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A Temporal Analysis of Covid 19 in Nilakkotai Taluk With Block Wise

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Abstract

The most recently discovered corona virus causes corona virus disease COVID-19. COVID -19 is the infectious disease caused by the most recently discovered corona virus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019. A qualitative approach was adopted for the study. The study utilized the Krejcie and Morgan sample size table for determining the sample size (Krejcie & Morgan, 1970, For the present study the secondary data has been obtained from the 2020-2022, government reports and Nilakottai and Batlagundu government hospital and unpublished records. In Nilakottai taluk is business area in famous for gold smith and flower marketing so mostly other district peoples were come from in the market sources to Nilakottai taluk. So the people came from higher density to Nilakottai taluk. This is factor of corona virus spread in Nilakottai Block. Batlagundu in main junction of tourist visits because of kodaikanal near to this block and it connects with the main district of Dindigul, Theni and Madurai network also connected in the central of Batlagundu So the people moving from Academic, Business, Tourist, Medical, Administrative all the orientation in Batlagundu. So it is easily affected in the covid 19. In Nilakottai taluk the lockdown is successful by the help of health inspector and taluk officer are much more effect to control population movements, and infection areas were closed, and maintain the spread & split out the prevention powder and the medicine, herbal water vitamin C tablet and nila vembu kasayam and distributed by the people in in the street, these all factors were control by the covid 19 were not spread out in the Nilakottai taluk.

Keywords: Corona -Affected; Recover; Death Ratio; R0 Factor

Introduction

Corona viruses are a large family of viruses which may cause illness in animals or humans. In humans, several corona viruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome

(MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered corona virus causes corona virus disease COVID-19. COVID -19 is the infectious disease caused by the most recently discovered corona virus. This new virus and disease were unknown before the outbreak began in Wuhan, China, in December 2019.

A qualitative approach was adopted for the study. The study utilized the Krejcie and Morgan sample size table for determining the sample size (Krejcie & Morgan, 1970). as follows Fifty sample respondent households of people living in the adjoining areas of Nilakkottai taluk in Dindigul district of Tamil Nadu affected by the COVID-19 pandemic were interviewed with the help of a predetermined and well-structured interview schedule, and focus group discussions were conducted among people affected by the COVID-19 pandemic selected. Therefore the present study contemplates COVID-19 and its impact on people living in the selected rural areas of Nilakkottai taluk in Dindigul district of Tamil Nadu

Study area

The present study area Nilakottai taluk is in Dindigul district located between $10^{\circ}0'$ N to $10^{\circ}17'$ North latitude and $77^{\circ}40'$ E to $77^{\circ}68'$ East longitude. Nilakottai taluk is found in the southern most part of Dindigul district. Nilakottai taluk shares borders with Kodaikanal, Author and Dindigul taluk in North and East Madurai district in the South of Nilakottai, Theni district is in the west. The NH 7 and state high passes through this taluk. The taluk is divided into two community block and 40 villages and 5 town panchayats of urban area for the implementation of development activities. The panchayats are grouped into two development Blocks namely Nilakottai and Batlagundu (Fig 3.2). In This block covers an area of 259.78 sq kms. There are 23 panchayats and 28 revenue villages, as per 2011- census, The total population is 165932, of whom 84093 are male and 81839 are women. The Density of population per sq Km is 810 persons. The percentage of urban population to total population is 25%.

