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# A review of covid 19 in Tamilnadu with regression and correlation co-efficient

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## ABSTRACT

The present study is about the detailed analysis of the pandemic Corona Virus 2019 which has rocked the entire world with a maximum impact with its structure, its appearance and nomenclature. Clinical presentation and transmission, diagnostic technique. It's a respiratory illness caused by the virus SARS-CoV2 (Severe Acute Respiratory Syndrome). It's a syndrome is different from other virus syndromes as this might act as Symptomatic also as Asymptomatic. The common symptoms would be cold, fever, cough, sneezing, running nose, breathing issues, Fatigue, etc. The paper may be a vivid picture on the COVID 19 cases in Tamilnadu which is within the Southern part of India and therefore the treatments like Ventilator, Plasma, etc. and therefore the remedy offered to the patients like Naturopathy, Ayurvedic, Siddha, Unani, Homeopathy, etc., for better recovery and immunity to fight against the virus. It analyses the detailed reports and statistics during a regression form with reference to daily new death rate and total death rate with the assistance of statistical tools of the general rectilinear regression equation. The entire confirmed cases and daily new confirmed cases are plotted using Normal P-P plot of regression Standardized Residual. The Pearson correlation value is 0.837 which features a strong direct correlation between active cases and total recoveries.

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## 1. Introduction

It was reported in "Nature" within the year 1968 that there was a symbol of virus detected not only in avian bronchitis but it was observed by Almeida and Tyrell that it could be found in murine hepatitis and upper tract diseases in humans may be a disease which was mainly spread through avian which is otherwise referred to as birds. It had been found in chicks in 1931. Thus results in the invention of a gammacoronavirus with the very fact that the majority of the coronavirus which inflict humans are betacoronaviruses. Almeida and Tyrell named this as alphacoronavirus [1].

Coronaviridae is a common name which is assigned to a family of viruses with two subfamilies, Letovirinae and Coronavirinae. It is believed that the bats behave as a carrier or the source of Coronavirus (Fig. 1).

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### 1.1. Invasion of cells caused by Corona virus

The range of Coronavirus may be about 120 nanometers in diameter which is a single-stranded RNA virus. It might be highly vulnerable to mutation and will be recombined that creates it highly diverse. The impact factor of infection is found at the utmost with human and non-human mammals and birds. The total varieties of virus reside in bats and wild birds is around 40 which may likely spread to other animals and vice-versa to humans. The virus is originated from China's meat markets which sells meats from the wild animals

### 1.2. Appearance and nomenclature of Corona

The basic shape of Corona Virus is caused by the spike like structure which is named glycoproteins or peplomers which acts as a threshold to enter the host cells. The spike is splitted into two broad categories. They are S1 which is surmounted on the surface of the receptor's host cells and S2 glues with the plasma membrane. The enzymes of angiotensin present in the Severe

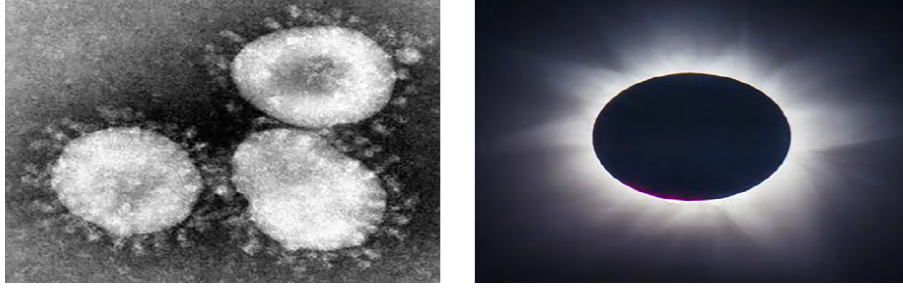


Fig. 1. Left: The virions of coronaviruses; Right: The corona of the sun seen during an eclipse.

Acute Respiratory Syndrome-CoV-1 and Severe Acute Respiratory Syndrome-CoV-2 act as a plasma membrane, Angiotensin Converting Enzyme2 differs from the enzyme that's inhibited by conventional Angiotensin Converting Enzyme 1 inhibitors which consists of enalapril and ramipril.

In a nutshell, the subunit of the spike S1 binds to the enzyme ACE-2 on the cell wall surface. TMPRSS2, a transmembrane serine protease number, then stimulates the spike and cleaves ACE-2. It has an impact on the S2 subunit, which triggers fusion of the virus to the cell wall. Thus leads to the virus getting into the cell through the process such as the discharge of endosomes by acidification or the action of an intracellular cysteine protease, cathepsin.

The First diagram indicates within the initial growth position of the virus within the cell wall. An S1 subunit (red) at the distal end of a glycoprotein spike of the virus sticks to a membrane-bound molecule of Angiotensin Converting Enzyme2 (blue). Since many S1 subunits of the glycoprotein spikes gets embedded to membrane-bound molecules of ACE-2, the membrane creates an envelope round the virus (an endosome). When the coronavirus gets closer to the cell wall, the process gets on until the endosome is complete.

There are two possible ways in which the virus can enter into the cell. They are:

TMPSRS2, a cell membrane-bound serine protease (brown), splits the S1 subunits (red) of the virus from its S2 subunits (black)

with the ACE-2 enzymes; thus causes the endosome to enter into the cell (endocytosis), through which the virus is released by acidification or the action of another protease, cathepsin.

