce restrictions if considered appropriate.

Unrestricted movement of persons and goods, Protection of the vulnerable person, Use of arogya setu app, Strict enforcement of the guidelines, Penal provisions.

Unlock 2.0-extended lockdown in containment zone till 30.7.20 (Government of India 29th June [23]).

All activities-shopping malls, restaurants, hotels, religious places, hospitality services, educational institutions, cinema theaters, gymnasiums, swimming pools, entertainment parks, auditorium bars, assembly halls, international passengers, large gatherings, metro rails-will be permitted in external containment zones. Reopening dates will be decided.

Domestic flights and passenger trains are permitted in a restricted way Night curfew. Lockout in containment areas is restricted. Based on an assessment of the situation, States and UTs may prohibit certain activities outside the containment zones and may impose such restrictions as they consider necessary. Protection of vulnerable persons, use of the application of arogya setu, strict enforcement of regulations, criminal provisions.

Unlock 3.0-extended lockdown in containment zone till 30.8.20 [24] (Government of India 29th July)

All activities are permitted in external containment zones -shopping malls, restaurants, hotels, religious places, hospitality services, educational institutes cinema theaters, gymnasiums, swimming pool, entertainment gardens, bars auditoriums, assembly halls, international passengers, large gatherings, metro rails. Dates of reopening will be decided.

In a limited way, domestic flights and passenger trains are permitted, Night curfew, Lockdown limited in containment zones.

Independence Day functions -followed by social distancing and other health protocols.

States and UTs may prohibit certain activities outside the containment zones on the basis of an assessment of the situation and may impose such restrictions as are deemed necessary.

Unrestricted Movement of persons with SOP's, Protection of vulnerable persons, Use of arogya setu app, Strict enforcement of the guidelines, Penal provisions.

Unlock 4.0-extended lockdown in containment zone till 30.9.20 (Government of India 29th August [25]).

In outside containment zones, all events will be permitted-shopping malls, restaurants, hotels, religious places, hospitality services, educational institutes cinema theaters, gymnasiums swimming pool, entertainment gardens, bars auditoriums, assembly halls, international passengers, large gatherings, metro rails. Dates of reopening will be decided.

Domestic flights and commuter trains, night curfew, lockout restricted in containment areas are permitted in a limited fashion No inter-state and intra-state movement restrictions. States and UTs shall not without proper consultation with the central government, enforce lockdowns beyond the containment areas. Movement of persons with SOP's, Protection of vulnerable persons, Use of Arogya setu app, strict implementation of the guidelines, Penal provisions.

Unlock 5.0- extended lockdown in containment zone till 31.10.20 (Government of India 30th September [26]).

Cinema theaters -50% seating capacity, gymnasiums swimming pools, entertainment parks-SOP will be issued. Educational institutions-reopen will be decided after 15th October

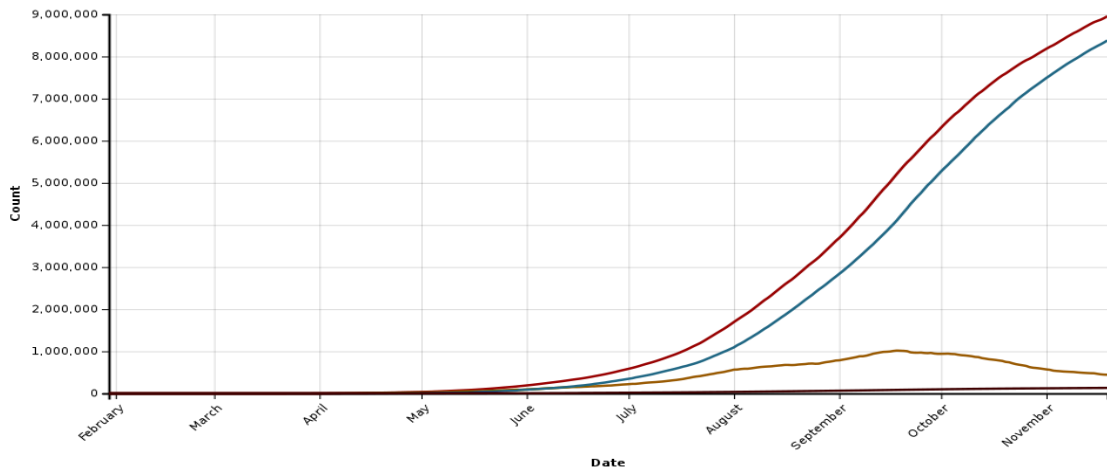
3. RESULTS

INDIA

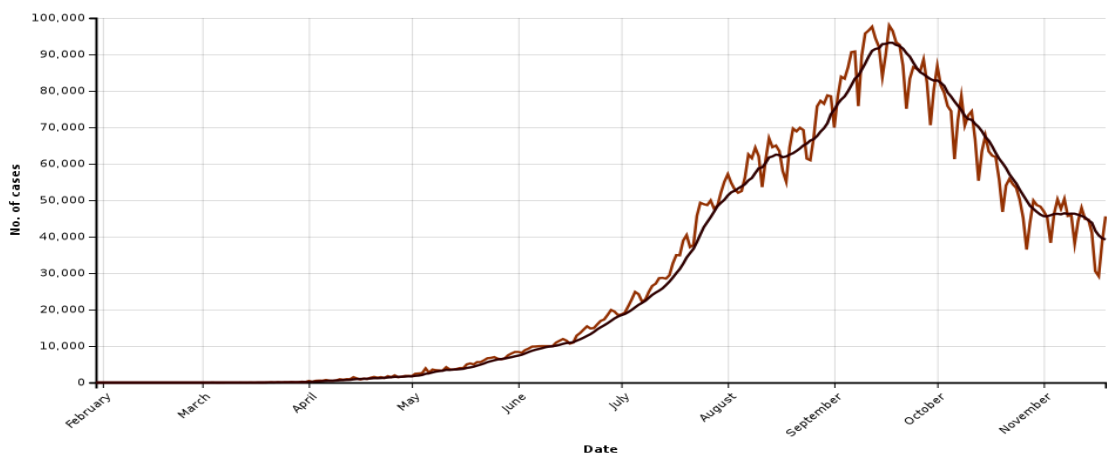
The Table 1 shows the total number of cases in India concerning Covid-19. The number of cases, injuries, recoveries and active cases in India and the States of India until 19 November 2020 is seen [27].

Table 1. India's COVID-19 pandemic by state and union territories

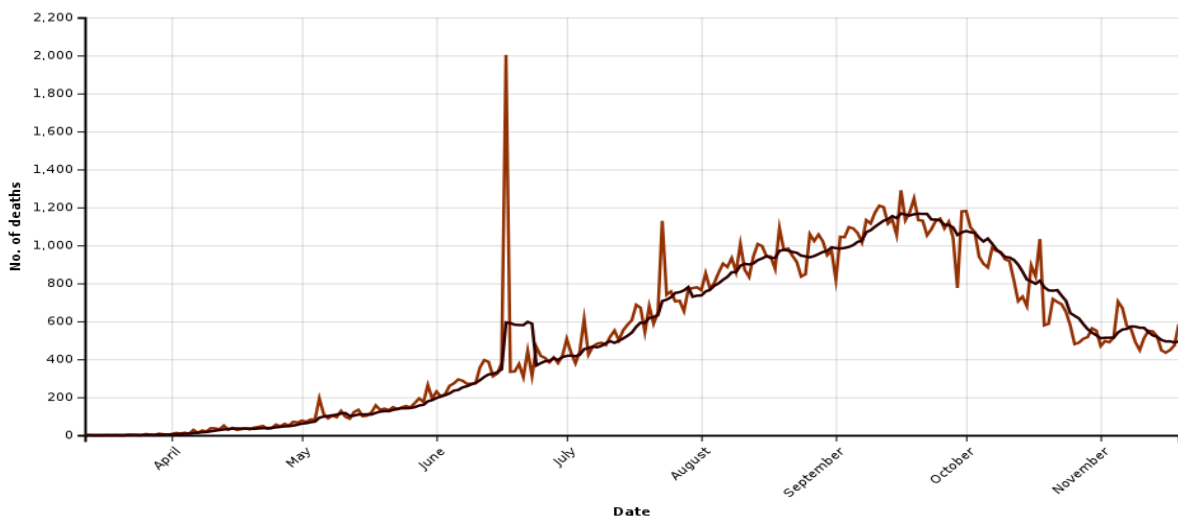
India's COVID-19 pandemic by state and union territories				
State/Union Territory	Cases	Deaths	Recoveries	Active
35 / 36	8,958,483	131,578	8,383,602	443,303
Andaman and Nicobar Islands	4,593	61	4,378	154
Andhra Pradesh	857,395	6,899	833,980	16,516
Arunachal Pradesh	15,945	48	14,715	1,182
Assam	210,865	969	206,611	3,285
Bihar	227,822	1,201	221,272	5,349
Chandigarh	16,167	253	14,833	1,081
Chhattisgarh	215,413	2,646	193,997	18,770
Dadra and Nagar Haveli and Daman and Diu	3,305	2	3,274	29
Delhi	503,084	7,943	452,683	42,458
Goa	46,344	670	44,310	1,364
Gujarat	191,642	3,823	175,362	12,457
Haryana	207,039	2,093	185,403	19,543
Himachal Pradesh	31,401	475	24,025	6,901
Jammu and Kashmir	104,155	1,613	96,972	5,570
Jharkhand	106,742	934	103,171	2,637
Karnataka	865,931	11,578	829,188	25,165
Kerala	539,919	1,943	468,460	69,516
Ladakh	7,623	94	6,605	924
Lakshadweep	0	0	0	0
Madhya Pradesh	186,655	3,115	174,202	9,338
Maharashtra	1,757,520	46,202	1,630,111	81,207
Manipur	22,318	231	19,259	2,828
Meghalaya	10,870	103	10,014	753
Mizoram	3,513	5	3,021	487
Nagaland	10,366	54	9,057	1,255
Odisha	310,920	1,575	301,777	7,568
Puducherry	36,465	608	35,152	705
Punjab	143,395	4,541	132,917	5,937
Rajasthan	232,358	2,101	210,779	19,478
Sikkim	4,577	95	4,182	300
Tamil Nadu	763,282	11,531	737,281	14,470
Telangana	260,834	1,419	246,733	12,682
Tripura	32,217	364	30,856	997
Uttarakhand	69,307	1,128	64,032	4,147
Uttar Pradesh	516,616	7,441	487,221	21,954
West Bengal	441,885	7,820	407,769	26,296



Graph 1. Total confirmed cases, active cases, recoveries, and deaths of Covid – 19 in India till 19th November 2020.



Graph 2. Daily new cases of covid-19 in India till 19th November 2020.

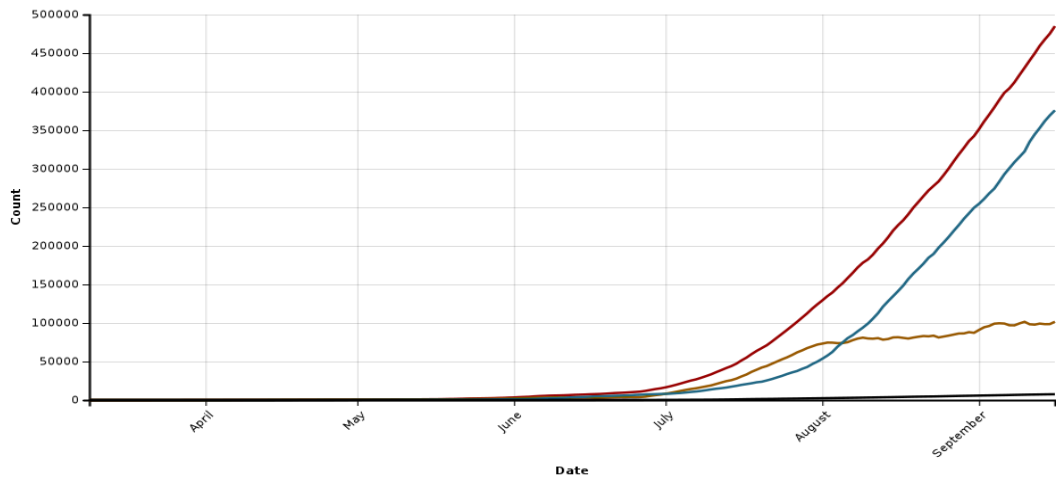


Graph 3. The no. of deaths of Covid-19 in India till 19th November 2020.

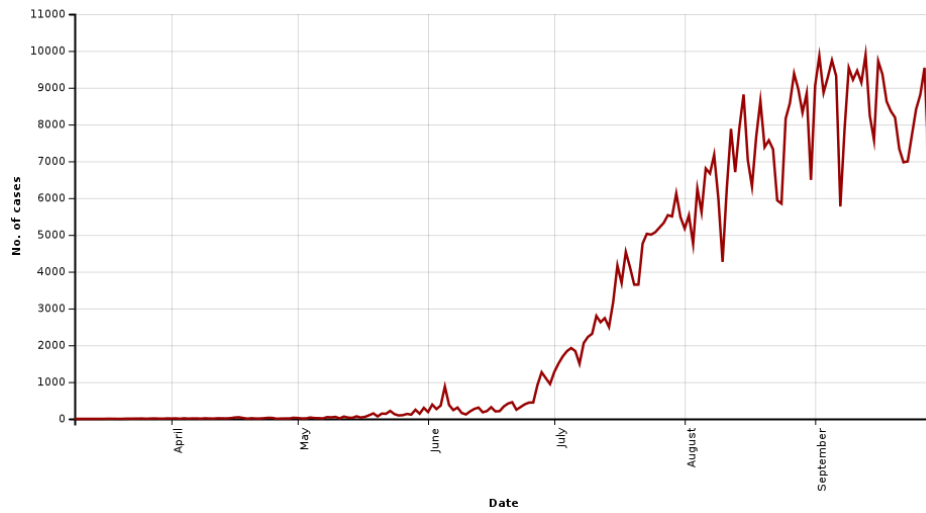
KARNATAKA

Table 2. Total number of Covid- 19 cases in Karnataka.

