

Yajna combats COVID-19: A Scientific Research on how Yajna can improve immunity and reduce COVID-19 Active Cases

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ABSTRACT: It is evident that reducing the air pollution decreases the COVID-19 active cases and fatality rate. Medicinal smokes are used in treatment of pulmonary and neurological disorders. Yajna (Agnihotra or Medicinal Smokes) is one of the methods for reducing air pollution, water pollution, increasing immunity, and treating several health problems in humans. From 1st to 19th August 2020 the total Active Cases in combined East and West Godavari districts of Andhra Pradesh, India increased from 14,027 to 20,985. The projected trendline indicated that the active cases could rise to 39,059 by 30th September 2020. With the help of Theosophical Society in East Godavari, we did Yajna (with specific herbs) for 15 days that started on the evening of 19th August at three locations in and around Rajahmundry to reduce the active COVID-19 cases in East and West Godavari Districts of Andhra Pradesh (A.P.). Due to the Yajna the COVID-19 active cases in East and West Godavari have reduced to 15,932. This is about 59% decrease from the projected trendline. A similar trendline for the rest of the Andhra Pradesh indicated that there is only 29% decrease in the active cases. During the same duration, Hyderabad District (Telangana State) with the same population of East and West Godavari had a rise in the active cases. This clearly indicated that Yajna can increase immunity and decrease the COVID-19 active cases along with reducing air pollution.

KEYWORDS: COVID-19, Coronavirus, Yajna, Agnihotra, Medical Smoke, air pollution, immunity.

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I. INTRODUCTION

According to World Health Organization (WHO) [1] Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered contagious virus. Most people will recover without requiring special treatment. Serious illness may develop in people with underlying medical problems and older people. Washing hands and not touching the face with hands will protect from the spread of the virus. Respiratory etiquette is mandatory since the spread of the COVID-19 virus is mainly due to saliva droplets, nasal discharge when an infected person coughs or sneezes.

According to WHO as of 1st October 2020, there is no vaccine, no medicine, about 33.8 million confirmed cases, and more than one million deaths due to COVID-19 virus throughout the world. In India the total cases as of 1st October 2020 is more than 6 million.

1.1 Andhra Pradesh COVID-19 cases as of 1st August 2020

II. Table-1 As of 1st August 2020 COVID-19 Cases in Andhra Pradesh(A.P.) [2], India.

S.No	District	Positives Last 24 Hrs	Total Positives	Total Active Cases	Total Recovered	Total Deceased
1	Anantapur	1128	15827	8822	6885	120
2	Chittoor	949	11327	5203	6010	114
3	East Godavari	876	21271	7782	13317	172
4	Guntur	1001	15669	7162	8366	141
5	Kadapa	547	8423	4353	4026	44
6	Krishna	357	7200	2308	4728	164
7	Kurnool	1234	18081	8586	9294	201
8	Nellore	559	7875	5196	2635	44
9	Prakasam	402	5569	2558	2946	65
10	Srikakulam	455	7025	3001	3950	74
11	Visakhapatnam	1155	11920	8698	3109	113
12	Vizianagaram	119	4323	2274	1991	58
13	West Godavari	494	12804	6245	6462	97
	Total AP Cases	9276*	147314	72188	73719	1407
14	Other States	0	2461	0	2461	0
15	Other Countries	0	434	0	434	0
	Total	9276	150209	72188	76614	1407

As of 1st August (Table-1) we see that the total active cases in East and West Godavari were 14,027 and these two districts recovery was about 26.8% (Eq.1 and 2). Whereas rest of the A.P. had a recovery of about 73.2%.

$$\% \text{ Recovery} = (\text{Total recovery in East and West Godavari districts}) / \text{Total recovery in A.P.} \text{ ----- (1)}$$

$$\% \text{ Recovery in East and West Godavari districts} = (13,317 + 6,462) * 100 / 73,719 = 26.8\% \text{ -----(2)}$$

1.2 COVID-19 cases in the state of Andhra Pradesh (A.P., India) as of 19th August 2020

As of 19th August 2020 (Table-2) the total active cases in East and West Godavari districts surged to 20,985 and the recovery rate decreased to about 21.7%. Whereas the rest of the A.P. recovery rate increased from 73.2% to 78.2%. This indicated that rest of the A.P. is recovering faster than East Godavari and West Godavari put together as of 19th August 2020.