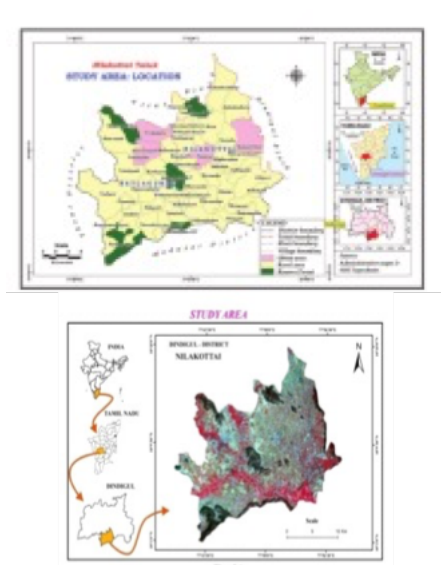


Fig. 1. Study area map

Aims and Ojective

In this project we have dived deep into 'What does data say about Covid-19 situation in Nilakottai taluk?' And with available data we came up with some observations and conclusions.

This analysis mainly focuses on:

What is the current COVID-19 situation in Nilakottai taluk?

- Block - wise comparison.
- What could be the reasons behind cases clusters found in Nilakottai taluk?.
- Is lockdown in Nilakottai taluk successful or not?

Database and Research Methodology

Database

The study is based on the analysis of medical data the period during 2020 to 2022, and currently analysis of the covid 19 secondary sources at taluk and level. The secondary source of affecting and death rate in Nilakottai taluk.

Sources of Secondary Data

For the present study the secondary data has been obtained from the published literature, government reports and Nilakottai and Batlagundu government hospital and unpublished records. Nilakottai government hospital ,Batlagundu government hospital

Methodology of the Study

The design of the study is descriptive and diagnostic study, based on both primary and secondary data. This study explores the impact of COVID-19 on the people living in the adjoining areas of Nilakottai, dindigul district of Tamil Nadu with particular reference to knowledge, attitude, awareness, and survival in analytical perspectives. This study is a descriptive and diagnostic analysis based on primary and secondary sources of information and statistical data with high indexed journals, published data, and research discussed using the various definitions.

Analysis Covid 19 Cases in Nilakottai Taluk

Nilakottai taluk recorded its first COVID-19 case on 2020-2022 in Nilakottai. The infected person was a people who had travelled to Chennai for marketing or business purpose. And since then cases in Nilakottai is rising exponentially

1. What is the current situation in Nilakottai taluk?

2. As shown above, Nilakottai taluk had recorded over 690 cases till 2020-2021. So government declared nation-wide lockdown from 2020 - 2021 also known as lockdown 1.0 and after this government has been extending nation-wide lockdown step by step Situation in Nilakottai till 2020 - 2022

(1) Confirm Cases: 690, (2) Recovery rate: 653, (3) Death rate: 37

Table 1. Nilakottai	
Confirm cases	50%
Recovery rate	47%
Death rate	3%

Nilakottai taluk is showing (fig: 3.2) good recovery rate day by day with low rate of deaths but on the other hand it is also reaching new peak of confirmed cases every day. If we talk at the level of patients then as per sample size 690 cases.

Table 2. Nilakottai	
FEMALE	42%
MALE	58%

As shown above, number of infected males is greater than that of females. The more exposure of males in Indian family to outside work could be the reason behind this.

Block-Wise Comparison in Nilakottai Taluk

Nilakottai taluk consist of 2 Block Territories with varying features such as demography, geography, location, lifestyle etc. Which can decide the spread of contagious virus. Comparing COVID-19 situation in Taluk gives us insight of which Taluk /Block is to be focused.

Table 3. Batlagundu Block (2019)

Area	Affected	%	Recov- ery	%	Death
Agrakaram st	1	2.3	1	2.5	0
Aarunachalam st	8	19	7	17.5	1
Batlagundu main	2	4.8	1	2.5	1
Gandhi Nagar	13	31	13	-	0
Kamarajapuram	2	4.8	2	-	0
Pethaniyapuram	4	9.5	4	-	0
Pleeshpuram	1	2.3	1	2.5	0
South st	4	9.5	4	-	0
VOC Nagar	6	14	6	-	0
Vivekananda Nagar	1	2.3	1	2.5	0

Table 4. Nilakottai Block (2019)