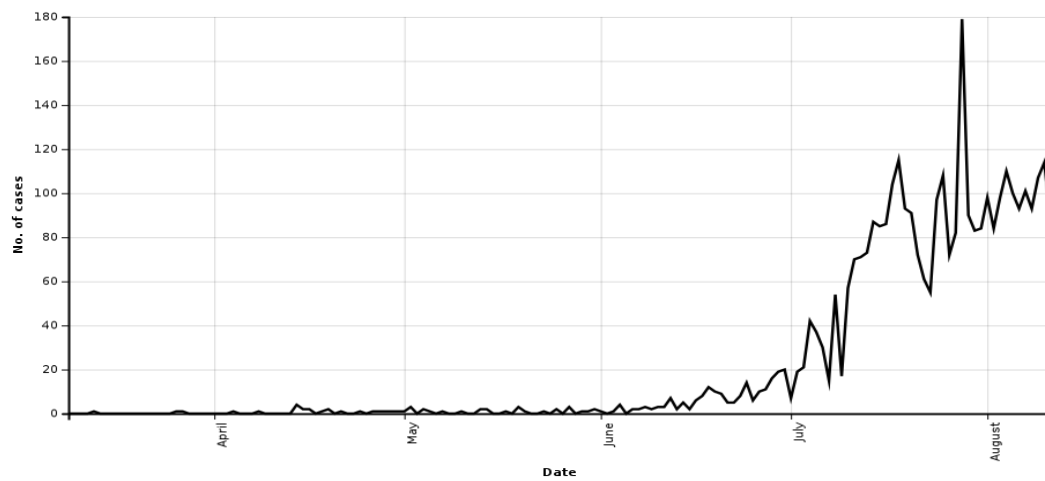
COVID-19 pandemic in Karnataka by district				
District	Total cases	Recoveries	Deaths	Active cases
Total	8,61,647	8,22,953	11,529	27,165
Bagalkote	13,356	13,127	132	97
Ballari	37,908	36,949	569	390
Belagavi	25,245	24,474	340	431
Bengaluru Rural	16,995	16,443	138	414
Bengaluru Urban	3,57,280	3,35,105	4,003	18,172
Bidar	6,963	6,751	166	46
Chamarajanagar	6,201	5,947	115	139
Chikkaballapura	11,786	11,431	112	243
Chikkamagaluru	12,924	12,468	137	319
Chitradurga	13,127	12,685	63	379
Dakshina Kannada	31,259	29,904	695	660
Davanagere	21,265	20,697	263	305
Dharwad	21,163	20,398	587	178
Gadag	10,608	10,383	141	84
Hassan	26,392	25,316	382	694
Haveri	10,429	10,137	188	104
Kalaburagi	20,155	19,507	319	329
Kodagu	5,145	4,965	64	116
Kolar	8,894	8,513	166	215
Koppal	13,580	13,180	278	122
Mandya	17,949	17,244	146	559
Mysuru	49,484	47,663	981	840
Raichur	13,547	13,208	153	186
Ramanagara	7,082	6,858	75	149
Shivamogga	21,233	20,537	347	349
Tumakuru	22,374	21,239	357	778
Udupi	22,354	21,943	187	224
Uttara Kannada	13,374	12,923	162	289
Vijayapura	13,266	12,836	199	231
Yadgir	10,273	10,089	61	123
Other State	36	33	3	0



Graph 4. Total confirmed cases, active cases, recoveries, and deaths of Covid – 19 in Karnataka till 19th November 2020.



Graph 5. Daily new cases of COVID-19 in Karnataka till 19th November 2020



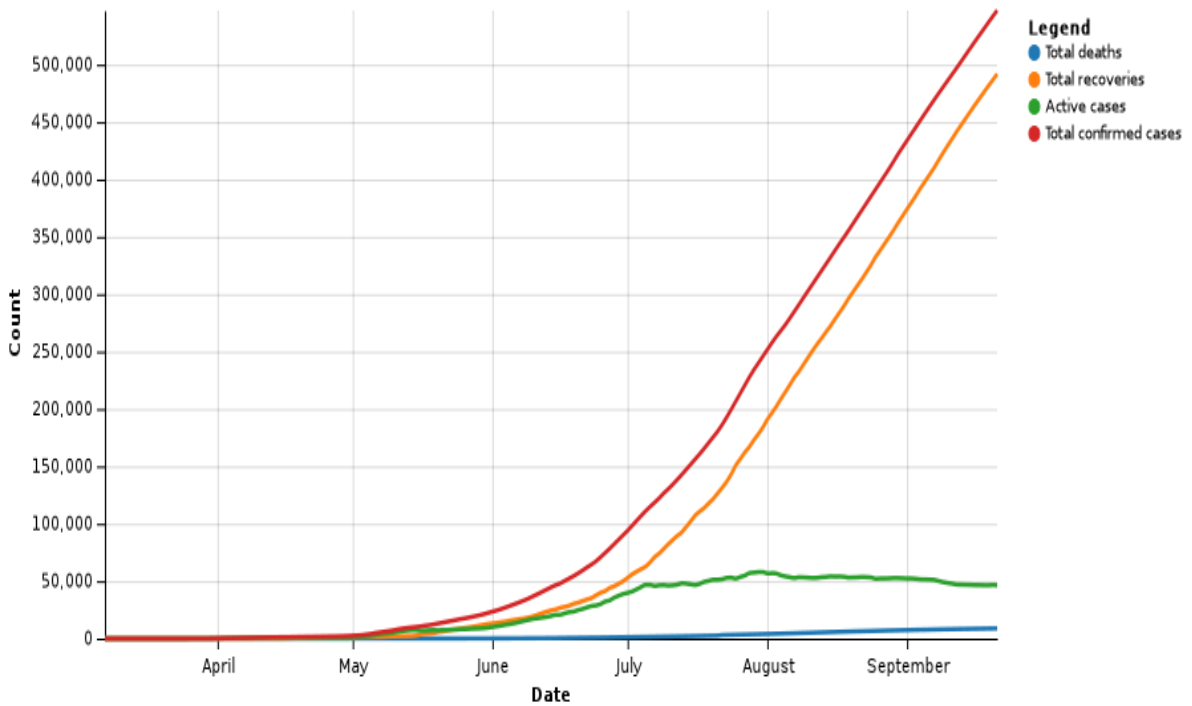
Graph 6. Daily new deaths of COVID-19 in Karnataka till 19th November 2020

TAMIL NADU

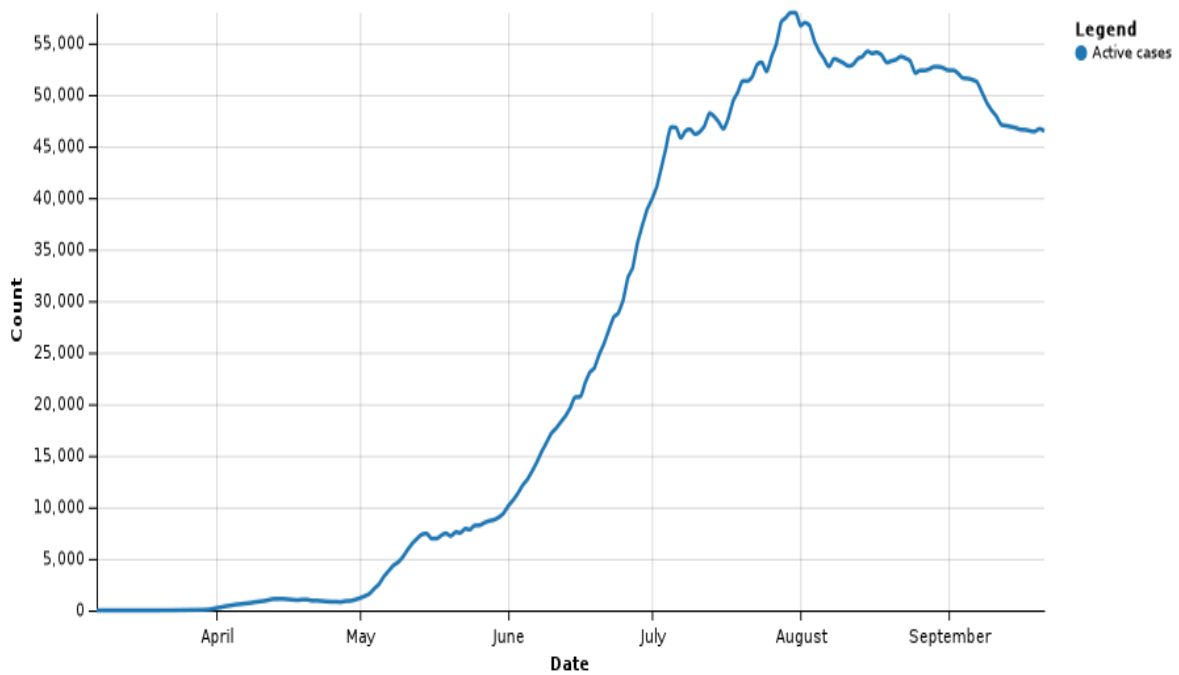
The Table 3 shows the Total number of Covid- 19 cases in Tamil Nadu. It shows the number of Cases, Deaths, Recoveries, and Active cases in Tamil Nadu and the District of Tamil Nadu till 19th November 2020 [28].

Table 3. Total number of Covid- 19 cases in Tamil Nadu

COVID-19 pandemic in Tamil Nadu by district						
District	Diagnosed cases^[a]	Deaths	Recovered cases	Active cases	Population^[1]	Cases per M
Tamil Nadu	547,337	8,871	491,971	46,495	71,875,403	7,615.08
Ariyalur	3,517	38	3,292	187	754,894	4,658.93
Chengalpattu	32,799	523	29,852	2,424	2,556,244	12,830.93
Chennai	156,625	3,074	143,680	9,871	4,646,732	33,706.48
Coimbatore	26,562	388	21,699	4,475	3,458,045	7,681.22
Cuddalore	18,301	203	15,890	2,208	2,605,914	7,022.87
Dharmapuri	2,882	22	1,868	992	1,506,843	1,912.61
Dindigul	8,451	154	7,700	597	2,159,775	3,912.91
Erode	5,628	72	4,412	1,144	2,251,744	2,499.40
Kallakurichi	8,759	92	7,798	869	1,370,281	6,392.12
Kancheepuram	20,594	298	19,235	1,061	1,166,401	17,656.02
Kanyakumari	11,883	215	11,037	631	1,870,374	6,353.27
Karur	2,627	36	2,119	472	1,064,493	2,467.84
Krishnagiri	3,838	51	2,951	836	1,883,731	2,037.45
Madurai	15,963	379	14,792	792	3,038,252	5,254.01
Nagapattinam ^[b]	4,814	75	3,795	944	1,616,450	2,978.13
Namakkal	4,263	61	3,268	934	1,726,601	2,469.01
Nilgiris	3,090	20	2,346	724	735,394	4,201.83
Perambalur	1,669	20	1,547	102	565,223	2,952.82
Pudukkottai	8,254	124	7,313	817	1,618,345	5,100.27
Ramanathapuram	5,393	115	5,048	230	1,353,445	3,984.65
Ranipet	12,695	152	12,003	540	1,210,277	10,489.33
Salem	16,790	264	14,266	2,260	3,482,056	4,821.86
Sivagangai	4,840	116	4,445	279	1,339,101	3,614.37
Tenkasi	6,861	126	6,095	640	1,407,627	4,874.16
Thanjavur	9,495	148	8,204	1,143	2,405,890	3,946.56
Theni	14,277	168	13,562	547	1,245,899	11,459.20
Tirunelveli	11,898	194	10,742	962	1,665,253	7,144.86
Tirupattur	4,383	81	3,664	638	1,111,812	3,942.21
Tiruppur	6,220	95	4,535	1,590	2,479,052	2,509.02
Tiruvallur	30,352	522	28,110	1,720	3,728,104	8,141.40
Tiruvannamalai	14,311	208	12,900	1,203	2,494,875	5,736.16
Tiruvarur	6,194	66	5,301	827	1,264,277	4,899.24
Tiruchirappalli	9,633	141	8,725	767	2,722,290	3,538.56
Thoothukudi	12,956	120	12,033	803	1,750,176	7,402.68
Vellore	13,651	209	12,526	916	1,614,242	8,456.60
Villuppuram	10,525	92	9,449	984	2,093,003	5,028.66
Virudhunagar	14,066	208	13,542	316	1,942,288	7,241.97



Graph 7. The Total confirmed cases, active cases, recoveries, and deaths of Covid – 19 in Tamil Nadu till 19th November 2020.



Graph 8. The Active cases of COVID-19 in Tamil Nadu till 19th November 2020.

Gender

64% females and 36% of males participated in this survey.