Table-2 As of 19th August 2020 COVID-19 Cases in Andhra Pradesh (A.P.)[3], India

S.No	District	Positives Last 24 Hrs	Total Positives	Total Active Cases	Total Recovered	Total Deceased
1	Anantapur	1123	31630	5590	25794	246
2	Chittoor	830	25737	9348	16117	272
3	East Godavari	1399	43999	15767	27937	295
4	Guntur	555	28365	7787	20265	313
5	Kadapa	673	18759	4464	14166	129
6	Krishna	281	13041	2636	10170	235
7	Kurnool	794	35576	7234	28034	308
8	Nellore	755	19084	5489	13425	170
9	Prakasam	585	13533	5050	8292	191
10	Srikakulam	565	16228	5333	10713	182
11	Visakhapatnam	835	27090	5857	21012	221
12	Vizianagaram	428	14036	6952	6953	131
13	West Godavari	919	26030	5218	20599	213
	Total AP Cases	9742*	313108	86725	223477	2906
14	Other States	0	2461	0	2461	0
15	Other Countries	0	434	0	434	0
	Total	9742	316003	86725	226372	2906

1.3 COVID-19 cases in the state of Telangana, a neighbor of A.P. on 1st and 19th August 2020

Table-3 Telangana State of India from 1st to 19th August 2020 [4]

Date	Location	Total Cases	Recovered Cases
01-Aug-2020	Telangana	64,786	46,502
19-Aug-2020	Telangana	95,700	73,991

On comparing with neighboring Telangana State (Table-3) we noticed that the recovery rate in Telangana increased from about 72% to 77% from 1st to 19th August 2020. In summary we observe that the active cases in East and West Godavari were alarming as of 19th August 2020, specifically in East Godavari district of A.P.

1.4 What is the method followed by the world for combating COVID-19?

Since there are no definite medicines, vaccines, or therapy for COVID-19, various countries are following the guidelines given by WHO [5], or by following government lockdowns, house quarantine, wearing mask, washing hands with soap, and social distancing etc. In India there had been a lockdown for more than two months (from 22nd March 2020), but the situation did not improve.

1.5 Problem statements

At the time of writing this paper, there is no treatment specifically approved for people with COVID-19 according to FDA (Food and Drug Administration, USA) [6]. The only method is to improve immunity of the human body and follow the guidelines given by WHO and the local governments.

1.6 What interested us to improve immunity in East and West Godavari Districts?

Yongjian Zhu et al [7] worked on the relation between air pollution and COVID-19 confirmed cases. Their work indicated that with the increase in air pollution there is a significant increase in the COVID-19 infection.

Xiao Wu et al [8] in their work concluded that “A small increase in long-term exposure to PM_{2.5} leads to a large increase in the COVID-19 death rate”. Antonio Frontera et al [9] concluded that persisting exposure to PM_{2.5} and high atmospheric NO₂ may provide worse outcome in COVID-19 patients.

Daniele Contini et al [10] concluded in their work that “Exposure to air pollution could increase vulnerability and have detrimental effects on the prognosis of patients affected by the COVID-19”. Kai Chen et al [11] observed that improved air quality and reduction in PM_{2.5} reduced some cardiovascular deaths and PM_{2.5}-related deaths.

Abdolali et al [12], have reviewed Medicinal Smokes from different countries in different continents. According to their review, one of the three main methods for administering smoke is inhalation, directed smoke, and as air purifier. First is used in the treatment of pulmonary and neurological disorders. Second is used for dermatological and Genito-urinary disorders. The third is used as an air purifier.



Fig-1 Yajna (source: <https://sreenivasaraos.com/tag/yajna>)

“Medicinal Smokes is a part of Yajna (Agnihotra)” and “Yajna” is a Scientific process that is carefully carried by specialists who are well trained in executing the process. As shown in the above Fig – 1, a fire pit is prepared, and fire is kept inside the pit with the help of special sticks known as “Samidhas”. These “Samidhas” are obtained from various trees such as Ashwath, Udumbar (Ficus Glomerata), Palaash (Butea Frondosa), Shami (Prosopis), and Vikadgand (Capparis Spinosa). Then cow ghee (Butter turns to ghee on heating), other food materials, precious metals, scented materials such as sandalwood, and herbs are kept in the fire at regular intervals.

In Yajna four types of materials are used for offering in the fire Yajna. (1) Scented materials such as Kasturi, and saffron. (2) Sweet materials - jaggery, honey, etc., (3) Strength producing materials such as cow ghee, cow milk, and rice. (4) Health preserving materials – herbs, precious metals, etc.

These materials are acquired and purified before offering them in proper proportions in the Yajna. Because of this air and rainwater get purified and everyone gets pleasure. The above said materials when offered in the fire of Yajna, become minute and mix with the air.

When these materials are offered in the fire Yajna hot smoke and steam are produced. Due to heat these materials get dried by releasing the vapors from them. These vapors mixing with the air enters the atmosphere. In that vapor the water part is steam and particles mixed with steam part is smoke. These vapors and particles interact with the atmospheric particles and purify the air. These vapors and particles collect together and form clouds. Because of this we get good rains with purified water.

An ahuthi is the selected/allowed material that is offered in the fire pit or Yajna fire. Each ahuthi is equal to about 10 grams of either ghee, herbs, or cooked food such as sweets. For our experiments we have offered anywhere from 5,000 to 10,000 ahuthis depending on the Yajna design.