Area	Affected	%	Recov- ery	%	death
Nilakottai main	65	59	64	60	1
Anantha nagar	9	8.2	9	8.2	0
Chekkadi street	3	2.8	3	2.8	0
EB Colony	5	4.5	5	4.5	0
Kamajar Nagar	7	6.4	6	5.5	1
Madurai road	6	5.5	6	5.5	0
Narasimman colony	2	1.8	2	1.8	0
New street	4	3.6	3	2.8	1
Periyar Colony	6	5.5	6	5.5	0
Pallivasal street	2	1.8	2	1.8	0

In (2019-2020) covid cases in nilakkotai block affected people 109and recover people106death ratio 3,as follows areas were nilakkotai main 59% ananthan nagar8.2%, Chekkadi street8.8%, EB Colony 4.9%, Kamajar Nagar6.4% Madurai road5.5%, Narasimman colony1.8%, New street 3.6%, Pallivasal street1.8%,In the same time Recovery ratio also 100%in all area ,Remainng Nillakkotai main,kamarajar nagar,new street per one person death due to corona virus in Nilakkotai taluk compare to bathlagundu block affected area was lesser ratio these block totally affected 42person,recover 40persons , as follows areas were in Agrakaram st2.3%, Aarunachalam st 19%, Batlagundu main 4.8%, Gandhi Nagar 31%, Kamarajapuram 4.8%, Pethaniyapuram 9.5%, Pleeshpuram 14%, South st 9.5% VOC Nagar 14%, Vivekananda Nagar 2.3%

Table 5. Nilakottai Block

Area	Affected	%	Recov- ery	%	death
Nilakottai main	31	28	25	25	6
Anantha nagar	6	5.4	6	-	0
Chekkadi street	8	7.2	8	-	0
EB Colony	12	10.9	10	1	2
Kamajar Nagar	7	6.3	7	-	0
Madurai road	12	10.9	12	-	0
Narasimman colony	2	1.8	2	-	0
New street	17	15	15	15	2
Periyar Colony	12	10.9	12	-	0
Pallivasal street	3	2.7	3	-	0

In (2020-2021) covid cases in nilakkotai block affected people 110and recover people100death ratio 10,as follows areas were nilakkotai main 28% ananthan nagar5.4%, Chekkadi street7.2%, EB Colony 10.9%, Kamajar Nagar6.4% Madurairoad10.9%, Narasimman colony1.8%, New street 16%, Pallivasal street2.8%,In the same time Recovery ratio

Table 6. Batlagundu Block

Area	Affected	%	Recov- ery	%	Death
Agrakaram st	11	7.8	9	7	2
Aarunachalam st	5	3.7	4	3	1
Batlagundu main	50	35.7	47	37	3
Gandhi Nagar	42	30	38	30	4
Kamarajapuram	2	1.4	1	0.7	1
Pethaniyapuram	4	2.8	4	-	0
Pleeshpuram	8	5.7	6	4.7	2
South st	4	2.8	4	-	0
VOC Nagar	8	5.7	7	5.5	1
Vivekananda Nagar	6	4.2	6	4.7	0

also 100% in all area, Remaining Nilakkotai main, EB Colony, kamarajar nagar, new street per 6,2 person death due to corona virus in Nilakkotai taluk compare to bathlagundu block affected area was higher ratio these block totally affected 142 person, recover 126 persons, as follows areas were in Agrakaram st 7.3%, Aarunachalam st 3.7%, Batlagundu main 35.8%, Gandhi Nagar 30%, Kamarajapuram 1.4%, Pethaniyapuram 2.8%, Pleeshpuram 5.7%, South st 2.5% VOC Nagar 5.7%, Vivekananda Nagar 4.3%

Table 7. Nilakottai Block (2021)