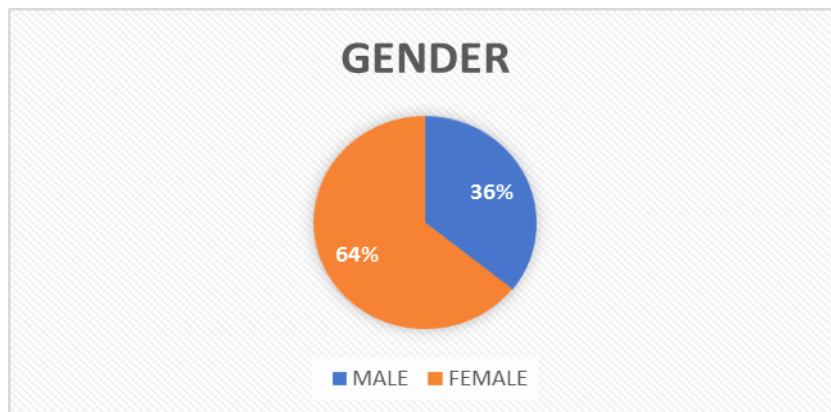


Fig. 1. This pie chart represents the gender of the respondents

AGE DISTRIBUTION

283 respondents completed the survey. The average age was 40.428 ($SD = 57.962$, range 10–80, $M = 12$)

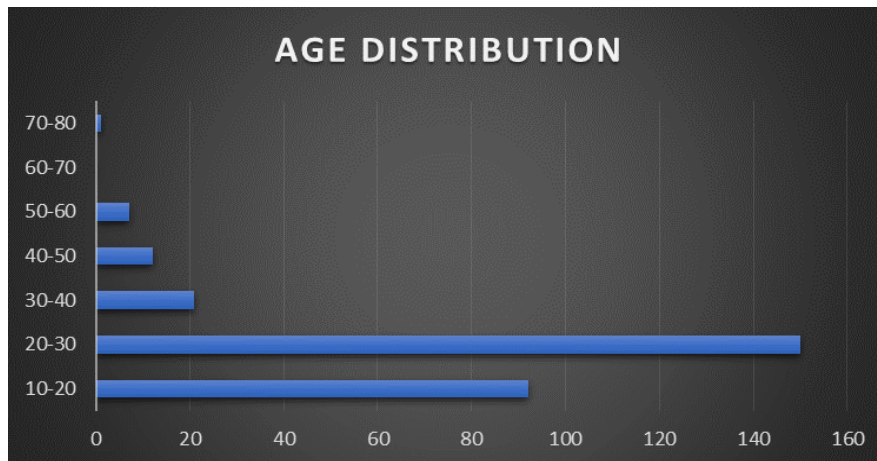


Fig. 2. The bar graph represents the age distribution of the respondents

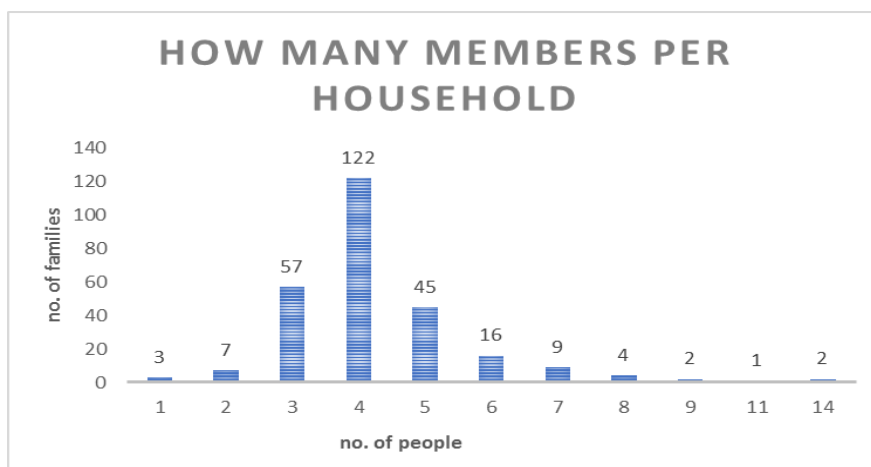


Fig. 3. The bar graph represents the number of members present in each family

Mode of buying fruits and vegetables: Food is very important for the survival of living beings. In this outbreak, it has been difficult to go to buy the vegetable, fruits from the markets. According to our survey, among 283 respondents 50.40% (143) buy from local vendors, 22.90% (65) buy from supermarkets, 13.70% (39) buy from ulavar santhai and 13% (36) buy from online stores.

People visiting markets: A market visit is essential to get fresh fruits, vegetables, meat, etc. Before

quarantine visiting the market was not an option to worry but during the current situation visiting markets is the main reason for the spread of the virus. According to our survey 52.80% (149) visit once in a week 24.60% (70) visit twice in a week 16.50% (47) visit once in a month and 6% (17) visit daily.

The number of people visiting market places in the time of lockdown and the number of people visiting the market now.

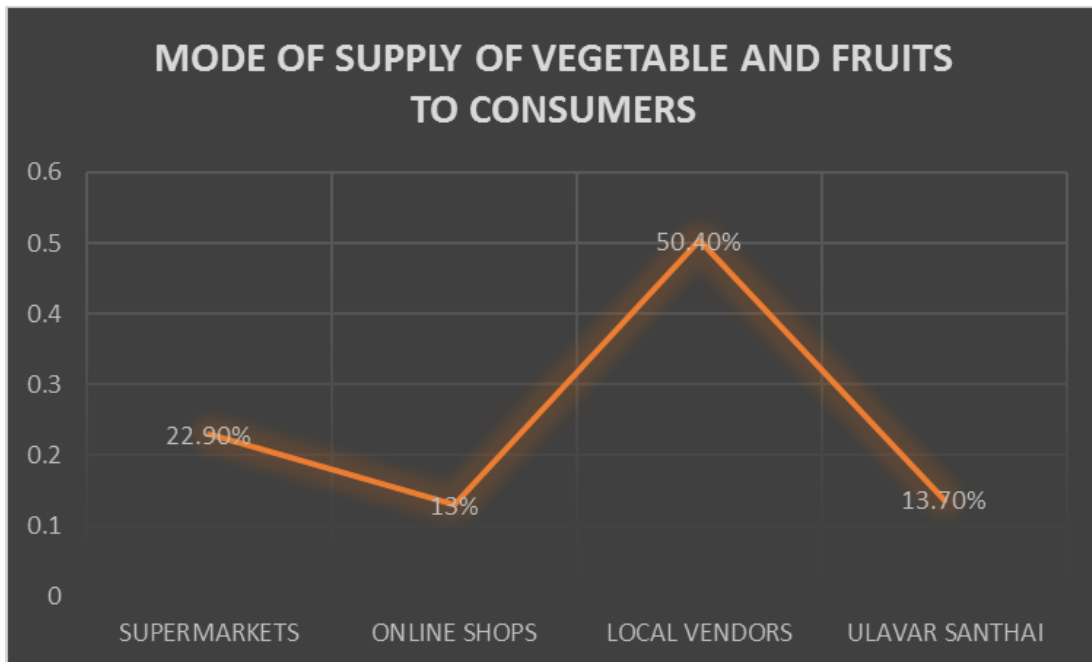


Fig. 4. This line graph represents the mode of supply of fruits and vegetables to the consumers

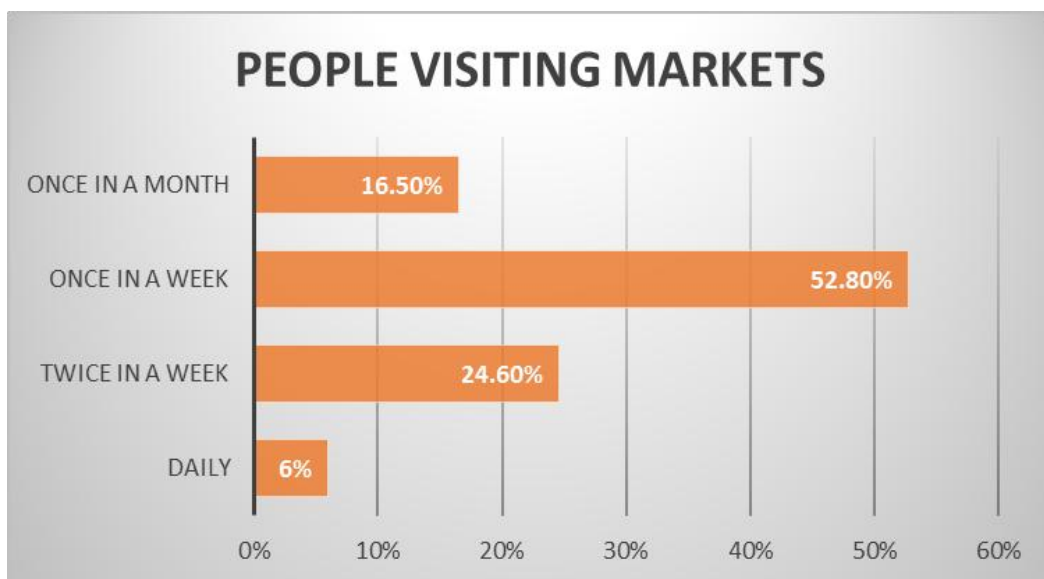
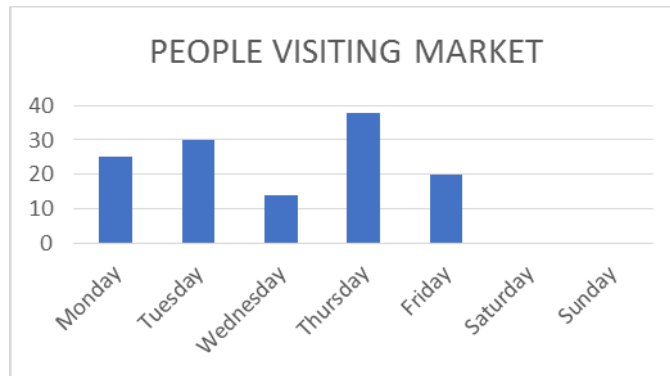


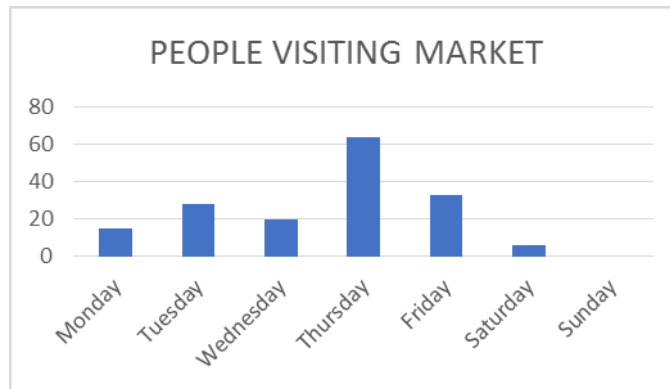
Fig. 5. This bar graph shows the representation of people visiting markets



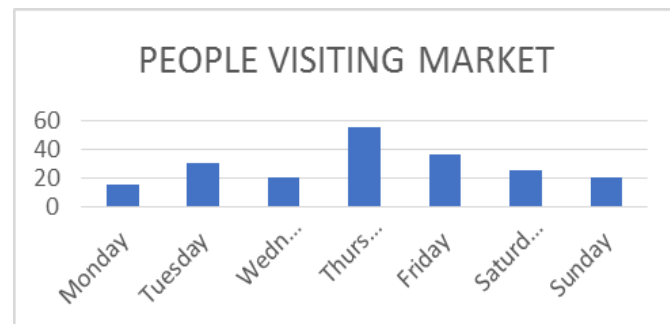
MARCH: In March as there was a lockdown market was not open on Saturday and Sunday.



APRIL: In April as there was a lockdown market was not open on Saturday and Sunday



MAY: In May the market was open on Saturday



JUNE: From June market started opening even on Sunday



JULY: The number of people visiting the market at weekends increased as no lockdown



AUGUST: The number of people visiting the market at weekends increased as no lockdown.

Weekdays or weekends consumers prefer to go the market: People visiting markets on weekdays and weekends in this pandemic. 88 respondents go on weekends with 43%, 116 people responded, going to markets on weekdays with 57%.



Fig. 6. This pie chart represents the consumers going to markets with comparison to weekdays and weekends

Weekdays preferred by the consumers to go to market: This survey had a question regarding which weekday they chose to go to markets. With respect to the representation 37 respondents chose Monday

(18%) 16 respondents chose Tuesday (8%), 78 respondents chose Wednesday (38%), 31 respondents chose Thursday (15%), 43 respondents chose Friday (21%).

Weekdays timings preferred by the consumers to go to market: Concerning the more crowding in the markets responsible for super spreading in the mass gathering places like markets. On weekdays what timings are preferred by the buyers, was asked responses 35 respondents (16.9%) chose to go between 6 AM- 7 AM; 47 respondents (23%) chose to go between 7 AM-8 AM; 38 respondents (18.6%) chose to go between 8 AM-9 AM; 61 respondents (30.1%) chose to go between 9 AM-10 AM; 65 respondents (31.7%) chose to go between 10 AM-11 AM.

Weekends timings preferred by the consumers to go to market: Concerning the more crowding in the markets responsible for super spreading in the mass gathering places like markets. At weekends what timings are preferred by the buyers was asked, the responses 23 respondents (11.2%) chose to go between 6 AM- 7 AM; 34 respondents (16.5%) chose to go between 7 AM-8 AM; 24 respondents (11.8%) chose to go between 8 AM-9 AM; 40 respondents (19.4%) chose to go between 9 AM-10 AM; 84 respondents (41.2%) chose to go between 10 AM-11 AM.