TMPSRS2, the same serine protease, causes irreversible conformational changes within the S2 subunits of the virus, enabling them to fuse with the cell wall which may be due to the internalizing the cell.

Chronic pancreatitis is treated through a serine PI, camostat mesylate which is introduced in Japan that not only inhibits the TNPSRS2 but also helps by blocking the SARS-COV-2 entry into bronchial epithelial cells in Vitro (Fig. 2).

## 2. Clinical presentation

Coronaviruses affect our respiratory track making the affected feel too hard to breathe or breathe. It's too hard to trace the presence of the virus and people who are inflicted with it because it is both symptomatic and Asymptomatic. The symptoms of the disease are. Symptoms of the disease would be Respiratory symptoms, Fever at evaluation, Cough, Sneezing, Running Nose, Breathlessness, pharyngitis, Nausea, Diarrhea, Haemoptysis Loss of taste or smell.

There are only few categories of individuals who is found with similar symptoms are hospitalised especially when they are inflicted with pneumonia, ARDS, sepsis and septic shock [2].

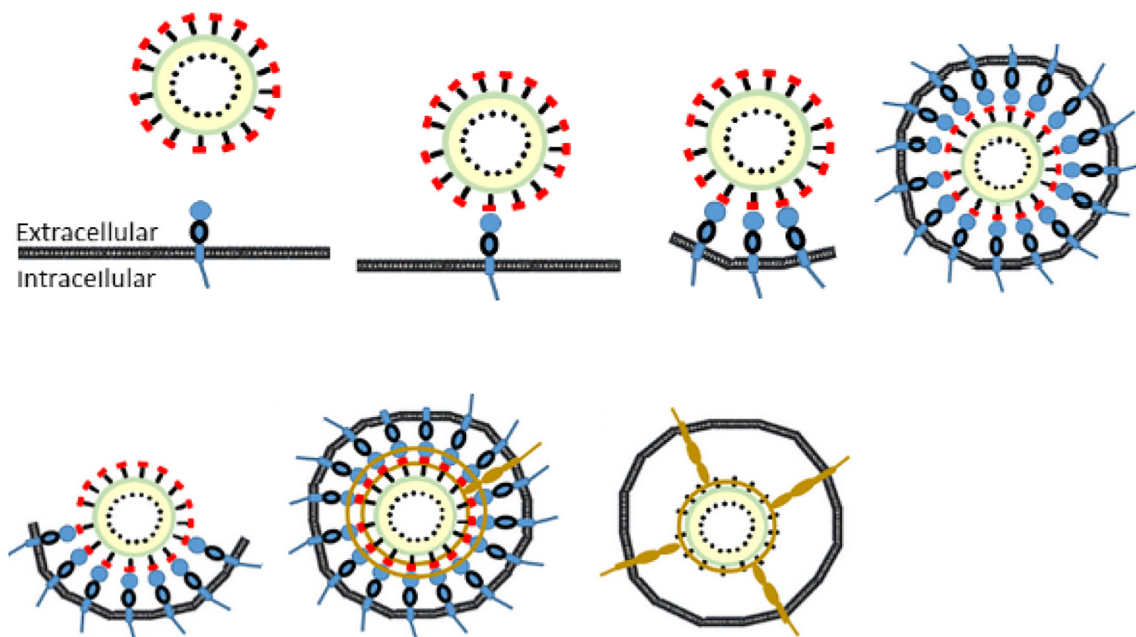


Fig. 2. A structural prototype of the coronavirus.



Fig. 3. Precautions or Best Practices to be carried out during Covid-19.

Immediate medical attention should be sought with emergency warning signs such as Breathlessness, Body ache, Abdominal pain, Haemoptysis, etc.

### 2.1. WHO's anchor role on higher risk populations

COVID-19 virus is claimed to infect people of all ages. The WHO has played a key role by initiating several measures and amendments for higher risk groups and community support. However, the evidence shows up that the impact is severe with two groups of individuals. They're the Older people that are over 70 years aged and therefore the other category of individuals are those who have serious chronic illnesses like Diabetes, disorder, Chronic respiratory disease, Cancer, Hypertension, Chronic disease have to be safeguarded from COVID-19 by attributing proper medical care and attention.

### 2.2. Epidemic transmission

Evidence remains emerging, but current information is indicating that it's transmitted through human-to-human. The modes of transmission of the virus remains vague even now, but it is still suspected that the disease may spread through large respiratory droplets and direct or indirect contact with infected secretions [3]. The time span of COVID-19 is said to be between 2 and 14 days [4]. If an individual remains stable after 14 days even after being in contact with someone with confirmed positive case, then the individual is completely recovered from the virus.

Prevention is best than cure: The WHO heads up with few basic preventive measures to guard against the new coronavirus [5] like keeping in touch with daily updates from the local and national

public health authorities on the virus outbreak. Wash your hands with a sanitizer and maintain hygiene.