Area	Affected	%	Recov- ery	%	death
Nilakottai main	5	31	5		0
Anantha nagar	2	12.5	2		0
Chekkadi street	1	6	1		0
EB Colony	1	6	1		0
Kamajar Nagar	1	6	1		0
Madurai road	2	12.5	2	100	0
Narasimman colony	1	6	1		0
New street	2	12.5	2		0
Periyar Colony	1	6	1		0
Pallivasal street	0	-	0		0

In (2021-2022) covid cases in nilakkotai block affected people 16 and recover people 16 death ratio 0, as follows areas were nilakkotai main 31% ananthan nagar 12.5%, Chekkadi street 6.2%, EB Colony 6.2%, 10.9%, Kamajar Nagar 6.4% Madurai road 12.5%, 10.9%, Narasimman colony 6.2%, 1.8%, New street 12.5%, , Pallivasal street 6.2%, In the same time Recovery ratio also 100% in all area, in Nilakkotai taluk compare to bathlagundu block affected area was lower ratio these block totally affected 15 person, recover 15 persons death ratio 0, as follows areas were in Agrakaram, Pethaniyapuram,

Table 8. Covid 19 Cases in Batlagundu Block (2021)

Area	Affected	%	Recov- ery	%	Death
Agrakaram st	0	-	0	-	0
Aarunachalam st	0	-	0	-	0
Batlagundu main	7	46.6	7		0
Gandhi Nagar	6	40	6	100	0
Kamarajapuram	1	6.6	1		0
Pethaniyapuram	0	-	0	-	0
Pleeshpuram	0	-	0	-	0
South st	1	6.6	1	6.6	0
VOC Nagar	0	-	-		0
Vivekananda Nagar	0		0	-	0

Aarunachalam st Pleeshpuram, VOC Nagar, Vivekananda Nagar 0% these areas were nobody's affected corona virus, but Batlagundu main 46.8%, Gandhi Nagar 40%, Kamarajapuram 6.6%, 2.8%, Pleeshpuram South st 1.6% affected corona virus as soon as they were 100% recover.

R0 Factor

The R0 factor also known as Basic Reproduction Number. The R0 factor of an area denotes how many more persons can be infected due to a person who is having the disease. If R0 is 1.2 then it means 1 infected person can infect 1.2 person by the same disease. So that 5 people can infect total 6 new persons ($1.2 \times 5 = 6.0$).

Table 9 It shows the believed that India is having steady $R0 = 1.23$ since 25th May which is still higher than normal. While imposing nation-wide lockdown R0 is considered as one of the factor. If the R0 values are less than 1 i.e. one infected person cannot infect another person then lockdown is to be lifted. But Lockdown in India is being lifted in steps despite having R0 factor greater than It could lead to drastic results in future

Nilakottai taluk is having Affected rate close to 90 followed by, Nilakottai main,

Anantha nagar, Chekkadi st, EB colony, Kamarajar nagar, Narasimman colony, New st,

Periyar colony, Pallivasal st, Agrakaram street, Aarunachalam street, Batlagundu main,

Gandhi Nagar, Kamarajapuram, Pethaniyapuram, Pleeshpuram, South street, VOC Nagar, Vivekananda Nagar, with affected rates 100, 61, 59, 23 respectively.

In Nilakottai taluk covid 19 affected people in Nilakottai main 101, recovery 97 rate 4 death rates. EB colony affected people 18, recovery 16 rates, and death rate 12. Kamarajar nagar covid 19 people affected in 15, recovery 14 rates, death rate -1. New street covid 19 affected people in 23, recovery people in 20, death rate in 3. Agrakaram street covid 19 affected people 12, recovery people in 10 and death rate 2.