The Yajna fire generally is between 200 to 1,000 degrees Celsius and above. At this temperature generally all materials (eatables, herbs, etc.) are vaporized and the molecules/atoms/ions rise high into the atmosphere. These molecules have high kinetic energy and travel long distances and climb great heights as the density of these vapors

is lesser than the surrounding air. These molecules have the capacity to interact with the atmospheric gases/particles and cause reducing the pollution. As an example, Sulphur dioxide can be removed using Carbon (Sappok and Walker) [13].

Experimental results [14] showed that the air pollutants could be reduced by Yajna. It was shown that Sulphur oxide compounds reduced by about 51% and Nitrogen Oxide compounds reduced by about 60% while respiratory suspended particulate matter reduced by 9% and suspended particulate matter reduced by 65% respectively.

It was found that the Particulate Matter values [15] after the Yajna were reduced by more than 50%, the quality of the rainwater that was collected within three days after the Yajna was having a pH of 6.5, and the Total Dissolved Solids were 34 indicating clean rainwater or water purification.

A scientific study of Yajna was done by Pathade and Pranay [16] and their report indicates that Yajna fumes reduces the microbial load in air up to 30 feet in their setup, Agnihotra fumes increases plant growth, Yajna ash removed water pathogens, and ultimately purifies the water.

The work performed by Vasanthi [17] observed that there could be a possibility of phytosteroid precursors or brass in brassinosteroids being produced or triggered in plants due to the volatile substances produced by Yajna fire.

Experiments conducted on Yajna by Narayana Rao et al [18] found very high concentrations of Zinc (Zn) in SPM (suspended particulate matter). The authors expressed that it could be due to the materials such as pumpkin that were offered in the Yajna.

Pachori et al [19] in their Yajna experiment observed that reduction of microbial count was 43, 30.84 and 56.07% for Bacteria, Fungi and Actinomycetes respectively. Study shed light on the possible scientific utility of Yajna for air disinfection to control respiratory infection.

Based on the research works that were mentioned in the previous paragraphs and the surge in the active cases in East and West Godavari districts of Andhra Pradesh, we decided to do Yajna in East Godavari district on the boarder of West Godavari district in order to release medicinal smokes so as to decrease air pollution and increase immunity in the people that could bring down the COVID-19 active cases.

This paper gives the process and results of the Yajna and its effect on reducing the air pollution in Rajahmundry (also known as Rajamahendravaram, East Godavari District of A.P. India) and decrease in the active cases in East and West Godavari Districts of A.P. due to the Yajna. The Yajna was performed by Theosophical Society of Rajahmundry between 19th August and 2nd September 2020 under the technical knowhow provided and guided by Vedas World Inc, GA USA.

III. MATERIAL AND METHODS

The members of Theosophical Society are convinced to conduct Yajna for minimizing the Active Cases of COVID-19 in East and West Godavari districts of A.P. One of the key members of Theosophical Society Prof. Dr. Rudra has done preliminary survey of Population, area of Godavari districts, and sought the opinion of Vedas World Inc. With their (Vedas World) wide experience of performing Yajna with scientific reasoning has suggested an innovative model to reduce the active cases of COVID-19. Vedas World proposed Yajna in 3 locations in East & West Godavari Districts of A.P.

Several iterations are done in finalization of venues. Couple of cities and towns were proposed and logistics were evaluated. Finally zeroed on three venues which covered both districts of Godavari.



Figure – 2 Shapes of the Yajna Kundas used for (East and West Godavari) Yajna.

Yajna Kunda Design and Rationale:

Different structures (Figure -2) of Yajna kundas are designed for optimizing the benefits of Yajna. Square shaped Yajna Kunda (1 in Fig-2) is designed with 3.5 feet each side and depth 3.5 feet for east location. Round shaped Yajna Kunda (2 in Fig-2) is designed with 4 feet diameter with depth of 4 feet for west location. Semi-circle shaped Yajna Kunda (3 in Fig-2) is designed with 2.8 feet radius with depth of 2.8 feet for south location. Open surface area is the same for all the three Yajna Kundas to obtain the optimal effect.

For east location Yajna point is decided in GSL Hospital which is declared as COVID hospital with 300-Bed facility. It is situated 20 kms from Rajahmundry. Yajna Location is in Bridge County Gated Community for peaceful conduct of Yajna without external interferences. Proper COVID measures are assessed for finalization of Prime venue. The main priest Narasimha Sharma and his team are assigned to this east venue. Along with the decided form of Yajna, another most powerful process of Yajna “PRAVARGYA” was also performed here.

Spanning towards west, Tallapudi village is identified and finalized after evaluating couple of towns in West Godavari. Mr. Koduri Bujji and his family members came forward to perform Yajna with the support of villagers.

Theosophical Society of Dhavaleswaram in the banks of Godavari river, 5 kms towards south of Rajamahendravaram, is selected as south venue as it is devoid of religion-based activities and perfect for Yajna - remedial ritual of current pandemic.