### 2.3. Diagnostic procedure

Reverse Transcription Polymerase Chain Reaction (RT-PCR) kit has been devised and is implemented to diagnose positive cases in clinical testing labs [6]. However, it is merely 30–70% productive for cuspidated infection which might be due to incorrect use of lab kits as the grid of testing differs from country to country. The advice from CDC suggests that an individual who is said to have established contact with a person contracted with virus which results in symptoms listed above are advised to call their health-care practitioner [7]. The criteria for testing falls under the compliance such as Locality, Age group, patient history and liability of getting affected, Time span of symptoms [8].

The testing procedure would be carried out successfully iff the criteria is met. Gather test upper tract specimens by employing a nasopharyngeal swab, if it's feasible, then the lower tract specimens testing could be done, If a productive cough is clear then a sputum specimen X-ray and CT scan should be done.

Probable case and Confirmed cases: It is an inconclusive or a suspected case where the result shows that there may be a probable opportunity to have tested positive and an individual who is tested positive in the lab with the signs of virus.

## 3. Treatment

Siddha treatment centres for COVID-19 to come up in all districts.

Tamilnadu Government has initiated exclusive Siddha care centres for treating COVID-19 patients altogether the districts of the State. Siddha treatment is provided for patients who have mild symptoms and Asymptomatic COVID 19 positive. It's estimated that quite 75,000 COVID 19 patients are treated under the Indian medicine system in Tamil Nadu. An integrated treatment is obtainable to COVID 19 patients in Tamil Nadu and AYUSH doctors too are extending espouse to the patients with dedication. The govt identified and established quite 18 places for Siddha treatment exclusively in Tamilnadu. As a neighborhood of the treatment to the patients, Traditional food items and herbal concoctions like Kabasura kudineer got which receives a humungous response by the patients. Since the treatment is very successful, an equivalent treatment is obtainable to those that are admitted in Government hospitals [9]. They provide homeopathy treatment along side allopathic medicines and Multivitamin and Zinc tablets also are being given to the patients, to reinforce their immunity, as a precautions. The Tamil Nadu government has included yoga and naturopathy additionally to Siddha as add-on therapies for COVID-19 treatment. The patients are taught Yogasanas and pranayama to enhance the health of lungs, strengthen their minds and boost the immunity. The treatment is further extended to government medical college hospitals, government district headquarters hospitals and taluk hospitals across the state involving more than 200 experts [10].

The State which carries out the utmost testing is Tamilnadu where quite 26,58,138 are tested thus far and 1,83,956 persons are treated and discharged, which testifies to the effectiveness of the integrated treatment provided to the patients [11] (Fig. 3).

Ayurveda is a traditional and the treatment which has been in practise for several long years. The efforts are being taken to reiterate the positive benefits to meet the needs of the present and the future. The efforts are put in to find the solution for the virus and still it is not formulated [12].

Convalescent plasma (CP) is a treatment which is rendered to those who are affected with virus by collecting samples from the

patients who recovered completely to treat humans. This treatment seems to be an effective one as many patients got recovered from the virus. Tamilnadu Government had set up several Plasma centres throughout the districts in order to facilitate care on people and to increase the percentage of recovery [13].

### 3.1. Potential risks of convalescent plasma

It is obvious that the study states that the Capacitively Coupled Plasma treatment is proved to be useful and the adverse ratio is just one percentage which may not be due to this and could be due to several factors in medical field [15].

### 3.2. Donors of convalescent plasma

The requirement of the potential donors is that they should have a proper medical documentation or history of SARS-CoV-2 infection irrespective of whether they had nasopharyngeal swab positivity or serologic positivity and remain symptom-free for a period of 14 days to meet the standard donor eligibility requirements.

AABB: Donors have to locate AABB-accredited donation sites for information about convalescent plasma donation and a feature that helps potential donors to contact these centers for more information on eligibility.

- Food and Drug Administration Donate COVID-19 Plasma: It lists down the possible locality to donate convalescent plasma for transfusion or for manufacturing of hyper immune globulin
- National COVID-19 Convalescent Plasma Project [14]

[https://commons.wikimedia.org/wiki/Data:COVID-19\\_cases\\_in\\_Tamil\\_Nadu.tab](https://commons.wikimedia.org/wiki/Data:COVID-19_cases_in_Tamil_Nadu.tab)

Date	Total deaths	Total recoveries	Total confirmed cases	Active cases	Daily new confirmed cases	7-day moving average of new confirmed cases	Daily new deaths	7-day moving average of new deaths
07-03-2020	0	0	1	1	1	1	0	0
08-03-2020	0	0	1	1	0	0.5	0	0
09-03-2020	0	0	1	1	0	0.33	0	0
10-03-2020	0	1	1	0	0	0.25	0	0
11-03-2020	0	1	1	0	0	0.2	0	0
12-03-2020	0	1	1	0	0	0.17	0	0
13-03-2020	0	1	1	0	0	0.14	0	0
14-03-2020	0	1	1	0	0	0	0	0
15-03-2020	0	1	1	0	0	0	0	0
16-03-2020	0	1	1	0	0	0	0	0
17-03-2020	0	1	1	0	0	0	0	0
18-03-2020	0	1	2	1	1	0.14	0	0
19-03-2020	0	1	3	2	1	0.29	0	0
20-03-2020	0	1	3	2	0	0.29	0	0
21-03-2020	0	1	6	5	3	0.71	0	0
22-03-2020	0	1	7	6	1	0.86	0	0
23-03-2020	0	1	9	8	2	1.14	0	0
24-03-2020	0	1	15	14	6	2	0	0
25-03-2020	1	1	23	21	8	3	1	0.14
26-03-2020	1	1	29	27	6	3.71	0	0.14
27-03-2020	1	1	38	36	9	5	0	0.14
28-03-2020	1	2	42	39	4	5.14	0	0.14
29-03-2020	1	2	50	47	8	6.14	0	0.14