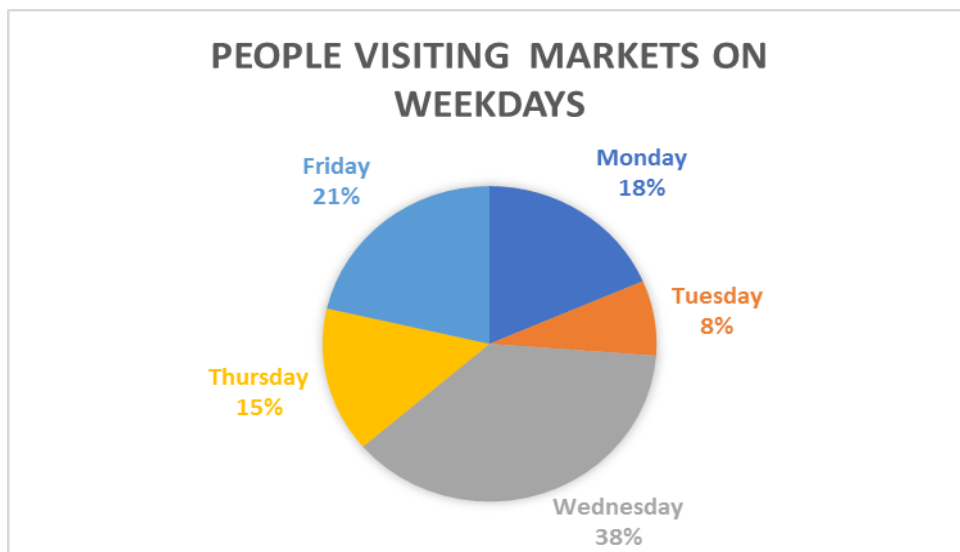


Fig. 7. This pie chart represents the respondents choosing between weekdays, which days they prefer to go to markets during this crisis

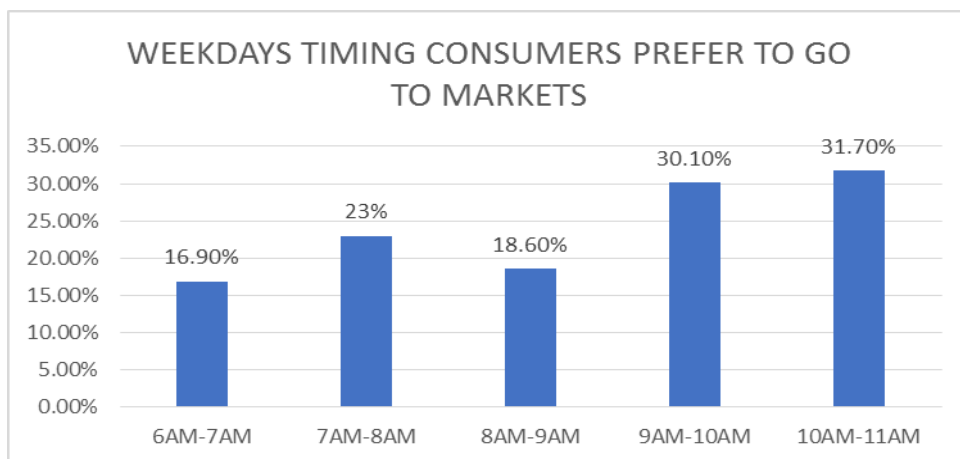


Fig. 8. This bar graph represents the timings preferred by the respondents to go to markets on weekdays.

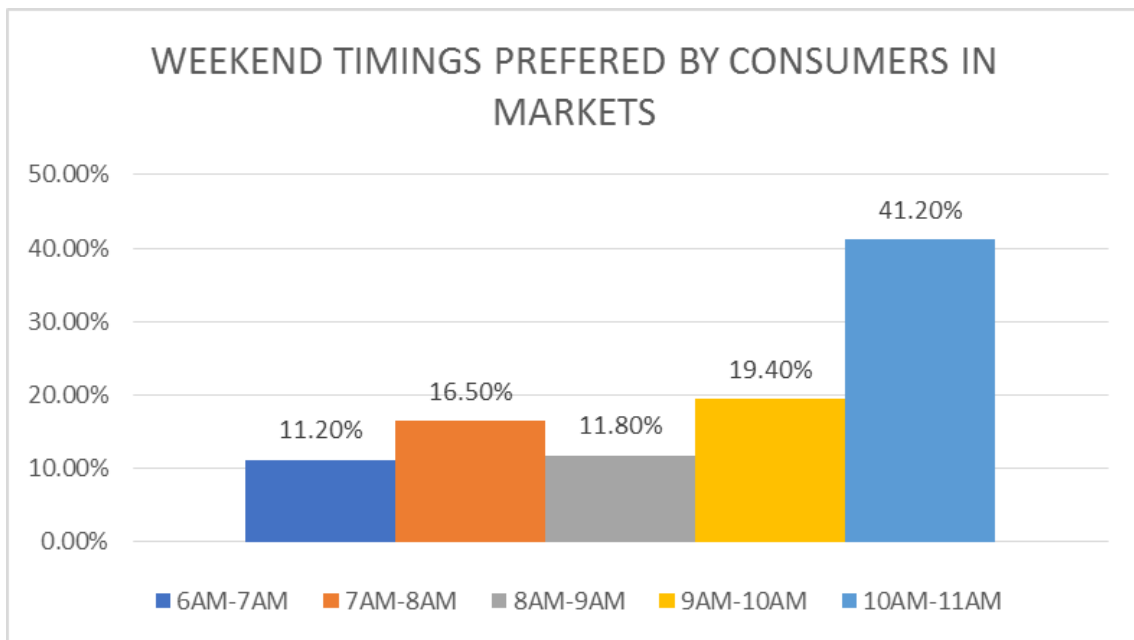
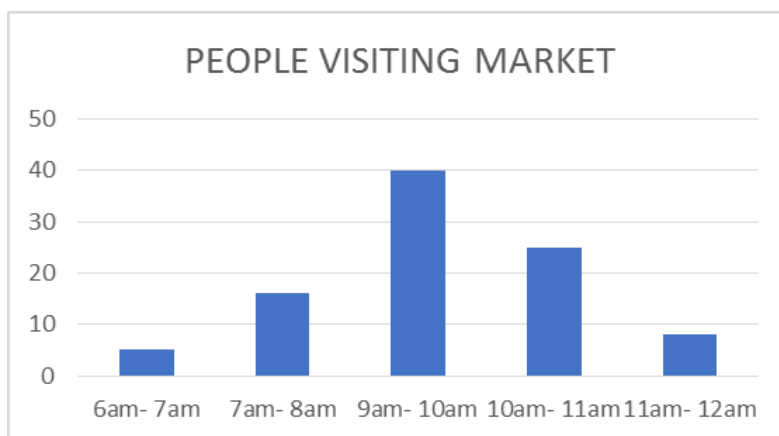
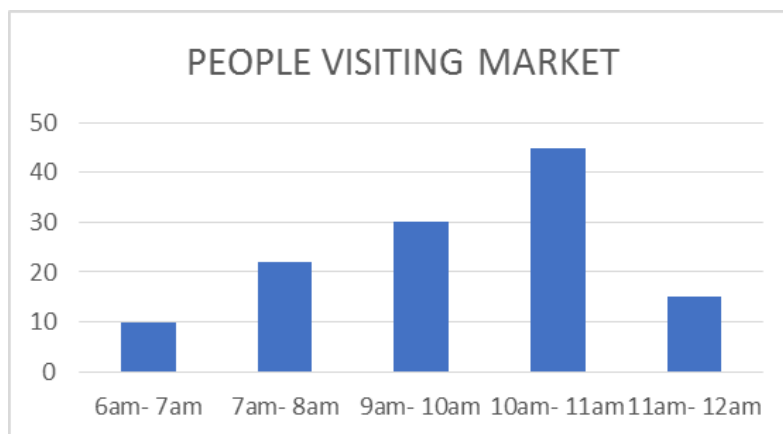


Fig. 9. This bar graph represents the timings preferred by the respondents to go to markets on weekends.



MARCH: Due to lockdown people visit the market between 9 AM to 10 AM



APRIL: Due to lockdown people visit the market between 10 am to 11 am



MAY: Due to lockdown people visit the market between 10 AM to 11 AM



JUNE: Below graph represents the people visiting the market. It shows that people visited the market more at the time between 10 AM to 11 AM.



JULY: Below graph represents the people visiting the market. It shows that people visited the market more at times between 10 AM to 11 AM.



AUGUST: Below graph represents the people visiting the market. It shows that people visited the market more at the time between 10 AM to 11 AM.

A person preferred to send to markets: Kids, pregnant women, the elderly, malnourished people, and people who are sick or immunocompromised are vulnerable groups during a pandemic. Therefore the people of this marginalized community should first be secured.. As the dissemination of the disease is fast, interaction with the outside world should be avoided. Based on the survey, we got 79% (94) father, 27.50% (76) myself, 14.30% (40) brother, 10% (21) husband, 7.90% (22) others, 4% (15) mother, 2.70% (10) sister, 0% (1) grandparents.

Precautions are taken by customers: Not only hand hygiene but also wearing a mask, using sanitizer, and maintaining social distancing is very important for wellbeing and a healthy lifestyle. The response

received was 95.10% (269) opted for all the above which include maintaining social distancing, wearing the mask, using sanitizer and maintaining social distancing, 2% (8) maintaining social distancing, 1.60% (5) wearing a mask, 1.30% (1) using sanitizer.

Types of bags used: Bags are important for carrying food products from the market. Many kinds of bags are used like cloth bags, paper bags, plastic bags, jute bags, etc. Cloth bags are reusable, washable, and have longevity when compared to other bags like plastic which is toxic to the environment. Based on our survey most of the respondents used cloth bags. The received response was 83.50%(236) for Cloth bags ,10% (22)for paper bags, 4%(14) for plastic bags, 2.50%(11)carry nothing.

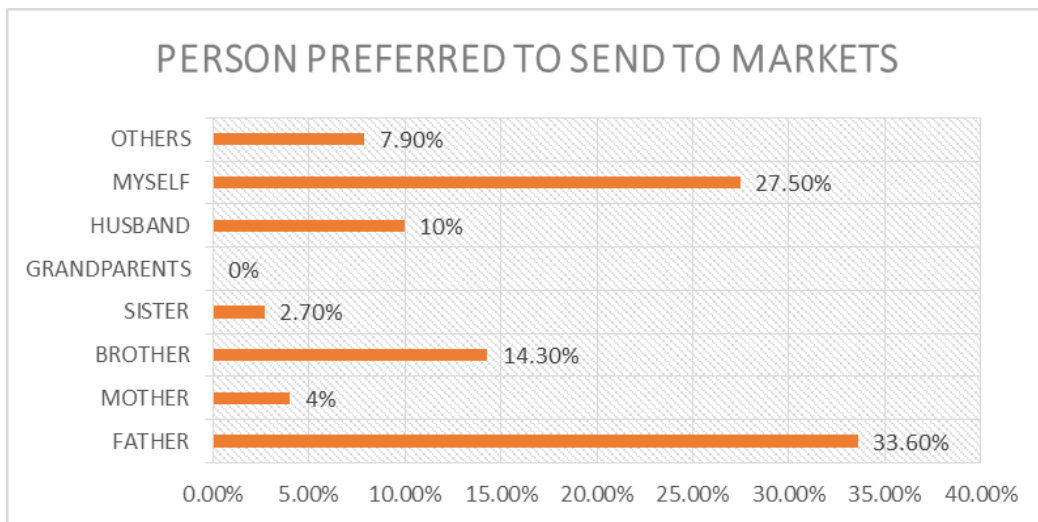


Fig. 10. This bar graph represents the response for a person referred to go to markets

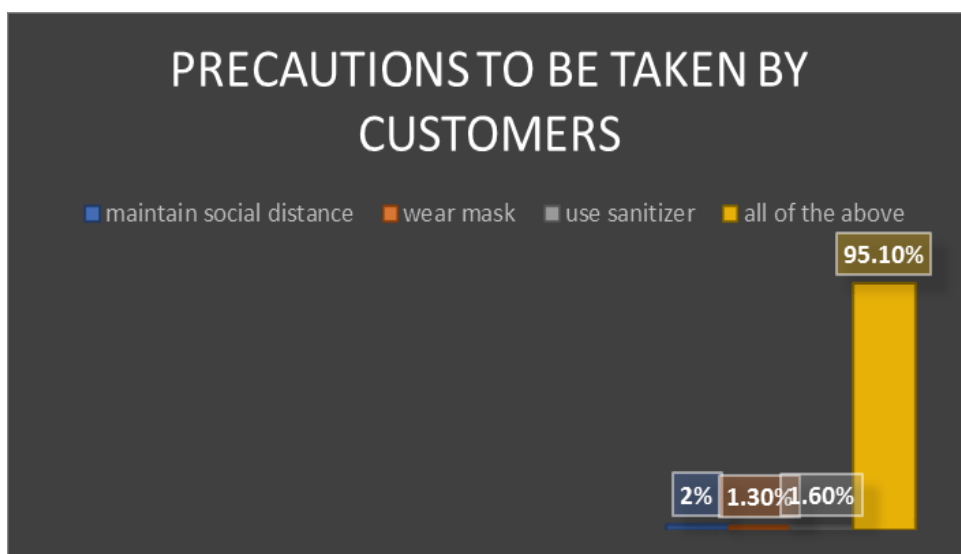


Fig. 11. This bar graph shows the representation of safety measures taken by customers

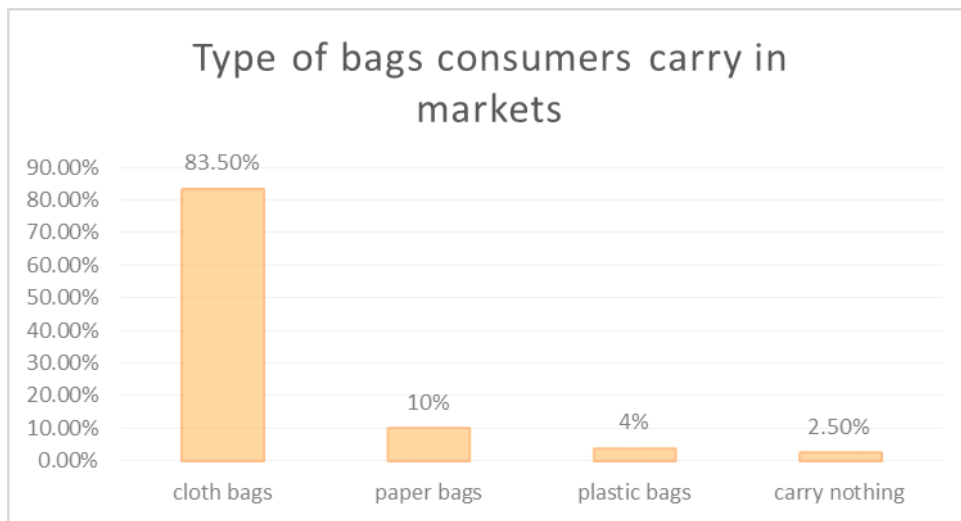


Fig. 12. This bar graph shows the representation of the type of bags carried to the markets

Marking’s in the markets for social distancing: To ensure people’s safety, markings are drawn at market yards across the state. A question was asked, "Have you seen markings in the markets for social distancing?" 59% answered "yes", 24% answered "no" and 17% "not sure".