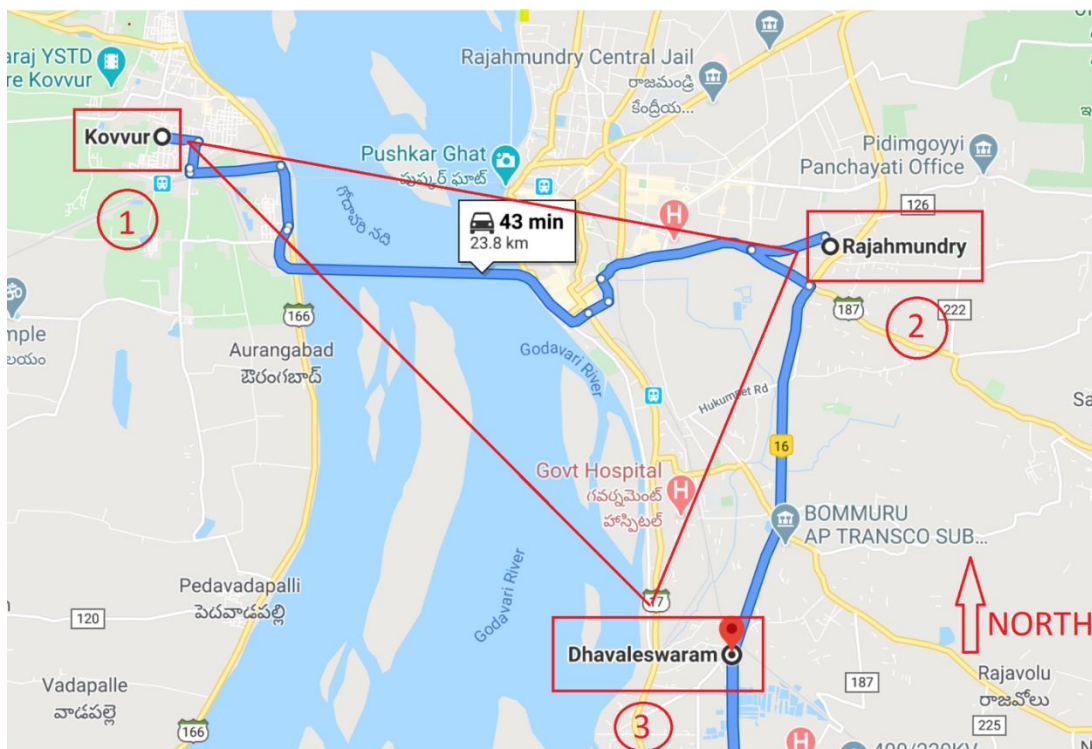


Figure – 3 Locations of the Yajna Kundas (2&3 in East Godavari and 1 in West Godavari).

The teams of Theosophical Society have geared up swiftly and conducted the Yajna for 15 days, under the able guidance of Vedas World, which started on the evening of 19th August 2020 (Amavasya or new moon day) and continued till 2nd September 2020 (Poornima or full moon day).

The Yajna had started on 19th August 2020 (Amavasya) at sunset at western side Yajna Kunda with a special ignition process of fire and brought to eastern side Yajna Kunda which is 30 kms away. Then the fire from the western Yajna Kunda was brought to eastern side Yajna Kunda and the fire was lit to start the Yajna. Then the same fire is carried to southern side Yajna Kunda which is 25 kms away, then fire was lit to start the Yajna. The Yajna is carried out uninterruptedly in three locations – every day - morning right after sunrise for 3 hours and 2 hours before sunset.

Table – 4 List of Items used in the Yajna at each location per each day at Rajahmundry

Herbs/Materials	Grams	Herbs/Materials	Grams	Herbs/Materials	Grams
1.Charila	100	21.NariMota	100	41. Raasna	100
2.Talisapatra	100	22. Nanamali	100	42. KounchBeej	100
3.Sheetalcheeni	100	23. Clove	100	43. Muleti	200
4.Camphor	100	24. Dhoop	100	44. Nata;	100
5.Devadhaaru	100	25.Cardamom	100	45. Turmaric	100
6. Giloi	200	26. Undanav	200	46.Indrayan	100
7. Ari	100	27. Raal	100	47. Kusalanjan	100
8. Tari	100	28. Bacha	100	48. Khaand	100
9. Kesar	100	29. Tulasi	100	49. Khuubkala	200
10.Indrajou	100	30. Sungandbaala	100	50. Chutpatra	500
11. Seseme	100	31. NaariKesar	100	51. Vishnukrant	500
12.Sandalwood	100	32. Braahmi	100	52. Doorvaaryugma	500
13. Javatri	100	33. Chuhara	100	53. Different leaves used in Vinayaka Puja	2,000
14. Jayaphal	100	34. Gachrouji	100	54. Ghee (Butter)	20,000
15. Sarasou	100	35. VapatatPapada	100	55. Samidha (Wood)	25,000
16. Pushkarmool	100	36. Bhaari	100		
17. Majita	100	37. Renuka	100		
18. Tejpatra	100	38. Munnakka	200		
19.Gacarayata khas	100	39. Kuut	100		
20.Rice	100	40.Kaakada	100		

IV. RESULTS AND DISCUSSIONS

Table-5 Air Quality Index (AQI) [20], Rajahmundry, East Godavari District, A.P.