(continued)

Date	Total deaths	Total recoveries	Total confirmed cases	Active cases	Daily new confirmed cases	7-day moving average of new confirmed cases	Daily new deaths	7-day moving average of new deaths
30-03-2020	1	4	67	62	17	8.29	0	0.14
31-03-2020	1	6	124	117	57	15.57	0	0.14
01-04-2020	1	6	234	227	110	30.14	0	0
02-04-2020	1	6	309	302	75	40	0	0
03-04-2020	1	6	411	404	102	53.29	0	0
04-04-2020	3	8	485	474	74	63.29	2	0.29
05-04-2020	5	8	571	558	86	74.43	2	0.57
06-04-2020	6	8	621	607	50	79.14	1	0.71
07-04-2020	7	19	690	664	69	80.86	1	0.86
08-04-2020	8	21	738	709	48	72	1	1
09-04-2020	8	27	834	799	96	75	0	1
10-04-2020	8	44	911	859	77	71.43	0	1
11-04-2020	10	47	969	912	58	69.14	2	1
12-04-2020	11	50	1075	1014	106	72	1	0.86
13-04-2020	11	58	1173	1104	98	78.86	0	0.71
14-04-2020	12	81	1204	1111	31	73.43	1	0.71
15-04-2020	14	118	1242	1110	38	72	2	0.86
16-04-2020	15	180	1267	1072	25	61.86	1	1
17-04-2020	15	283	1323	1025	56	58.86	0	1
18-04-2020	15	365	1372	992	49	57.57	0	0.71
19-04-2020	15	411	1477	1048	105	57.43	0	0.57
20-04-2020	17	457	1520	1043	43	49.57	2	0.86
21-04-2020	18	635	1596	940	76	56	1	0.86
22-04-2020	18	662	1629	946	33	55.29	0	0.57
23-04-2020	20	752	1683	908	54	59.43	2	0.71
24-04-2020	22	866	1755	864	72	61.71	2	1
25-04-2020	23	960	1821	835	66	64.14	1	1.14
26-04-2020	24	1020	1885	838	64	58.29	1	1.29
27-04-2020	24	1101	1937	809	52	59.57	0	1
28-04-2020	25	1128	2058	902	121	66	1	1
29-04-2020	27	1210	2162	922	104	76.14	2	1.29
30-04-2020	27	1258	2323	1035	161	91.43	0	1
01-05-2020	28	1312	2526	1183	203	110.14	1	0.86
02-05-2020	29	1341	2757	1384	231	133.71	1	0.86
03-05-2020	30	1379	3023	1611	266	162.57	1	0.86
04-05-2020	31	1409	3550	2107	527	230.43	1	1
05-05-2020	33	1485	4058	2537	508	285.71	2	1.14
06-05-2020	35	1516	4829	3275	771	381	2	1.14
07-05-2020	37	1547	5409	3822	580	440.86	2	1.43
08-05-2020	40	1605	6009	4361	600	497.57	3	1.71
09-05-2020	44	1824	6535	4664	526	539.71	4	2.14
10-05-2020	47	1959	7204	5195	669	597.29	3	2.43
11-05-2020	53	2051	8002	5895	798	636	6	3.14
12-05-2020	61	2134	8718	6520	716	665.71	8	4
13-05-2020	64	2176	9227	6984	509	628.29	3	4.14
14-05-2020	66	2240	9674	7365	447	609.29	2	4.14
15-05-2020	71	2599	10,108	7435	434	585.57	5	4.43
16-05-2020	74	3538	10,585	6970	477	578.57	3	4.29
17-05-2020	78	4172	11,224	6971	639	574.29	4	4.43
18-05-2020	81	4406	11,760	7270	536	536.86	3	4
19-05-2020	84	4895	12,448	7466	688	532.86	3	3.29
20-05-2020	87	5882	13,191	7219	743	566.29	3	3.29
21-05-2020	94	6282	13,967	7588	776	613.29	7	4
22-05-2020	98	7128	14,753	7524	786	663.57	4	3.86
23-05-2020	103	7491	15,512	7915	759	703.86	5	4.14
24-05-2020	111	8324	16,277	7839	765	721.86	8	4.71
25-05-2020	118	8731	17,082	8230	805	760.29	7	5.29
26-05-2020	127	9342	17,728	8256	646	754.29	9	6.14
27-05-2020	133	9909	18,545	8500	817	764.86	6	6.57