Social distance to be maintained: Maintaining physical distancing can reduce the risk of the spread of the virus. The results obtained in our survey for maintaining distance are 63.40% (179) 1-3 meters from the infected person, 20.40% (58) 10-12 meters from the infected person, 8.10% (23) 100 ft

from the infected person, 8.10% (23) None of the above.

Use of sanitizer in markets by consumers: Through washing hands daily with soap and water for 20 seconds, the transmission of COVID-19 disease can be avoided. Alcohol-based hand sanitizers containing at least 60% alcohol can be used as a replacement for soap and water when soap and water are not available. According to our survey, 42.30% (119) use it twice when they go to markets and come back, 39.10% (111) use whenever they go to a new shop, 14.10% (40) use only once in the end 4.50% (13) don't use sanitizer in markets.

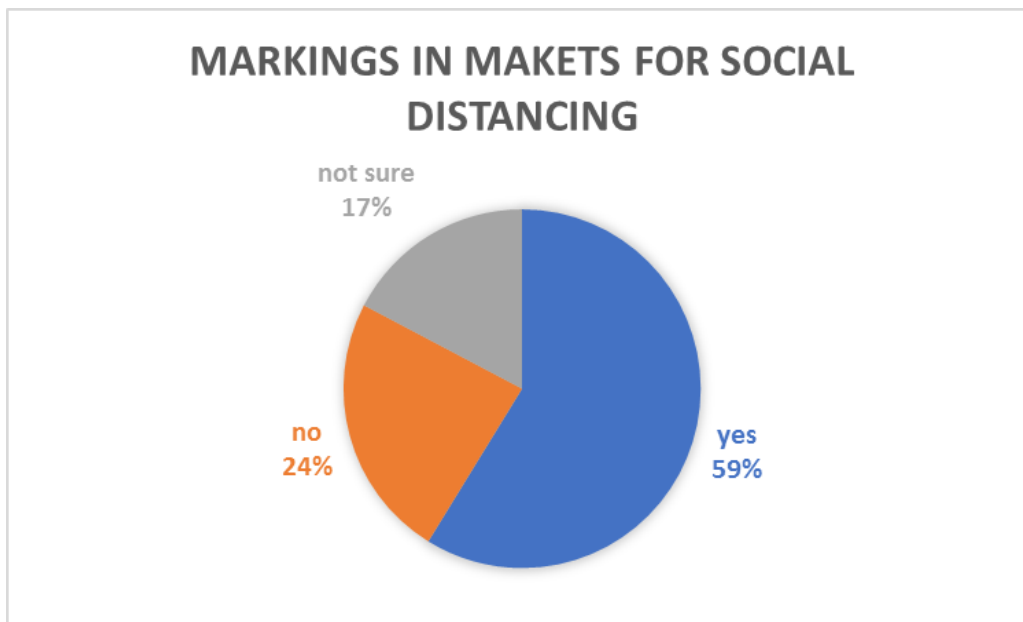


Fig. 13. This pie chart represents the response of markings seen in the markets for social distancing

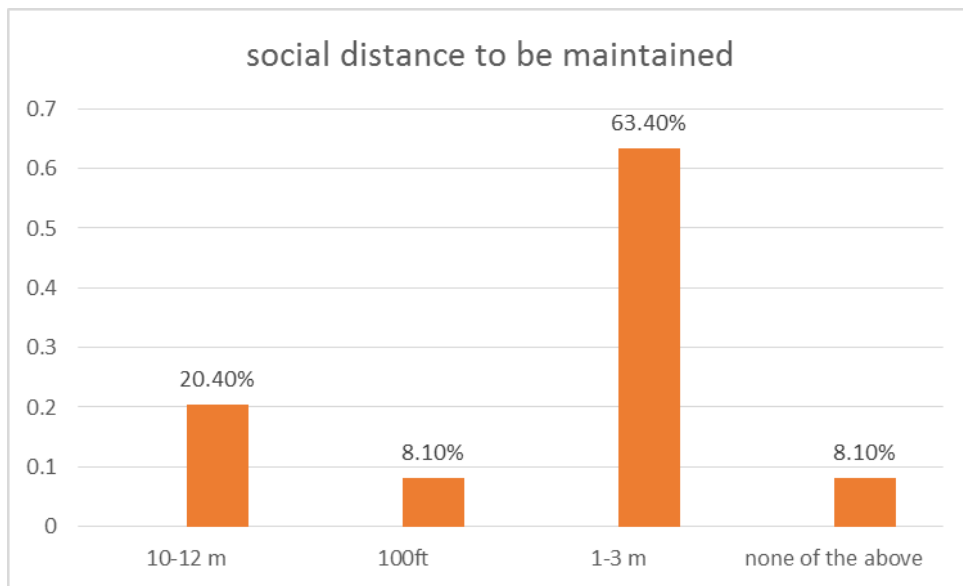


Fig. 14. This bar graph shows the representation of social distance to be maintained



Fig. 15. This line graph represents the frequency of use of sanitizer in markets by consumers

According to the government rules sanitizers should be kept outside all the shops, concerning that one question was asked, 121(59.2%) responses say that the sanitizers are kept outside the market shops, 37 (19.4%) responses say no, the remaining 44 people (21.4%) are not sure if they are kept.

Frequency of Sellers using sanitizers in markets: It is the safety of not only 1st person themselves, but it is the safety of 3rd person when n number of people come to market, the common contact for all the people coming to markets is the sellers. The ultimate thing is to break the chain spread, the sellers should maintain hygiene and follow safety rules. 65(31.8%)

respondents share that sellers use sanitizers quite often between every entry of a new customer, 120 (58.7%) respondents share that sellers do not often use sanitizers, 19 (9.5%) respondents say that the sellers never use sanitizer.

Sellers wearing masks: Wearing masks properly is the main precautions to be taken when you go out, along with caring sanitizers with you. The responses concerning sellers wearing masks 139(68%) people responded that sellers are wearing masks, 65(32%) respondents say that sellers are not wearing masks properly.

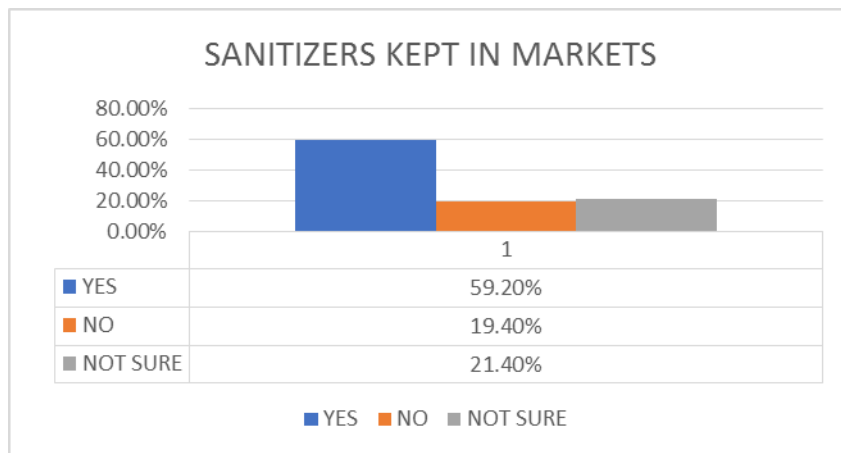


Fig. 16. This bar graph shows the representation of the sanitizers kept outside the markets

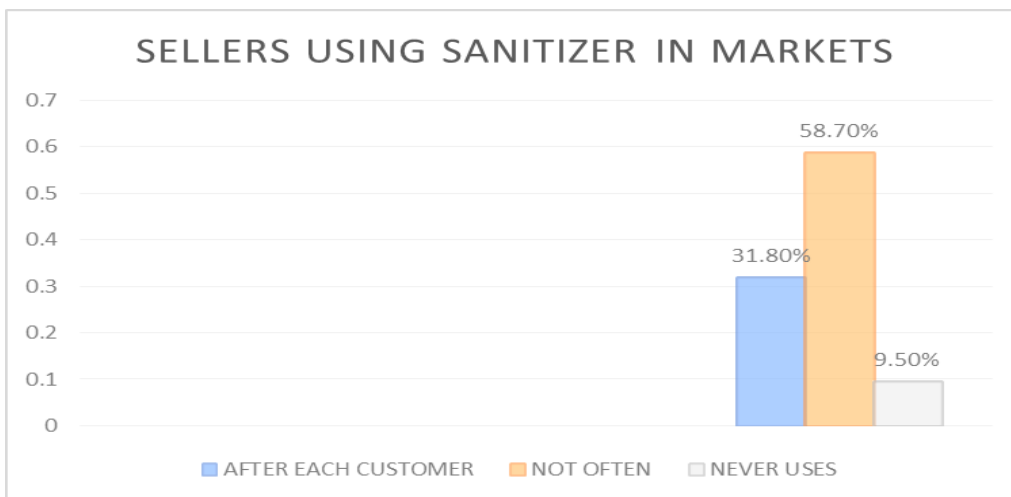


Fig. 17. This bar graph represents the frequency of usage of sanitizers by the sellers



Fig. 18. This pie chart represents the seller’s wearing masks in the markets properly

Sellers wearing gloves: Sellers wearing gloves is not mandatory but, if they are wearing, they should change the gloves if it is the disposal of now and then, and should never avoid hand washing because of wearing gloves a minute cut in the gloves can infect the person and spread. According to the responses in the survey 135 (66,2%), people say that the sellers are not wearing gloves in the markets, 69 responses show that sellers don't wear gloves.

Handling of food supplies: The more the no of contacts to an object, the more the possibility of virus spread and transmission. If the food supplies are only handled with the sellers it's well and good, if every single customer handles the goodies the possibility of virus droplets in the supplies is high. This survey

concludes 136 people prefer the food supplied taken by them,68 people responded that the food supplies are given by, the seller itself.

Survival of virus in veggies and fruits: Viruses do not grow in or on fruit, but fresh items can often be available. The transmission of the virus can be through fruits or vegetables handled by an infected person. Viruses do not replicate in food or drink, or in or in any other sample of the world. Viruses can live outside living cells, however and stay contagious. Following are the responses we received in our survey.55.60% (158) selected 24 hours,23.90% (68) selected 72 hours,14.40% (40) selected 68 hours 6.10% (17) selected 3 days.