From Date	To Date	PM _{2.5}	PM ₁₀	CO	NO _x	Ozone	SO ₂
01-Aug-2018	31-Aug-2018	14.63	45.37	0.87	9.40	38.82	11.02
01-Aug-2019	31-Aug-2019	13.28	41.62	0.78	6.95	40.86	7.31
20-Aug-2020	03-Sep-2020	13.23	35.59	0.47	6.63	30.92	6.39

India is a tropical country and has three main seasons - summer, rainy, and winter. In general, the average values of the pollutants in particular month remain almost similar with that of previous year same month because the same season exists during that month. Therefore, we compared the air pollution of the Yajna period with same month in the previous years.

From Table-5 we can observe that during 2018 and 2019 in the month of August, the average values of all the six pollutants are higher than the average values during the Yajna period. This indicates that the Yajna reduced the air pollution hence we can expect a decrease in COVID-19 cases as explained earlier (Xiao Wu*) and increase in the immunity of people in the two districts.

We have collected various datasets from official data sources to examine the results of the Yajna and compared them with other locations for the same period, where Yajna is not conducted.

Table-6 Two Datasets for analysis and comparison.

Dataset I	60 Days – from 01-Aug-2020 to 30-Sep-2020 COVID Active and Recovered Cases – East and West Godavari Districts, Andhra Pradesh State, India
Dataset II	47 Days – from 15-Aug-2020 to 30-Sep-2020 COVID Active Cases – Hyderabad, Telangana State, India

Table-7 Godavari Districts dataset is split into four parts to cover four scenarios.

Scenario	Date Range	Purpose
Pre-Yajna	01-Aug to 19-Aug	About three-weeks of COVID data before Yajna has started.
Yajna Period	20-Aug to 02-Sep	About two-weeks of COVID data during the Yajna
Right After Yajna	03-Sep to 10-Sep	About 10 days of COVID data, right after Yajna to assess the effect of Yajna, which typically lasts about this time frame.
Post-Yajna	11-Sep to 30-Sep	About 20 days of COVID data, post Yajna to see how long the Yajna effect can continue.

Importance of Active Cases [21]: While we can track any of the COVID-19 confirmed, active, recovered, or fatal cases, it is meaningful to track the active cases. The lesser the active cases, the better hospitals and medical professionals can attend the COVID-19 patients. This is referred to as “flattening the curve”.

Projected Trendline [22]: We created a mathematical model, regression equation, using the relationship between dependent X (days) and independent variables Y (active cases) to find the best fit line to make predictions or draw trendline of the future active cases. Calculate the R-squared value, a statistical measure, of the trendline – is between 0 and 1. If it is closer to 1, the data fits to the model very well.

Based on the data fluctuations [23], various quadratic equations – linear, logarithmic, exponential, or polynomial – can be applied to get the best model. Linear regression is a simple algebraic equation relating X and Y variables using a simple algebraic equation: $Y = m * X + c$, where m is the slope of the line and b is the y-intercept. In Linear regression, we predict the value of continuous variables.

Logarithmic regression can be applied in scenarios where the data changes rapidly and then levels out. Exponential regression will be applied when data increases slowly initially and then increases rapidly thereafter. When data fluctuates throughout the dataset with one or more ups (hills) and downs (valleys), polynomial regression can be applied.

In the case of East and West Godavari combined dataset, the trendline can be a simple linear regression as the data did not fluctuate much.