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Date	Total deaths	Total recoveries	Total confirmed cases	Active cases	Daily new confirmed cases	7-day moving average of new confirmed cases	Daily new deaths	7-day moving average of new deaths
28-05-2020	145	10,548	19,372	8676	827	772.14	12	7.29
29-05-2020	154	11,313	20,246	8776	874	784.71	9	8
30-05-2020	160	12,000	21,184	9021	938	810.29	6	8.14
31-05-2020	173	12,757	22,333	9400	1149	865.14	13	8.86
01-06-2020	184	13,170	23,495	10,138	1162	916.14	11	9.43
02-06-2020	197	13,706	24,586	10,680	1091	979.71	13	10
03-06-2020	208	14,316	25,872	11,345	1286	1046.71	11	10.71
04-06-2020	220	14,901	27,256	12,132	1384	1126.29	12	10.71
05-06-2020	232	15,762	28,694	12,697	1438	1206.86	12	11.14
06-06-2020	251	16,395	30,152	13,503	1458	1281.14	19	13
07-06-2020	269	16,999	31,667	14,396	1515	1333.43	18	13.71
08-06-2020	286	17,527	33,229	15,413	1562	1390.57	17	14.57
09-06-2020	307	18,325	34,914	16,279	1685	1475.43	21	15.71
10-06-2020	326	19,333	36,841	17,179	1927	1567	19	16.86
11-06-2020	349	20,705	38,716	17,659	1875	1637.14	23	18.43
12-06-2020	367	22,047	40,698	18,281	1982	1714.86	18	19.29
13-06-2020	397	23,409	42,687	18,878	1989	1790.71	30	20.86
14-06-2020	435	24,547	44,661	19,676	1974	1856.29	38	23.71
15-06-2020	479	25,344	46,504	20,678	1843	1896.43	44	27.57
16-06-2020	528	26,782	48,019	20,706	1515	1872.14	49	31.57
17-06-2020	576	27,624	50,193	21,990	2174	1907.43	48	35.71
18-06-2020	625	28,641	52,334	23,065	2141	1945.43	49	39.43
19-06-2020	666	30,271	54,449	23,509	2115	1964.43	41	42.71
20-06-2020	704	31,316	56,845	24,822	2396	2022.57	38	43.86
21-06-2020	757	32,754	59,377	25,863	2532	2102.29	53	46
22-06-2020	794	34,112	62,087	27,178	2710	2226.14	37	45
23-06-2020	833	35,339	64,603	28,428	2516	2369.14	39	43.57
24-06-2020	866	37,763	67,468	28,836	2865	2467.86	33	41.43
25-06-2020	911	39,999	70,977	30,064	3509	2663.29	45	40.86
26-06-2020	957	41,357	74,622	32,305	3645	2881.86	46	41.57
27-06-2020	1025	44,094	78,335	33,213	3713	3070	68	45.86
28-06-2020	1079	45,537	82,275	35,656	3940	3271.14	54	46
29-06-2020	1141	47,749	86,224	37,331	3949	3448.14	62	49.57
30-06-2020	1201	50,074	90,167	38,889	3943	3652	60	52.57
01-07-2020	1264	52,926	94,049	39,856	3882	3797.29	63	56.86
02-07-2020	1321	56,041	98,392	41,027	4343	3916.43	57	58.57
03-07-2020	1385	58,378	102,721	42,955	4329	4014.14	64	61.14
04-07-2020	1450	60,592	107,001	44,956	4280	4095.14	65	60.71
05-07-2020	1510	62,778	111,151	46,860	4150	4125.14	60	61.57
06-07-2020	1571	66,571	114,978	46,833	3827	4107.71	61	61.43
07-07-2020	1636	71,116	118,594	45,839	3616	4061	65	62.14
08-07-2020	1700	74,167	122,350	46,480	3756	4043	64	62.29
09-07-2020	1765	78,161	126,581	46,652	4231	4027	65	63.43
10-07-2020	1829	82,234	130,261	46,195	3680	3934.29	64	63.43
11-07-2020	1898	85,915	134,226	46,410	3965	3889.29	69	64
12-07-2020	1966	89,532	138,470	46,969	4244	3902.71	68	65.14
13-07-2020	2032	92,567	142,798	48,196	4328	3974.29	66	65.86
14-07-2020	2099	97,310	147,324	47,912	4526	4104.29	67	66.14
15-07-2020	2167	102,310	151,820	47,340	4496	4210	68	66.71
16-07-2020	2236	107,416	156,369	46,714	4549	4255.43	69	67.29
17-07-2020	2315	110,807	160,907	47,782	4538	4378	79	69.43
18-07-2020	2403	113,856	165,714	49,452	4807	4493.29	88	72.14
19-07-2020	2481	117,915	170,693	50,294	4979	4603.29	78	73.57
20-07-2020	2551	121,776	175,678	51,348	4985	4697.14	70	74.14
21-07-2020	2626	126,670	180,643	51,344	4965	4759.86	75	75.29
22-07-2020	3144	131,583	186,492	51,762	5849	4953.14	74	76.14
23-07-2020	3232	136,793	192,964	52,936	6472	5227.86	88	78.86
24-07-2020	3320	143,297	199,749	53,132	6784	5548.71	88	80.14
25-07-2020	3409	151,055	206,737	52,273	6988	5860.29	89	80.29

(continued)