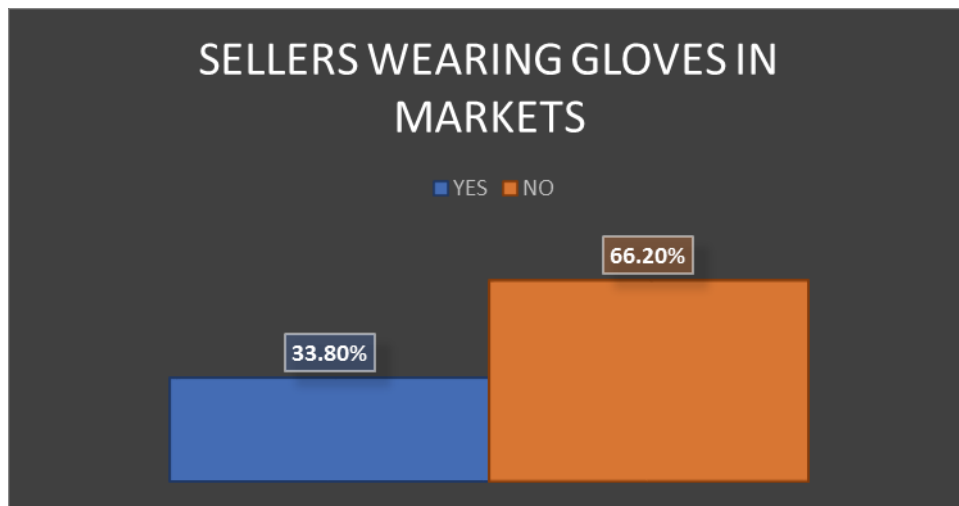


Fig. 19. This graph shows the representation of sellers wearing gloves in the markets



Fig. 20. This bar graph representation represents the food supplies are handled by the seller or by the customers

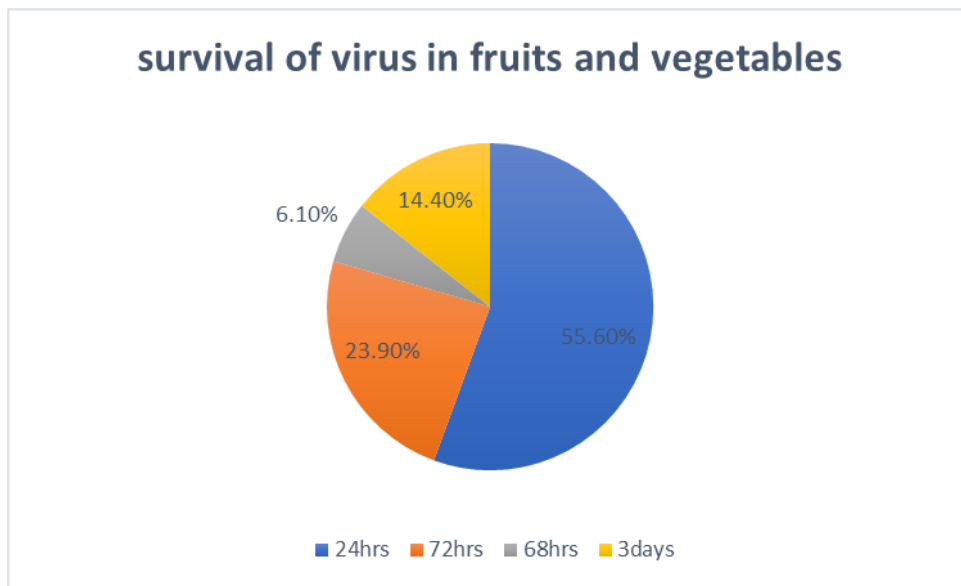


Fig. 21. This pie chart represents the survival time of the virus in veggies and fruits

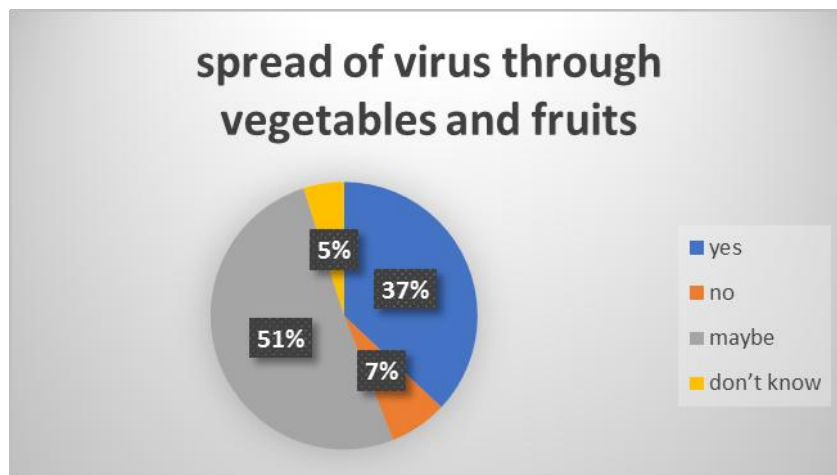


Fig.22. This pie chart represents the spread of the virus through veggies and fruits

The spread of the virus through veggies and fruits: Viruses do not grow in or on fruit, but fresh items can often be available. The transmission of the virus can be through fruits or vegetables handled by an infected person. We conducted a survey for the above question and the response received was as follows 51% (145) Maybe, 37% (104) Yes, 7% (20) No, 5% (14) Don't know.

The procedure followed after buying veggies and fruits from markets?

Washing vegetables and fruits helps in removing the microbes present on the surfaces. According to our survey, 41.20% (117) respondents wash with salt water, 32.40% (91) respondents wash with water only, 13% (37) keep the goods aside for 2 days

without touching, 10.90% (31) respondents use commercial liquids to kill bacteria and viruses, 2.50% (7) respondents Use it directly.

Money sanitized by the sellers: One of the main reasons for the virus transfer is the multiple contacts to a single object e.g. money. According to our survey, money or cash given by the sellers are sanitized, from 75 respondents with 36.3%, 130 respondents say sellers do not sanitize money with 63.7%.

Washing masks and the bag carried to markets: Proper sanitization of masks and bags is necessary to prevent the spread of markets. Washing of reusable mask and bag is mandatory. In our survey, 92% (261) wash masks and bags carried to the markets whereas 8% (22) do not wash the mask and bag.

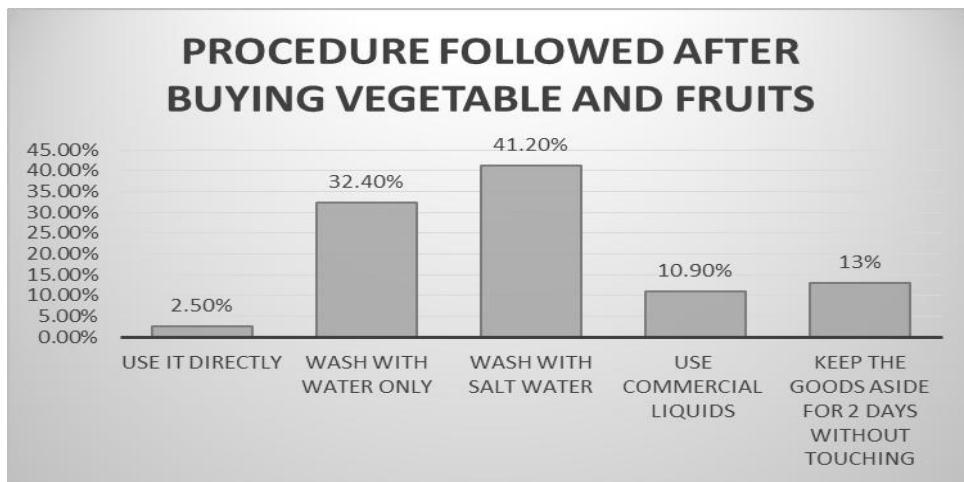


Fig. 23. This bar graph shows the representation of the procedure followed after buying fruits and vegetables



Fig. 24. Responses on sellers sanitizing the money or change when given to the consumers or taken by them



Fig. 25. This pie chart represents the response for washing masks and the bag carried to markets

Taking bath after returning from markets: Immediate shower after returning from the market should be followed habitually. It helps to protect themselves against the risk of contracting Covid-19. Based on our survey,85% (239) respondents opted “yes” by saying they prefer to take shower after visiting markets and 15% (44) respondents opted “no”.

using sanitizer bleach and disinfectant,12.70% (36) use sanitizer,11.30% (32) prefer using disinfectant and bleach,2.80% (8) prefer using water.

Visiting marketplaces is also one of the reasons for the increase in COVID-19 cases: The virus spreads through droplet nuclei, aerosols releasing from the cough, sneeze, etc are present in the air, on surfaces, objects, etc. for a long time. More people visiting markets is proportional to more spread of the virus. The response received based on the survey shows 96.10% (272) respondents agree and 3.90% (11) disagree.

Destroying the virus on hard surfaces like a table: The virus can be present on surfaces for many hours. So, sterilizing the surfaces is necessary. Mostly surface sterilization is done by using disinfectants, bleach, etc. Based on the survey,73.20% (207) prefer

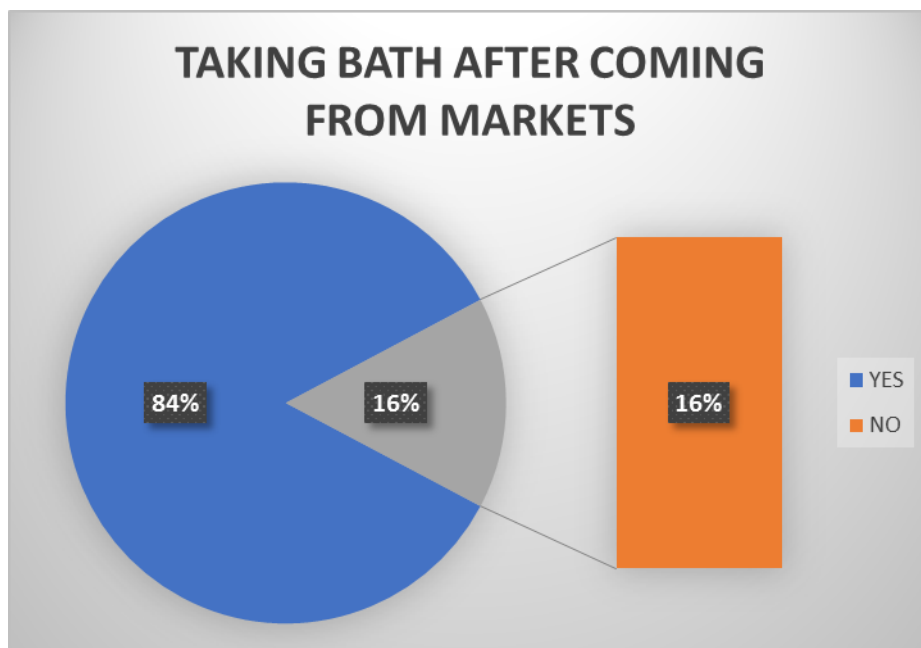


Fig. 26. This pie chart represents the frequency of customers taking bath after returning from markets

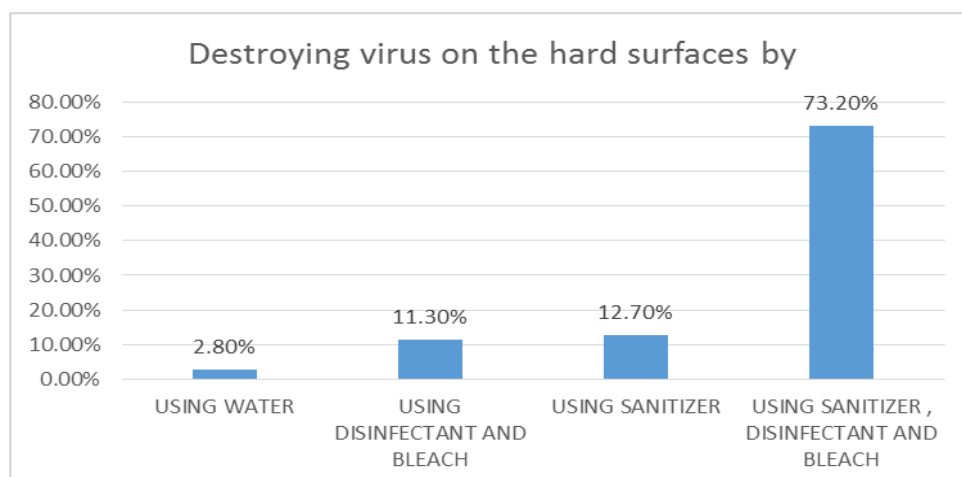


Fig. 27. This bar graph shows the representation of destroying virus on hard surfaces like a table

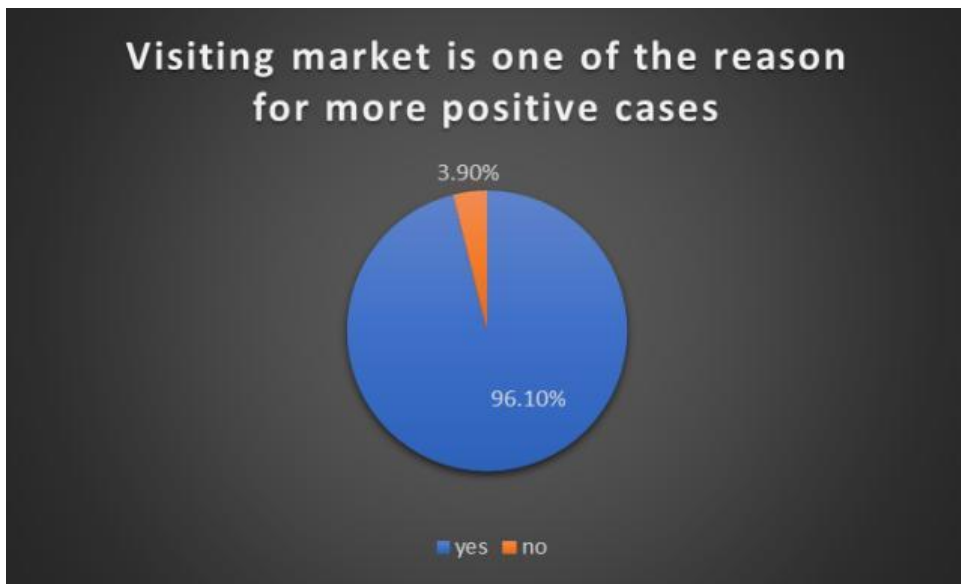


Fig. 28. This pie chart represents the response of visiting marketplaces is also one of the reasons for the rise in COVID-19 cases

All the below images were made on 15th October at 11.24 AM, this image was captured at Om Shakti towers, Denkanikotta Rd, Shanthi Nagar West, Hosur, Tamilnadu 635109, India. Author: Pavithra, this picture is in the format of .jpeg Topic: effects of the

pandemic in markets and lessons learned, this image shows that people in markets not following social distancing, not wearing masks properly, this image shows the possibility of high spreading of COVID-19 without following the basic precaution methods.