Table 9. R0 Factor

Area	Year	Total Affected	R0 Factor
Anantha nagar	2020	9	45
	2021	6	30
	2022	2	2
Nilakottai	2020	65	310
	2021	31	155
	2022	5	25
Chekkadi street	2020	0	0
	2021	8	40
	2022	1	5
EB Colony	2020	5	25
	2021	12	60
	2022	1	5
Kamajar Nagar	2020	7	35
	2021	7	35
	2022	1	5
Madurai road	2020	1	5
	2021	1	5
	2022	2	10
Narasimman colony	2020	2	10
	2021	2	10
	2022	1	5
New street	2020	4	20
	2021	17	85
	2022	2	10
Pallivasal street	2020	2	10
	2021	3	15
	2022	0	0
Periyar Colony	2020	6	30
	2021	12	60
	2022	1	5

Arunachalam street Covid 19 affected people in 13, recovery people in 12 and death rate 1. Batlagundu main covid 19 affected people in 59, recovery people in 55, and death rate 4. Gandhi nagar affected people 61, recovery rates in 57 and 4 death rates. Kamarajapuram covid 19 affected people in 5 recovery 4 rates and 1 death rate. Pleeshpuram affected people in 9, recovery 7 rates and death rate in 2. VOC nagar covid 19 affected people in 14 recovery 13 rates and death rate 1.

In 2019 covid- 19 patients are affected and same ratio recovered in some place here death ratio there are as follower areas were Anantha nagar 17/17 , Chekkadi street 12/12, Madurai main 20/20, Narasimman colony 5/5, Periyar colony 19/19, Pallivasal street 5/5, Pethaniyapuram 8/8, South street 9/9, Vivekananda nagar 7/7.

Agrakaram street	2020	1	10
	2021	11	55
	2022	0	0
Arunachalam street	2020	8	40
	2021	5	25
	2022	0	0
Batlagundu	2020	2	10
	2021	50	250
	2022	7	35
Gandhi Nagar	2020	13	65
	2021	42	210
	2022	6	30
Kamarajapuram	2020	2	10
	2021	2	10
	2022	1	5
Pethaniyapuram	2020	4	20
	2021	4	20
	2022	0	0
Pleeshpuram	2020	1	5
	2021	8	40
	2022	0	0
South street	2020	4	20
	2021	4	20
	2022	1	5
VOC Nagar	2020	6	30
	2021	8	40
	2022	0	0
Vivekananda Nagar	2020	1	5
	2021	6	30
	2022	0	0

Covid 19 Death Rate in Nilakottai Taluk

2 Death rate is calculated by, $100 \times (\text{number of deaths in a block} / \text{number of confirmed cases in a Nilakottai taluk})$. The number obtain after this calculation is the number of deaths behind every 690 confirmed cases in that Nilakottai taluk (fig:3.12). Higher the number more the area is to be focused.

Nilakottai taluk is having death rate over 6 followed by, Nilakottai main, Anantha nagar, Chekkadi st, EB colony, Kamarajar nagar, Narasimman colony, New st, Periyar colony, Pallivasal st, Agrakaram street, Aarunachalam street, Batlagundu main, Gandhi Nagar, Kamarajapuram, Pethaniyapuram, Pleeshpuram, South street, VOC Nagar, Vivekananda Nagar with death rates 5 , 4.2 , 3.5 , 3.4 respectively. Where as whole areas death rate on 2020to 2022. Taluk / Block with death rate more than 3.5 are to be taken care of more intensive. In Nilakottai taluk2020-22 three years compare to both block first year affected rate was high and 2nd year was very high but 3rd year very low death ratio also nil ,because the lockdown is successful by the help of health

Table 10. Summary of Nilakottai taluk

Location	Affected	Recovered	Died
Nilakottai main	101	97	7
Anantha Nagar	17	17	0
Chekkadi st	12	12	0
EB Colony	18	16	2
Kamarajar Nagar	15	14	1
Madurai road	20	20	0
Narasimman colony	5	5	0
New street	13	20	3
Periyar colony	19	19	0
Pallivasal st	5	5	0
Agrakaram st	12	10	2
Aarunachalam st	13	11	2
Batlagundu main	59	55	4
Gandhi Nagar	61	57	4
Kamarajapuram	5	4	1
Pethaniyapuram	8	8	0
Pleeshpuram	9	7	2
South st	9	9	0
VOC Nagar	14	13	1
Vivekananda Nagar	7	7	0