Date	Total deaths	Total recoveries	Total confirmed cases	Active cases	Daily new confirmed cases	7-day moving average of new confirmed cases	Daily new deaths	7-day moving average of new deaths
26-07-2020	3494	156,526	213,723	53,703	6986	6147	85	81.29
27-07-2020	3571	162,249	220,716	54,896	6993	6433.86	77	82.29
28-07-2020	3659	166,956	227,688	57,073	6972	6720.57	88	84.14
29-07-2020	3741	172,883	234,114	57,490	6426	6803	82	85.29
30-07-2020	3838	178,178	239,978	57,962	5864	6716.14	97	86.57
31-07-2020	3935	183,956	245,859	57,968	5881	6587.14	97	87.86
01-08-2020	4034	190,966	251,738	56,738	5879	6428.71	99	89.29
02-08-2020	4132	196,483	257,613	56,998	5875	6270	98	91.14
03-08-2020	4241	202,283	263,222	56,698	5609	6072.29	109	95.71
04-08-2020	4349	208,784	268,285	55,152	5063	5799.57	108	98.57
05-08-2020	4461	214,815	273,460	54,184	5175	5620.86	112	102.86
06-08-2020	4571	221,087	279,144	53,486	5684	5595.14	110	104.71
07-08-2020	4690	227,575	285,024	52,759	5880	5595	119	107.86
08-08-2020	4808	232,618	290,907	53,481	5883	5595.57	118	110.57
09-08-2020	4927	238,638	296,901	53,336	5994	5612.57	119	113.57
10-08-2020	5041	244,675	302,815	53,099	5914	5656.14	114	114.29
11-08-2020	5159	250,680	308,649	52,810	5834	5766.29	118	115.71
12-08-2020	5278	256,313	314,520	52,929	5871	5865.71	119	116.71
13-08-2020	5397	261,459	320,355	53,499	5835	5887.29	119	118
14-08-2020	5514	267,015	326,245	53,716	5890	5888.71	117	117.71
15-08-2020	5641	272,251	332,105	54,213	5860	5885.43	127	119
16-08-2020	5766	278,270	338,055	54,019	5950	5879.14	125	119.86
17-08-2020	5886	283,937	343,945	54,122	5890	5875.71	120	120.71
18-08-2020	6007	289,787	349,654	53,860	5709	5857.86	121	121.14
19-08-2020	6123	296,171	355,449	53,155	5795	5847	116	120.71
20-08-2020	6239	301,913	361,435	53,283	5986	5868.57	116	120.29
21-08-2020	6340	307,677	367,430	53,413	5995	5883.57	101	118
22-08-2020	6420	313,280	373,410	53,710	5980	5900.71	80	111.29
23-08-2020	6517	319,327	379,385	53,541	5975	5904.29	97	107.29
24-08-2020	6614	325,456	385,352	53,282	5967	5915.29	97	104
25-08-2020	6721	332,454	391,303	52,128	5951	5949.86	107	102
26-08-2020	6839	338,060	397,261	52,362	5958	5973.14	118	102.29
27-08-2020	6948	343,930	403,242	52,364	5981	5972.43	109	101.29
28-08-2020	7050	349,682	409,238	52,506	5996	5972.57	102	101.43
29-08-2020	7137	355,727	415,590	52,726	6352	6025.71	87	102.43
30-08-2020	7231	362,133	422,085	52,721	6495	6100	94	102
31-08-2020	7322	368,141	428,041	52,578	5956	6098.43	91	101.14
01-09-2020	7418	374,172	433,969	52,379	5928	6095.14	96	99.57
02-09-2020	7516	380,063	439,959	52,380	5990	6099.71	98	96.71
03-09-2020	7608	386,173	445,851	52,070	5892	6087	92	94.29
04-09-2020	7687	392,507	451,827	51,633	5976	6084.14	79	91
05-09-2020	7748	398,366	457,697	51,583	5870	6015.29	61	87.29

#### 4. Regression

The ANOVA table, as displayed in the above table shows the F ratio for the regression model that indicates the statistical significance of the general regression model. The F ratio is calculated in

an equivalent way for multivariate analysis. The variance experimental variable are explained. The F ratio calculation is 726.595. The statistical significance is zero which has no significance. The "Sig" is derived by using IBM SPSS 20.0 tool.

#### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.895(a)	0.801	0.799	19.29190

a Predictors: (Constant), TOTAL DEATH

b Dependent Variable: DAILY NEW DEATH



**ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	270422.465	1	270422.465	726.595	0.000(a)
	Residual	67364.136	181	372.178		
	Total	337786.601	182			

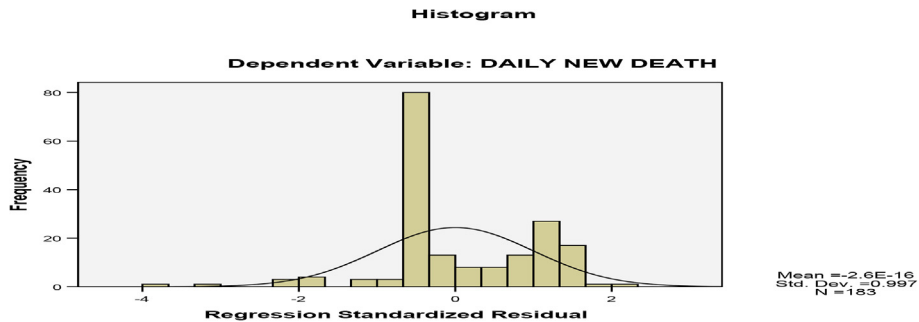
a Predictors: (Constant), TOTAL DEATH  
 b Dependent Variable: DAILY NEW DEATH  
**Coefficients(a)**