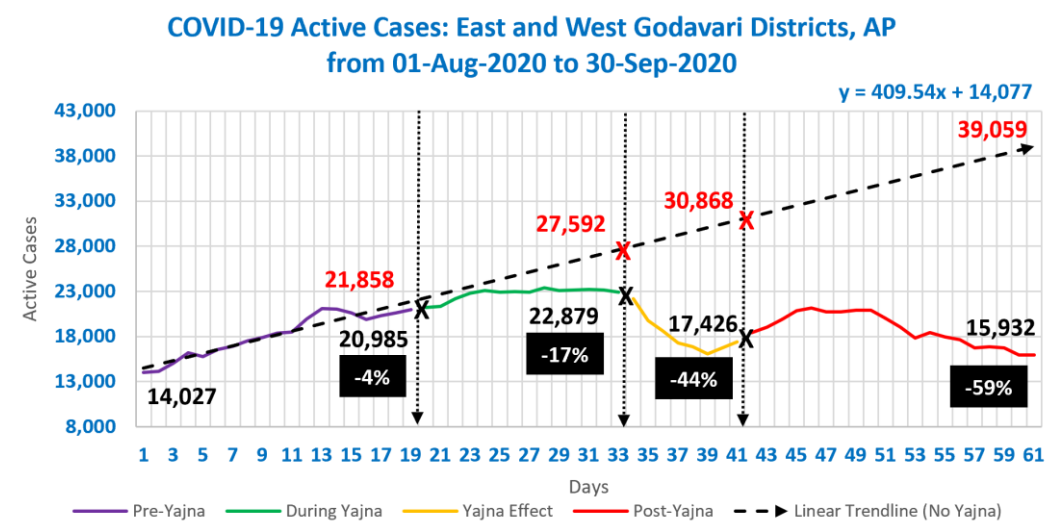


Figure – 4 Active Cases in combine East and West Godavari Districtsof A.P. India from 1st August to 30th September. Purple curve is the active cases rise before Yajna. Dotted blackline is Trend line. Green curve indicates how the Active cases dropped during Yajna. Yellow curve indicates that the Yajna effect remained effectively till 10th September and Red curve indicates post Yajna effects.

COVID-19 Active Cases: East and West Godavari Districts, A.P. [24]: As predicted, the COVID active cases have been drastically reduced in the East and West Godavari combined districts by 59% to 15,932 (Figure -4). Without Yajna, active cases would have been raised to 39,059 as per the predicted trendline. All the 4 partitioned datasets: pre-Yajna, during Yajna, after Yajna with continued Yajna impact for shorter-period and the longer period of post-Yajna. In all these datasets, active cases have been decreased consistently, initially with smaller decrease and as the effect of Yajna reaches to the peak levels the percentage of the active cases kept going down. It passed beyond our original estimated effect to be until 10-Sep-2020.

Table – 8 Summary of the Active Cases Graph (Fig-4)

Scenario	Date Range	Actual COVID Active Cases	Project COVID Active Cases	Difference (%)
Pre-Yajna	01 to 19-Aug	20,985	21,858	-4%
Yajna Period	20 Aug to 02-Sep	22,879	27,592	-17%
Right After Yajna	03-Sep to 10-Sep	17,496	30,868	-44%
Post-Yajna	11-Sep to 30-Sep	15,932	39,059	-59%

COVID-19 Active Cases: Rest of Andhra Pradesh from 01-Aug-2020 to 30-Sep-2020

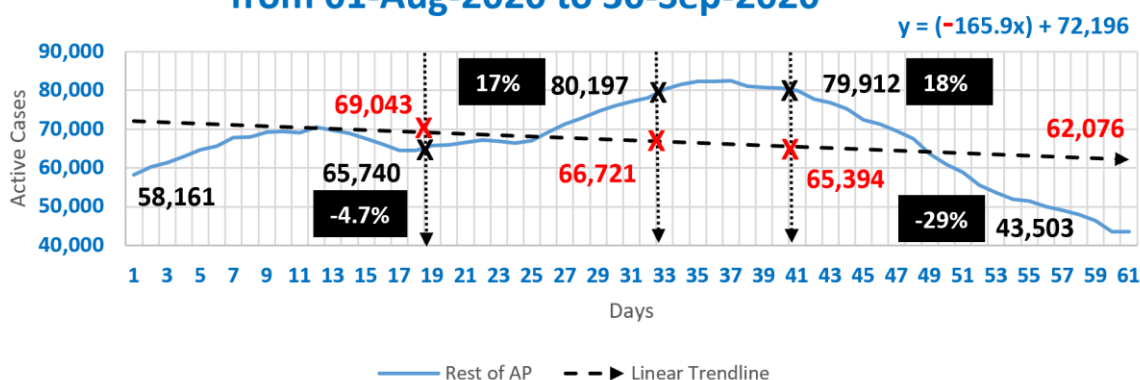


Figure – 5 Active Cases in rest of A.P. from 1st August to 30th September. Blue curve is the actual active cases and the dotted blackline is the trendline.

We have tracked the COVID active cases for rest of Andhra Pradesh (Table-5) without East and West Godavari districts. Overall active cases have been reduced by 29% to 43,503 from the predicted trendline of 62,076. This is in line with East and West Godavari districts as the benefits of Yajna been spread to neighborhood districts as predicted. But the decrease in Active cases in East and West Godavari is far superior than the rest of the Andhra Pradesh. Table-8 gives the details of the decrease (59%) in Active Cases in combined East and West Godavari Districts of A.P. This clearly indicates the effects of Yajna.