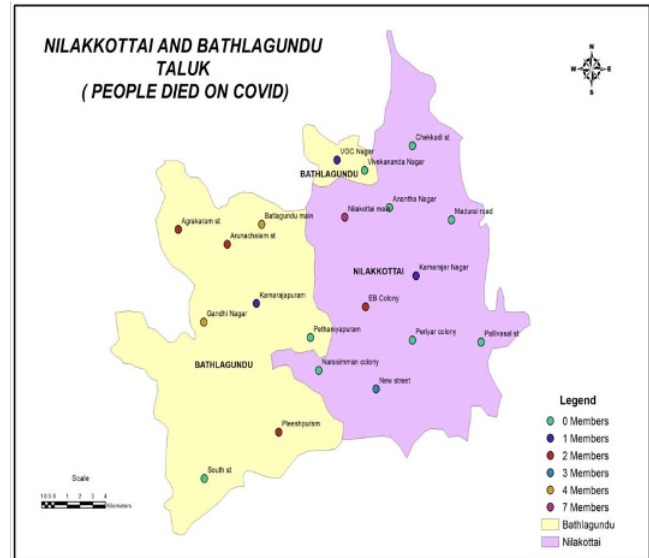


Fig. 3. Covid 19 Died People in Nilakottai Taluk (2020-2022)

inspector and taluk officer are much more effect to control population movements, and infection areas are closed and maintain the spread out the prevention powder and split the medicine water in the street and distributed by the people in vitamin C tablet and nila vembu kasayam there all factor are control by the covid 19 were not spread out in the Nilakottai taluk.

Conclusion

In Nilakottai taluk is business area in famous for gold smith and flower marketing so mostly other district peoples were came from in the market sources to Nilakottai taluk. So the people came from higher density to Nilakottai taluk. This is factor of corona virus spread in Nilakottai taluk. In particularly the Nilakottai main, Anantha nagar, Aachi nagar , EB colony, Chekkadi st, Kamarajar nagar, Narasimman colony, New st, Periyar colony, Periya kaliyammann st, these areas are gold smith settlement areas, so that peoples were easily spread in the corona in their street in higher infection to the people. Batlagundu in main junction of tourist visits because of kodaikanal near to this block and it connects with the main district of dindigul, Theni and Madurai network also connected in the central of Batlagundu So the people moving from Academic, Business, Tourist, Medical, Administrative all the orientation in Batlagundu. So it is easily affected in the covid 19.

Finding

In Nilakottai taluk the lockdown is successful by the help of health inspector and taluk officer are much more effect to control population movements, and infection areas were

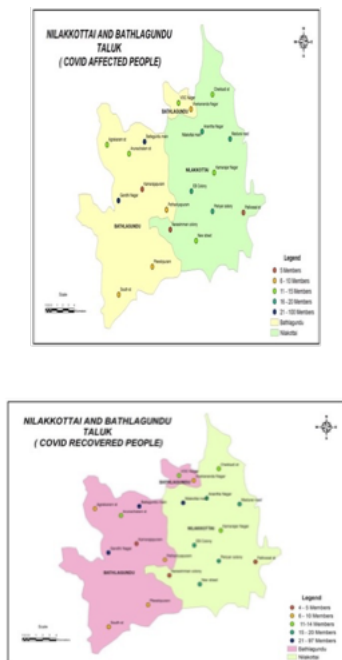


Fig. 2. Recover Rate of Covid 19 in Nilakottai Taluk

closed, and maintain the spread& split out the prevention powder and the medicine, herbal water vitamin C tablet and nila vembu kasayam and distributed by the people in the street, these all factors were control by the covid 19 were not spread out in the Nilakottai taluk.

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