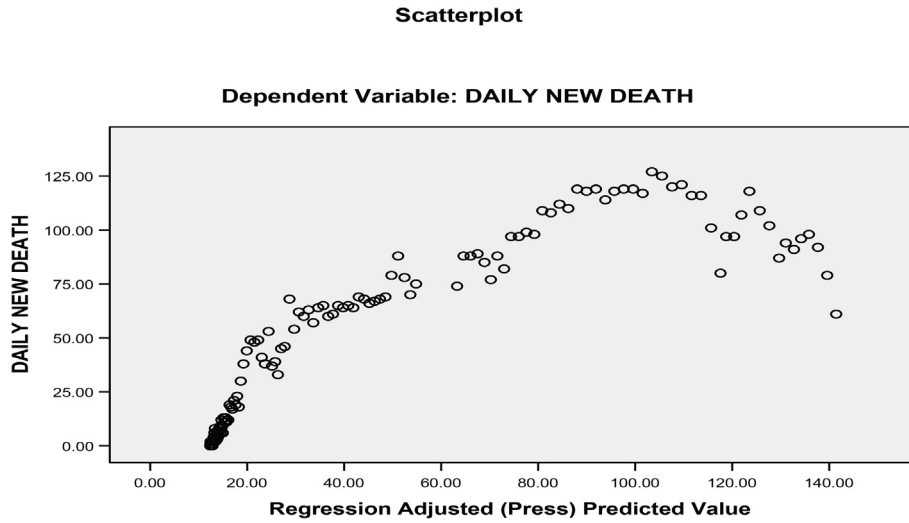
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.315	1.756		7.015	0.000
	TOTAL DEATH	0.016	0.001	0.895	26.955	0.000

a Dependent Variable: DAILY NEW DEATH  
**Residuals Statistics(a)**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	12.3151	138.1331	39.9126	38.54657	183
Std. Predicted Value	-0.716	2.548	0.000	1.000	183
Standard Error of Predicted Value	1.426	3.913	1.930	0.588	183
Adjusted Predicted Value	12.4179	141.4425	39.9886	38.71863	183
Residual	-77.13311	39.04018	0.00000	19.23883	183
Std. Residual	-3.998	2.024	0.000	0.997	183
Stud. Residual	-4.083	2.030	-0.002	1.006	183
Deleted Residual	-80.44246	39.27220	-0.07600	19.59730	183
Stud. Deleted Residual	-4.273	2.047	-0.003	1.014	183
Mahal. Distance	0.000	6.493	0.995	1.462	183
Cook's Distance	0.000	0.358	0.009	0.033	183
Centered Leverage Value	0.000	0.036	0.005	0.008	183

a Dependent Variable: DAILY NEW DEATH  
**Charts**



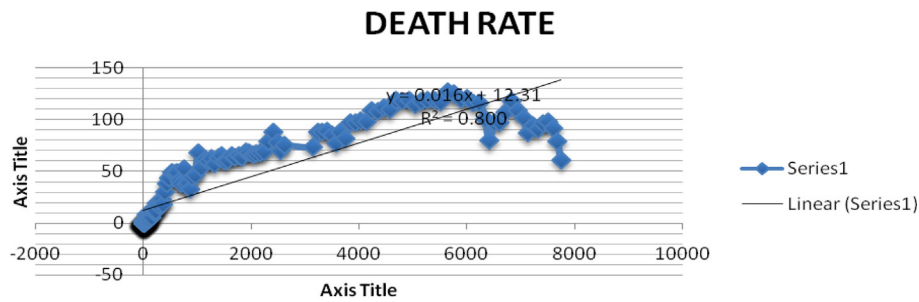


**Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.315	1.756		7.015	0.000
	TOTAL DEATH	0.016	0.001	0.895	26.955	0.000

a Dependent Variable: DAILY NEW DEATH

The obtained beta value is 0.895 which is significant where  $p = 0.000$ . Total death is the significant predictor of daily new death. Regression equation –  $Y = 0.016x + 12.31$



**4.1. The regression between total confirmed cases and daily new confirmed cases**

The F ratio is going to be the variance within the variable that's related to the experimental variable. The F ratio = 867.681. The statistical significance is zero.