Fig. 29. The above images were taken from data collecting sites

Table 4. Life span of Corona virus

Surfaces	Examples	Days
Metal	doorknobs, jewelry, silverware	5 days
Wood	furniture, decking	4 days
Plastics	milk containers and detergent bottles, subway and bus seats, backpacks, elevator buttons	2 to 3 days
Stainless steel	refrigerators, pots and pans, sinks, some water bottles	2 to 3 days
Cardboard	shipping boxes	24 hours
Copper	pennies, teakettles, cookware	4 hours
Aluminum	soda cans, tin foil, water bottles	2 to 8 hours
Glass	drinking glasses, measuring cups, mirrors, windows	Up to 5 days
Ceramics	Examples: dishes, pottery, mugs	5 days
Paper	mail, newspaper	Time varies in duration. Some coronavirus strains live on paper for just a few minutes, while others live for up to 5 days.
Food	takeout, produce	It appears like the coronavirus doesn't spread by fruit.
Water	Coronavirus hasn't been found in drinking water	Your nearby water treatment facility cleans and disinfects the water if it comes into the water system, which can destroy any germs.
Fabrics	clothes, linens	There isn't a lot of data into how long the virus lives on clothing, but it probably doesn't last as long on hard surfaces.
Shoes	One study tested the shoe soles of medical staff in a Chinese hospital intensive care unit (ICU) and found that half were positive for nucleic acids from the virus.	But it is not clear if the infection is caused by these portions of the virus. The general ward of the hospital, which had individuals with milder cases, was less polluted than the ICU.
Skin and hair	There's no research yet on exactly how long the virus can live on your skin or hair.	For hours, rhinoviruses, which cause colds, survive. That is why washing or disinfecting your hands, which are more likely to come into contact with dirty surfaces, is necessary.

This Table 4 is referred from WebMD Medical Reference, Reviewed by [29] on August 21, 2020

Spreading Coronavirus: What You Must Know:

What are you able to do?

To mitigate the chance of catching or spreading the current coronavirus, sweep and disinfect common surfaces and products in your home and office every day.

It involves:

Bathroom furniture, phones, keyboards, remote controls, sinks, countertops, chairs, doorknobs.

For domestic cleaning, use a mist or scrub. If the surfaces are dirty, scrub them first with soap and water, then disinfect them. A bleach solution that will be good for up to 24 hours can also be made. Combine 5 tablespoons of household bleach per gallon of water (one third of a cup) or 4 teaspoons per quart of water. Never mix bleach with ammonia or another cleanser. Leave cleaners or bleach solutions on surfaces for a period of 1 minute.

Keep the floors clean, even though everybody at home is safe. People that are infected do not have symptoms, but they may also be able to shed the infection. Clean your hands with soap and warm water for at least 20 seconds after you leave the drugstore or supermarket or carrying in takeout food or a delivered newspaper, after you reach the drugstore or bakery or carry in takeout food or a mailed newspaper. It's a smart thing to clean the fruits and vegetables until you eat them under hot water. Clean them using a brush or your hands to clear any germs that might be on the paper. If you have a weakened organ, you may want to shop for cold or stained items.

There is no confirmation that anyone received the virus from food packaging. But if you prefer, you can wipe away take-out containers or food products and allow them to air dry.

Clean or disinfect reusable shopping bags any time you use them. Clean used fabrics daily using the warmest water suggested by the manufacturer. Dry them full. Wear protective gloves while doing a sick citizen's cleaning. Throw them away when you are done and wash your hands. The infection definitely will not survive the time it takes for mail or other delivered items to be delivered. The highest risk comes from the person delivering them. Limit your interaction with dealers as soon as you can. You can also leave packages outside for a few hours or spray them with a disinfectant before getting them in. Clean your face while holding mail or a package. You can if

you prefer, wash your shoe soles and avoid wearing them indoors [29].

The risk that animals will spread SARS-CoV-2, the virus that causes COVID-19, to humans: Any animal-infected coronaviruses also transmit to humans and then spread between individuals, although this is often uncommon. What has occurred is SARS-CoV-2, which probably emerged in bats. The first reported infections were connected to the market for live animals, but now the virus is spreading from person to person.

Through coughing, sneezing, and talking mainly from person to person, SARS-CoV-2 passes by respiratory droplets. At this stage, there is no evidence that animals play an important role in propagating the virus that causes COVID-19. Based on the limited information available so far, the probability of animals transferring COVID-19 to humans is considered to be low. In order to know whether and how different animals might suffer from COVID-19, further studies are needed [30].

Risk of people spreading to animals the virus which causes COVID-19: The first US case of an animal testing positive for COVID-19 was a tiger at a NY zoo.

We are still learning about this virus, but it appears to be able to spread from humans to animals in some situations especially after close contact with a person with COVID-19 [30].

Animals that may be infected with COVID-19-sourced viruses: We know that cats, dogs, and a few other mammals are frequently infected with SARS-CoV-2, but we do not yet know any of the species that can get infected.

There are cases worldwide of animals becoming infected with the virus.

A limited number of pet cats and dogs have been confirmed to be contaminated with SARS-CoV-2 in many nations, including the United States.

Most of those dogs got sick following contact with individuals with COVID-19.

In captivity, SARS-CoV-2 has been tested positive by big cats. After showing signs of respiratory disease during an outdoor zoo icon, a puma in South Africa, and tigers at a Tennessee zoo, several lions and tigers tested positive for SARS-CoV-2. It is believed that these big cats got sick after being introduced to zoo personnel with COVID-19 [30].

Mink and SARS-CoV-2

SARS-CoV-2 has been recorded at mink farms in the Netherlands, Denmark, Spain, Italy, Sweden and the United States. In farmed mink, respiratory disease and the increase in deaths were characterized by SARS-CoV-2 infection. Because some workers on these farms had COVID-19, contaminated farm workers are likely to have been the original source of the mink infections.

Once the virus is introduced on a farm, as from mink to other animals on the farm (dogs, cats), transmission can also occur amongst minks.

In fact, there is no evidence of animals playing a significant role in the transmission to humans of SARS-CoV-2. Records from contaminated mink farms in the Netherlands and Denmark, however, indicate that there is a risk of transmission of SARS-CoV-2 from minks to humans in these regions.

In order to protect people and animals on mink farms, worker protection is important. To prevent adding SARS-CoV-2 to mink on farms, farm workers should follow the available guidelines for farmed mink and other mustelids. The U.S. collaboratively established guidelines.

The Department of Agriculture (USDA), CDC, and state animal and public health partners are available to protect workers and animal health through a One Health approach:

Prevent SARS-CoV-2 Introduction on Mink Farms: SARS-CoV-2 Provisional Guidance for Farmed Mink and Other Mustelids. Response and Containment Guidelines: Animal Health and Public Health Officials' Interim Guidance Managing Farmed Mink and Other Farmed Mustelids with SARS-CoV-2 CDC has deployed One Health Team to several states to support the departments of state and local health and agriculture, federal partners, and others in conducting on-farm research on SARS-CoV-22 humans and multiple animal species.

These experiments are underway and will help us understand more about the mechanisms of transmission between minks, other animals and other individuals. A registry of external symbols of all livestock and mink farms in the United States with SARS-CoV-2 infections, verified by their National Laboratories for Veterinary Services, maintained by the U.S. Department of Agriculture (USDA) [30].

Research on animals and COVID-19: Much analysis is conducted to find out more about how

multiple species can be affected by this virus. Recent laboratory research indicates that the virus can infect cats, dogs, ferrets, fruit bats, hamsters, and tree shrews.

In laboratory conditions, cats, ferrets, fruit bats, and hamsters can also transmit the virus to other animals of equivalent species. The results of the study indicate that dogs can get sick, but that the virus does not spread to other dogs as quickly as cats and ferrets spread the virus to other animals of similar species. As models for human infection, a variety of experiments have studied non-human primates.

Rhesus macaques, cynomolgus macaques, grivets, and common marmosets may become infected with SARS-CoV-2 in a laboratory setting and become ill. The experiments do not appear to infect laboratory mice, goats, chickens and ducks or propagate the infection-supported findings. These findings were supported a little number of Animals, which do not demonstrate if the virus will spread to humans by animals. In order to know if and how various animals might suffer from COVID-19, further readings are required.

CDC, USDA, state public health and animal health departments, and academic partners are working in multiple states to conduct successful screening of SARS-CoV-2 in animals, including cats, dogs, and other small mammals that have associations with individuals of COVID-19. These animals are being screened for SARS-CoV-2 contamination and are also being tested to determine if the pet is developing new virus antibodies. This research is being undertaken to help us better understand how the possible role of pets in the transmission of this virus could also be related to the prevalent SARS-CoV-2 infection of pets [30].

HOW COVID-19 IS AFFECTING FARMERS: Farmers brace themselves against the ensuing (Kharif) season in May after the rabi harvest in April. The disturbances caused by COVID-19, however have reduced the production ability of farm inputs and have contributed to a price increase, rendering these commodities unavailable to smallholder and marginal farmers in the region.

In the planet, the pandemic is now unfolding, and its economic consequences are yet to be completely understood. As such, the focus in this essay is necessarily brief (3 months). Both our findings need to be seen in this way.

That being said, this paper is perhaps one of the key ones to quantify the causal impact of COVID-19 on food prices. Generally speaking, it is also said that

agricultural markets in India are very resilient in the face of the COVID-19 shock if the tenure of market value and quantity shifts and therefore the shortness of time for the mean reversal of these results were to be a marker of resilience. We find that both through time and across commodities, COVID-19 and its associated disruptions have had a separate impact. Although all three products displayed a positive impact coefficient for wholesale prices in April, these were either marginal, not resilient to concurrent developments, or both. Wheat saw a decrease in price differentials in June, but the total influence over the three months was marginal.

This is also possible because government procurement efforts have tended to anchor the MSP's wheat prices. Within the two states which prolonged their procurement duration, this continued through June.

In May, tomato prices fell, but no other statistically robust effect was observed. Onion rates, which may reflect the scattered nature of its output and hence the comparatively dispersed nature of its demand, have also been unchanged. It should be repeated that the five states considered here are not big onion producers; The Maharashtra, Madhya Pradesh and Karnataka supply markets, which account for two-thirds of their production, are likely to have been seriously disturbed. Furthermore, in limiting the degree of decline or preventing declining wholesale prices, government initiatives to stimulate demand by various stimulus provisions may bear fruit (although we have no way of quantifying this).

In comparison, both customer arrival impact magnitudes, particularly for the 2 perishable goods, were positive and significant. It is suggestive (but not conclusive) evidence that, beginning in May, the magnitudes of the differentials in customer arrivals were much higher than those in prices with limitations began to ease. In the case of perishables, a mirrored representation of panic purchases and/or the need to cope with revenue limits may be the positive coefficients on business arrivals. Together these results indicate that whilst short-term swings in the agricultural markets have definitely existed, they have also been surprisingly resilient in that customer deliveries have normalized steadily after the initial month and potential panic purchases have not resulted in a disproportionate price decrease.

It is important to assess the extent of supply chain disruptions due to COVID-19 unprecedented in recent times and also by the demonetization episode [30] from the perspective of public policy [31]. Declaration that India's COVID-19 response should consist of a government that facilitates the proper

functioning of markets and less depends on robust emergency measures. Our analysis highlights the need for a more complicated stance. The outcomes reflect an important role for government policy in two key ways.

It played a major role in keeping cereals intact in the supply chain, where the government is a major buyer through MSP procurement, and helped minimize price risk. There is of course, an ongoing debate as to whether the government can be involved in support operations in the physical handling of food, how effectively it does so, and whether the cereal-focused nature of government procurement remains relevant. This essay is not the venue for engaging in this debate. It is sufficient to assume that the fact that wheat prices were anchored at the MSP for a good part of two months and even later in June in the two states that extended the procurement period undoubtedly helped the livelihoods of millions of wheat farmers by mitigating the price decrease they would otherwise have encountered.

Despite their low and declining share of agricultural value added and retail spend, cereals are produced in large areas and constitute the largest single source of consumer caloric intake. In the background of this pandemic, maize, which would generally provide market relief, acted as security (and maybe as a stimulus) for the agriculture sector. Cash flow problems, which are critical for the activity of agricultural markets, are also likely to have been posed through procurement. The second profound way in which policies play a mitigating role relates to the evolution of the agriculture sector. States whose markets are less limited did well in order to manage market uncertainty; where the differentiation for perishables was simply based on which fruits and vegetables were deregulated and de-regulated.

There is definitely a need for market changes that broaden options for both buyers and sellers, as these make it possible to properly absorb shocks such as COVID-19. However, the scale of the demand shift cannot be calculated by the number of regulations alone; adequate capital spending needs to be made to help farmers prepare for the effects of such unprecedented shocks. This will not occur immediately and would take a concerted emphasis, investment, and innovative ways of communicating through the supply chain with business intermediaries [32].

Our critical review of the available data and alternative transmission routes indicates that the likelihood of fecal/urine-oral/ocular transmission of SARS-CoV-2 is extremely poor to negligible, even

when direct person-to-person communication occurs. This is consistent with the hundred million recorded cases of COVID-19 worldwide and the fact that none of them have contained faeces or faecal contaminated material as part of the infection route. In the environment/surfaces of healthcare pollution, feces have been implicated, but the role of such in infection remains uncertain. It should be recalled that our results concentrate on the Western style of sewage networks and waste water management. In less economically developing countries and areas with poor sanitation, the risks could be higher; however, there is inadequate data to allow critical assessment of this. This is an area warranting further study.