COVID-19 Active Cases: Hyderabad from 15-Aug-2020 to 30-Sep-2020

$$y = 349.72x + 44720$$

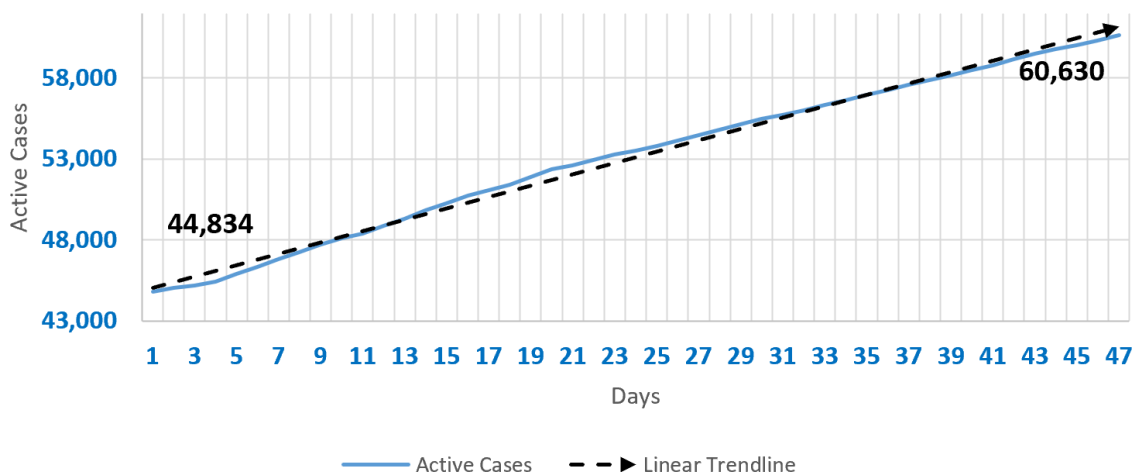


Figure – 6 Active cases in Hyderabad between 1st August and 30th September.

We have also examined the COVID active cases (Figure-6) in Hyderabad [25], which has comparable population, medical facilities, and other facilities to that of combined East and West Godavari districts put together. As expected, the active cases in Hyderabad are very well in line with the predicted trendline because there was no large scale Yajna in Hyderabad. Therefore, the Active cases in Hyderabad kept increasing without any relief. During the period of 01-Aug-2020 to 30-Sep-2020, active cases have raised from 44,834 to 60,630.

COVID-19: % of Active Cases of Godavari Districts, AP From 01-Aug-2020 to 30-Sep-2020

$$y = 0.0031x + 0.1844$$

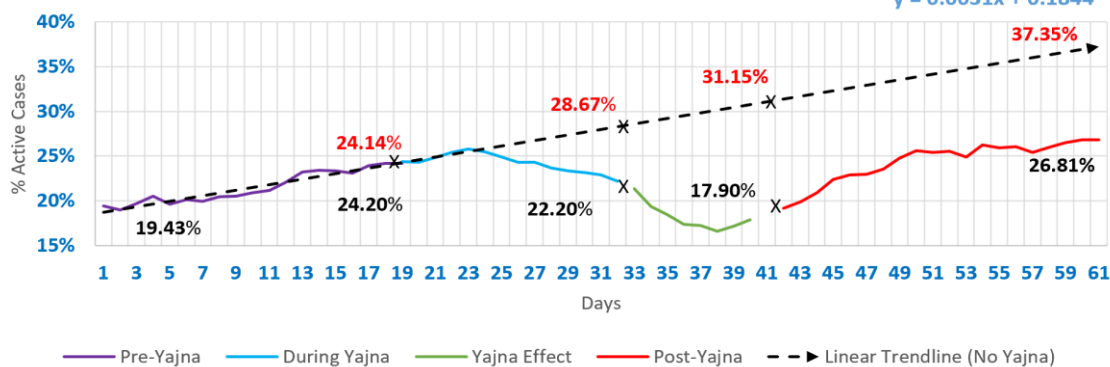


Figure – 7 Decline of % Active Cases in East and West Godavari put together (See - 3).

$$\% \text{ Active Cases} = (\text{Total Active Cases in East and West Godavari}) / \text{Total Active Cases in A.P.} \text{ ---- (3)}$$

From Fig-7 we find that the % Active cases in East and West Godavari districts increased from 19.43 to 24.14% between 1st August and 19th August. Whereas the % decreased from 24.14% to 22.20% during the Yajna period (19th August to 2nd September 2020). By 10th September the % of Active cases have fallen to 17.90%. During the same period (19th August to 10th September) the Active Cases in the rest of the Andhra Pradesh have increased from 75.86% to 82.1%. Therefore, this indicates that Yajna brought down the Active Cases in the combined East and West Godavari districts.