**Model Summary(b)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.910(a)	0.827	0.826	1031.40925

a Predictors: (Constant), Total confirmed cases

b Dependent Variable: Daily new confirmed cases

**ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	923043218.700	1	923043218.700	867.681	0.000
	Residual	192548711.376	181	1063805.035		
	Total	1115591930.077	182			

a Predictors: (Constant), Total confirmed cases

b Dependent Variable: Daily new confirmed cases

**Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	756.627	96.542	0.910	7.837	0.000
	Total confirmed cases	0.016	0.001			

a Dependent Variable: Daily new confirmed cases

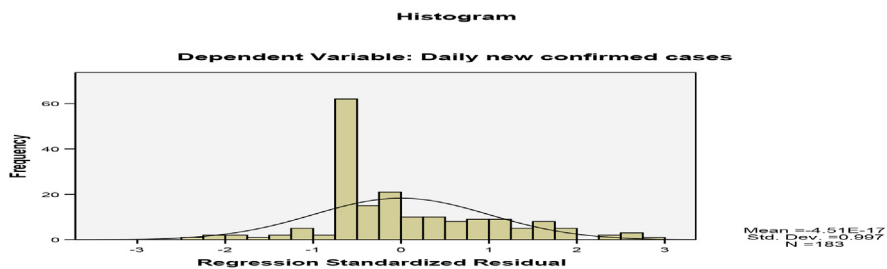
**Residuals Statistics(a)**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	756.6437	8198.6475	2501.0710	2252.03598	183
Std. Predicted Value	-0.775	2.530	0.000	1.000	183
Standard Error of Predicted Value	76.244	207.909	103.543	30.169	183
Adjusted Predicted Value	763.3226	8297.2754	2505.2763	2260.13802	183
Residual	-2328.64746	2869.88916	0.00000	1028.57180	183
Std. Residual	-2.258	2.782	0.000	0.997	183
Stud. Residual	-2.305	2.794	-0.002	1.004	183
Deleted Residual	-2427.27588	2893.90063	-4.20526	1042.42249	183
Stud. Deleted Residual	-2.333	2.848	0.000	1.010	183
Mahal. Distance	0.000	6.401	0.995	1.383	183
Cook's Distance	0.000	0.113	0.007	0.015	183
Centered Leverage Value	0.000	0.035	0.005	0.008	183

a Dependent Variable: Daily new confirmed cases

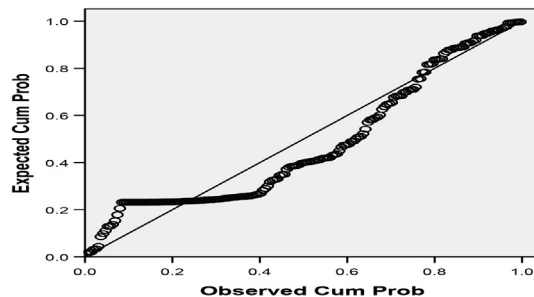
**Charts**

**Charts**



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Daily new confirmed cases

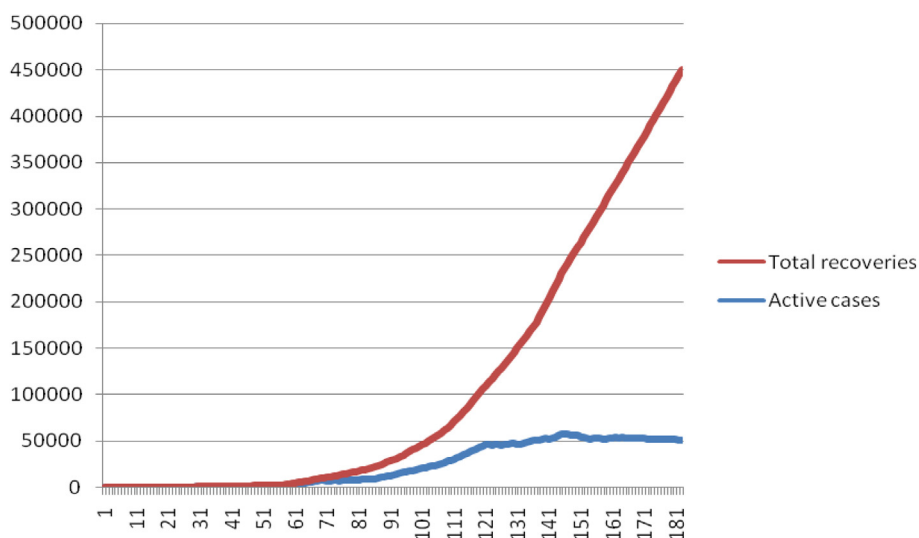


## Correlations

		ACTIVE	TOTAL RECOVERY
ACTIVE	Pearson Correlation	1	0.837(**)
	Sig. (2-tailed)		0.000
	N	183	183
TOTAL RECOVERY	Pearson Correlation	0.837(**)	1
	Sig. (2-tailed)	0.000	
	N	183	183

\*\* Correlation is significant at the 0.01 level (2-tailed).

The r value is 0.837 which shows strong positive correlation between Active covid cases and Total cases recovered. The p value is 0.000.



## 5. Conclusion

COVID 19 in Tamilnadu is seen a steep increase because the total number of individuals got affected is quite 5000 on a day though the cases which recover is found to be more. It's pretty vivid from the statistical chart that COVID-19 is transmitted in Clusters or the extent of community spread. From the study, it's vivid that alternative treatments like Siddha, Ayurvedic, Unani, Homeopathy, Naturopathy helps the people to urge recovered from illness and boost their immunity. The Tamilnadu Government takes various steps to curb the virus to make sure that the State is free from virus. This text strongly suggests that the choice treatment helps the patients to urge cured and recovered quickly. We have arrived the data through correlation and regression for the Government and the medical community to use it as a precautionary measure for the future.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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### Further Reading

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