Assuming that SARS-CoV-2 levels remain relatively low in the population (less than 1%), our analysis also indicates that the risk of COVID-19 procurement from water supplies, wastewater, food, bathing/recreational waters, and the coastal zone remains extremely low. This is especially the case where personal hygiene programs (e.g. handwashing) are maintained and municipal sanitation services are maintained. We would also recommend that, following a precautionary principle, households with a current infection, and especially those with diarrhea, use sodium hypochlorite or similar disinfectant before flushing to reduce further downstream risk of infection [33].

4. DISCUSSION

It is very critical that COVID-19, which has no accepted medication, is stopped from spreading across society. Hand grooming, social distancing, and quarantine are the key points of avoiding the outbreak of society.

Detecting more healthy patients in the population would also make it easier to eliminate secondary cases with tighter quarantine regulations with improved monitoring ability [34].

The overall objective of the COVID-19 Strategic Preparedness and Response Plan is to control COVID-19 through the suppression of virus transmission and the prevention of associated illness and death. The virus is spread primarily through touch and respiratory droplets, to the best of our knowledge. Under certain conditions (such as when aerosol production processes are carried out in health care settings or potentially in indoor crowded, poorly ventilated settings elsewhere), airborne transmission can occur. Further studies are desperately needed to examine such instances and determine their real significance for the transmission of COVID-19 [35].

The food hygiene principles documented book of Leviticus chapter 19 verses 5 to 7 and Book of Exodus chapter 16 verses 20 regarding avoiding food stored food as it may lead to other health hazards was recommended by WHO, CDC, ICMR, and other organizations.

The WHO recommends a comprehensive set of actions to prevent transmission, including:

WHO proposes a comprehensive range of stop-transmission steps, including:

Identify suspected cases as soon as possible, investigate and separate all cases (infected persons) in appropriate facilities; identify and quarantine any close contact with infected persons and test all symptoms so that they can be isolated if they are infected and need treatment; use of cloth masks in specific circumstances for example, in public areas where communal transmission occurs;

All global governing bodies, the law of purity of people's clothes and houses, have used media and social media. "Under certain conditions, "unclean" people, clothes, and even houses were declared (Leviticus 12:46). They stay unclean as long as they have the disease. They've got to live alone; they have to live outside the camp. Self-quarantine was requested by a person with a traveling history or symptoms of COVID-19 and was clothed (Leviticus 12:47-59) in hot water with disinfectant to avoid spreading to other family members.

Continuous use of a medical mask throughout the entire shift, during all routine activities, by health workers and caregivers working in all clinical fields;

Practice frequent hand hygiene at all times, physical distance from others if possible, and respiratory etiquette; avoid crowded places, close-contact environments, and poorly ventilated confined and enclosed spaces; wear cloth masks to protect others in locked, overcrowded spaces; and ensure proper ventilation of air in all enclosed environments and adequate cleaning and disinfection of the atmosphere

Proper hygiene practices around open food displays, such as salad bars, displays of fresh produce, and bakery items, need to be maintained. Before eating, consumers should still be told to wash fruit and vegetables with potable water. In open food areas, all customers and workers should specifically observe proper personal hygiene standards at all times. Food retailers should hygienically manage open food displays and prevent surface contact transmission of COVID-19; food retailers should:

Maintaining frequent washing and sanitizing of all food contact surfaces and utensils; requiring food service employees to wash their hands frequently and if gloves are used to change them before and after food preparation; requiring food service employees to clean and sanitize counters frequently, serving utensils and condiment containers frequently;

In retail stores, bakery products can be displayed in plastic/cellophane or paper packaging on free self-service displays. Where loose baking items are shown in grocery shops, they can be placed in display cabinets with Plexiglas and placed while customers are served in bags using tongs. The exact amount of time that coronavirus can survive on fresh produce is unknown. But some scientists are estimating that it can last around 24 hours – 72 hours.

If the person packing fruit and vegetables was contaminated with the virus, it could be passed on to whoever touches it next. Make sure you buy fruit and vegetables that can be washed, and wash them thoroughly with water before eating.

Epidemiologists are currently stressing that wearing MNC can successfully disrupt airborne infections in the population. The government and lawmakers have adopted these guidelines and used them both to advise and, in some situations, to require the general population to wear MNC in public areas. MNC has a greater protective impact, while maintaining the user's environment, as it was initially designed to mitigate droplet elimination.

Measures to prevent pathogens are important in the ongoing pandemic. Face masks were considered a first step in order to prevent and monitor the spread of the disease. There are various types of masks available on the market for this purpose.

Clear masks protecting the mouth and nose are usually used in order to eliminate transmission by holding back droplets. This is useful where the recommended minimum distance of 1.5 m is not feasible. The masks provide their owner with only minimal self-protection and this is only when they are appropriately used [36].

A more effective protection against pathogens is high-quality FFP2/3 masks. For medical personnel and persons at risk, they should still be available. Specific populations at risk of problems due to the use of masks should be informed about what to expect as used by the general public. Patients with extreme COPD, for instance, can undergo a decline of their respiratory parameters. Patients would then be directly told by their general physician of the prospect

of wearing the MNC. Finally, it is necessary to advise the user of the different types of masks available, how and when to use them and above all, how to properly handle them, in compliance with the safety protocols set out in the aircraft prior to take-off.

Masks for daily use these masks do not provide the user with any defense against contamination. It is fair to say, however, that there is a slight reduction in the risk of transmission of droplets, particularly during exhalation, which leads to a reduction in the potential spread of viruses. In the health care industry, these masks should not be used, but are commonly recommended for the general population to travel, shop or use public transportation [37].

Although the number of new cases in the 10-day interval exceeded 10,000 in the US, COVID-19 distributed with weather parameters, the majority of cases were observed to be reported in a narrow range of 4 to 6 g/m³ in absolute humidity (AH) states and in a wider range of 4 °C-11 °C in temperature (T). Considering AH as a better parameter than T to study the relationship between weather and COVID-19 spread, we found that monthly test intervals are generalizable for 10-day cycles with the fragile 4 b AH b 6 g/m³ scale. Our studies in literature have also reported AH ranges worldwide [38,39].

During all the months of 2020, we listed risky Indian states with an average 4 b AH b 6 g/m³, assuming the US model to match the world findings. The distribution of new cases at 10-day intervals across the AH and T scales in the US is very similar to previous findings from studies examining worldwide trends. The COVID-19 distribution was mainly supported by weather parameters in the 5°C b T b 11°C and 3 b AH b 8 g/m³ regions [39,40,41,42,43]. The vulnerable ranges found in the current study lie among these ranges. The bulk of new cases worldwide were found to be in countries with 3°C b T b 17°C and 4 b AH b 9 g/m³ in another reading by [39]. These US-based conclusions from our study agree with these global results.

No study on the propagation of droplet air (wind) and relative humidity (RH) has yet been published [43]. Validated computational fluid-particle dynamics (CFPD) model for cough-emitted SARS-CoV-2 laden droplets (2-2000 µm) simulation of transient transport, condensation/evaporation, and deposition, with different environmental wind velocities by, [44] (0-16 km and RHs (40 percent and 99.5 percent). At 1.83 and 3.05 m (6 and 10 ft), the social distances were held. Also, under investigation is the facial covering effect. Numerical findings showed that micro-droplets can fly more than a distance of 3.05 m in the air. RH

also helped to maximize the size of the droplets. Furthermore, it is concluded that the social distance strategy of 1.83 m (6 ft) is not appropriate to safeguard the person under complex environmental wind and RH conditions. The coughing or sneezing droplets of an infected person will infect the other person in under 5 seconds.

A social distance of more than 1.83 m (6 ft) [43] should also be acknowledged [43].

The COVID-19 virus will stay alive after drying for at least two weeks at a daily high temperature and in a wet state. SAR-COV2 can be stable for up to 3 weeks at room temperature in a liquid material, but can be quickly destroyed for up to 15 minutes at a high temperature of 56°C [45].

In India, contaminated cases were under surveillance during the first phase of the COVID-19 lockdown. The lockout on population and population density was appropriate because of the population. It should be recalled that the people of India complied with the laws laid down by the government and were aware of the drastic effects of COVID-19 and so tried to comply with the laws. By lockout, the transmission was limited and some countries succeeded.

India is currently facing a devastating impact of COVID-19, and owing to the combined fear and lockout scenario, a majority of Indians will face unemployment, leading them to problems with hunger, poverty, and mental illness. But it is still unknown if it is mainly the coronavirus or starvation to which Indians are subjected each day. So far it is clear that COVID-19 has had a mixed impact on society, including the economy, lifestyle, and the environment. It is difficult to imagine that the painful events of the COVID-19 pandemic will easily be forgotten or will fade entirely over time. The loss of faith between the person and the institution's body will increase [46]. In the Law of Moses on mental health ideals [47], the health concepts recorded 4000 years ago or 3800 years before 'Germ Theory' were found to be more applicable to the public mental health principles as loving and caring for elders at home as well as our fellow person in need were found during this pandemic scenario.

November and December will be the second round of the COVID-19. This study is therefore essential to combat it with wisdom and lessons learned during this first step.

5. CONCLUSION

This research offers valuable details on the various modes of dissemination and prevention of COVID-19

spread, the period of survival of the virus on different surfaces, the difficulties experienced by farmers, the effects of COVID-19 on environmental conditions, human-to-animal transmission and vice versa. The study carried out allowed us to estimate effects on the market for the majority of individuals adopting hygienic conditions and other preventive measures. Finally, the findings will help forecast weak causes and prospects for business spread and how to manage them. 85% of them say they take bath after returning from market, 38.7% people choose to go to markets on 6 AM in the morning, people say they often use sanitizers twice when they go and come back, 33.6% people send their father to markets, 92% people say they wash their masks and bags after return from market, 54% people say that they don't wear gloves while going to markets, 59% of them say they have seen markings of social distancing's in markets, 50.4% of them buy vegetable and fruits from local vendors, 52.8% people say they visit market once in a week, 83.5% people say they carry their own cloth bags, 37% of people say that virus spreads from fruits and vegetable, mode of payment chosen majority with all the available modes 29.9%, people say money is not sanitized by sellers 63.7%, they have majority lying to visit market on weekdays, Wednesdays are the chosen day by 38% of people to visit markets, on weekdays they chose to go by 10 AM by 31.7%, on weekends 10 AM by 41.2%, sanitizers kept in the markets, 59.2% of people say yes, sellers using sanitizers, 58.7% people say not often, sellers wearing masks; 68% of people say yes, sellers wearing gloves 66.2% of people say no, 66.7% of people handle the vegetables by their own.

It is always good to take bath after coming from a crowded place we may not know the means of infection and change your clothes keeping the removed one isolated. We have to avoid going to markets when crowded either choosing early morning or late nights will be better. Carrying your sanitizers is the best way to avoid infection, applying it whenever necessary whenever you feel like you touched foreign objects or a person in contact. It is always suggested that a healthy person should go to markets most probably not the elders with other health conditions. Wearing a mask, carrying your bags, maintaining a 1m distance, washing everything possibly from outside is a must for safety (fruits, vegetables, metals, objects, etc.). It's always best to have a contactless visit, payment can be best done by online payment modes, will help reduce the transmission chain, since money is not from one person, it is exchanged between many. If so, you get change from the vendor better option is to sanitize. All shops should still have sanitizers with the preservation of social distancing, according to the government rules. This is not only for

buyers but also for sellers to wear masks and allow only masks worn by customers to enter the store, to apply sanitizers now and then if possible, it is not always recommended to wear gloves because a small cut will enable the virus to enter, washing hands and sanitizing should not be ignored. It's always a habit for the consumers to touch and quality checks the goods before buying but this makes more contacts, more touch which is more likely for transmission or spread or goods to be capable of carried by people. India's farm production is at its highest between April and June because this is when the winter crop is harvested for wheat and pulses and sold. And it's also time for farmers to start seeding rain-fed crops in the summer, such as paddy, pulses, cotton, and sugarcane. About 60 per cent of India's food supply and farmers' incomes rely on the Kharif season. The lockdown has struck in all these seasons. The lockdown of the Coronavirus will harm India's agriculture sector and farmers. The industry faces a great deal of trouble with workers and the movement of goods produced from the farm. Policemen are creating problems when speaking about ground reality, even if agricultural production is exempted from lockdown directives.

Due to heavy rain, India's agriculture sector has recently faced disturbance and crop loss. And now as the Rabi harvest season approaches, farmers are worrying about how to harvest their permanent crops due to disturbances caused by the Coronavirus. For processing, many farm machines are not available. Farmers growing maize, mustard and pulses have recently sustained damage to their crops due to premature, heavy rainfall. Because of the apprehension of Coronavirus, the eye of farmers to their homes is another big problem faced by the agriculture sector in the lockdown. The supply of human resources, agricultural inputs and the free flow of agricultural products also depend on our food production. And both of these are minimal because of the lockdown at this time. Such obstacles would add to poor food production and high food price inaction. Even if this lasts for more days later this year it will decrease food supply. Continuing the supply flow in the agriculture and food industry, which along with health, is one of the most critical sectors, is crucial to avoiding the food shortage and reducing the detrimental effects on the global economy during the pandemic [48]. Although no major problems have been found in the food supply chains so far in the face of an uncertain future, it remains unclear. As a result, each country must recognize the severity of the crisis and, due to the spread of the pandemic, safeguards will often be tightened or loosened. The supply chain should also be fairly flexible to respond to the food supply chain issues. [48] The alternative methods used to supply food was distributed among the local

neighbors, facilitating their transport to home delivery or sell around houses, dealing with the online sites to sell pantry and groceries online.

CONSENT

The participants gave consent and voluntarily joined the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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