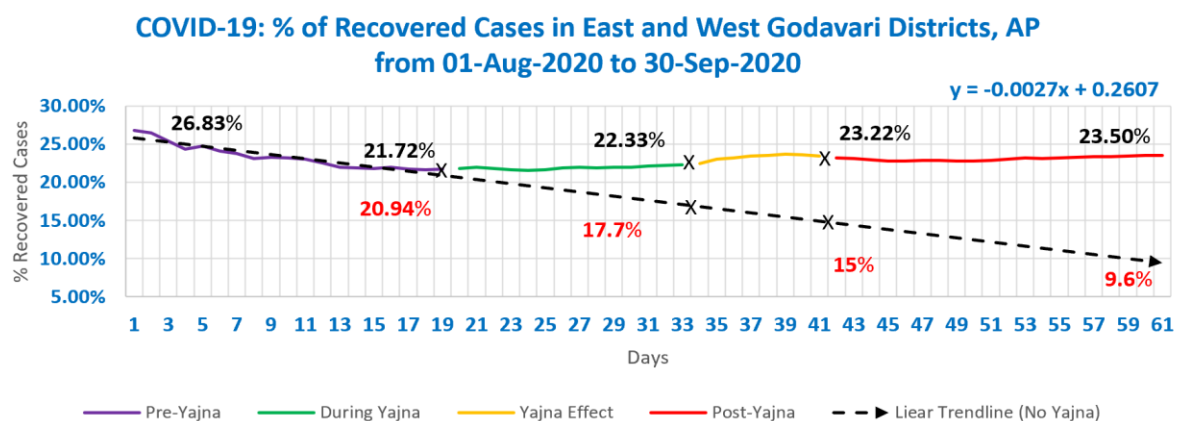


Figure – 8 Increment in % Recovered Cases in combined East and West Godavari Districts of A.P. due to Yajna. The formula to calculate is given in (1).

From Fig-8 we find that the % Recovered cases in Combined East and West decreased from 26.83% to 21.72% from 1st August to 19th August. The rest of the A.P. the Recovered Cases have increased from 73.17% to 78.28%. But we can see that due to the Yajna (from 19th August to 2nd September 2020) the Recovered % increased to 21.72% and kept on increasing to 23.50% by the end of 30th September. Where as the rest of the A.P. Recovered Cases % decreased from 78.28% to 76.50% during the same period (19th August to 30th September 2020).

Summary of the Yajna Results on COVID-19 Active Cases:

1. From 1st August to 19th August the total Active Cases in combined East and West Godavari districts increased from 14,027 to 20,985.
2. From 1st August to 19th August the percentage of the Active Cases in Combined East and West Godavari districts increased from 19.43% to 24.14%.
3. From 1st August to 19th August the percentage of the Active Cases in rest of the A.P. have decreased from 80.57% to 75.86%.
4. From 1st August to 19th August the percentage of the Recovery Cases in Combined East and West Godavari districts decreased from 26.83% to 21.72%.
5. From 1st August to 19th August the percentage of the Recovery Cases in rest of the A.P. increased from 73.17% to 78.28%.
6. Yajna was performed in three locations (two locations in East Godavari and one location in West Godavari districts) from 19th August to 2nd September 2020.
7. All the six air pollutants – PM_{2.5}, PM₁₀, CO, NO_x, Ozone, and SO₂ - have decreased during the Yajna period. Therefore, we must see a decline in the Active Cases and increase in the Recovery Cases.
8. Due to Yajna the percentage of the Active Cases in combined East and West Godavari districts decreased from 24.14% to 22.20% by the end of the Yajna and further decreased to 17.90% by the end of 10th September (Yajna effects remain for 2 to 10 days depending on the scale of the Yajna).
9. Whereas the rest of the A.P. where there is no Yajna, the Active Cases have increased from 75.86% to 82.1% during the same time (19th August to 10th September 2020).
10. Due to Yajna the percentage of the Recovered Cases in combined East and West Godavari districts increased from 21.72% to 23.50% between 19th August and 30th September.
11. Rest of the A.P. where there is no Yajna, the percentage of the Recovered Cases decreased from 78.28% to 76.5% between 19th August and 30th September.
12. Hyderabad, the same population as that of combined East and West Godavari districts, where no significant Yajna was performed, we see that the Active Cases have increased steadily from 44, 834 to 61,263.

V. CONCLUSIONS AND RECOMMEDATIONS

Yajna, also known as the Medicinal Smokes, is well proven scientific and cost-effective method to control the air and water pollution along with improving the immunity in human beings. Historically Yajnas have been conducted consistently throughout the year to improve echo system of the nature: pollution-free green environment and improved health of all living beings. COVID-19 – coronavirus enforced us to be more immune to survive. Human beings are needed to build the antibodies that live longer to fight against this pandemic disease. Evidently, air pollution increases the risk of exposure to air pollutants such as PM_{2.5}, PM₁₀ and increases the chance of COVID-19 patients. The Yajna that was conducted in East and West Godavari districts has reduced the

air pollution, drastically reduced COVID-19 active cases in both districts as predicted, and rapidly increased the recovery of COVID-19 patients. Yajna provides the shield in the atmosphere that protects us from not only the pollution but also from the viruses such as COVID-19 by making us healthy and immune. Yajna, being conducted in three locations of Godavari Districts of Andhra Pradesh in India, is another attempt to prove that Yajna is a cheaper and effective way to control the COVID-19 active cases for long time. The benefits of the Yajna are widespread to cover larger areas having higher densities of population. It is high time for the world to evaluate the benefits of ancient vedic sciences and practices without traditional or cultural ambiguities; bring them to practice getting best of both ancient and modern worlds.

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