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AN ASSESSMENT OF COVID-19 CALL CENTER FOR THE PUBLIC BY THE GOVERNMENT IN TAMIL NADU, A SECONDARY DATA ANALYSIS STUDY.

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Abstract

INTRODUCTION : World Health Organization (WHO) declared the corona virus disease 2019 (COVID-19) a global pandemic on March 11, 2020. When such a major public health emergency arises, an effective communication between healthcare providers and the general public is a crucial component of the response. In view of this, the Tamil Nadu government initiated the call center to encounter emergency response to the COVID-19 disease outbreak.

METHODOLOGY : A secondary data analysis conducted to analyse the calls received in the COVID-19 call center during the period of November 2020 to June 2023. Official permission to conduct the study was obtained from the DPH&PM, and collected data was analysed using Openepi application.

RESULTS : Maximum calls were received during the year 2021 with morning shift (43.9%) and the majority of calls were from males (80%) between the age group of 16 to 39 years (69.2%). Covid-19 vaccine (65.6%) related calls followed by COVID-19 disease (11.8%) were the most common enquiries made. Maximum number of calls were from residents of Chennai (26.4%) followed by Coimbatore (9.8%).

CONCLUSION : The call center has served what it was meant to achieve. It has been effective in addressing the public and more manpower in needed to reduce the workload during the high call traffic hours. A dedicated call center is to be established for health-related queries during outbreaks which can help the public to prevent from exposure to disease agents and stress.

KEYWORDS : COVID-19, Call center, Health related queries, vaccines

INTRODUCTION

Wuhan, China, reported the first indication of the coronavirus disease 2019 (COVID-19) outbreak in December 2019. This disease was brought on by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The deadly virus has since spread quickly around the world, leading the World Health Organization (WHO) to declare a global pandemic on March 11, 2020. The Government of India has implemented the essential measures to curb the local transmission of the virus and has set up enough diagnostic and treatment facilities in anticipation of the anticipated COVID-19 outbreak. The COVID-19 response included development and dissemination of numerous and new guidelines and directives addressing a wide range of issues such as travel restrictions, situations requiring quarantine, Covid case definition, criteria for RT-PCR testing, use of personal protective equipment, clinic management and quarantine.

When a major public health emergency arises in the modern era, effective communication between health authorities, healthcare providers, and the general public is a crucial component of the response. People call the authorities in the first instance to find a solution. To provide information to the general public and healthcare providers, the Indian government launched the Arogya Setu application. The Ministry of Health and Family Welfare (MoHFW) India included the creation of a national call centre as one of its components, offering all stakeholders a trustworthy source of information.

The Tamil Nadu government initiated the call center to provide support to the stakeholders to encounter emergency response to the COVID-19 disease outbreak. It was established under the State Emergency Operations Center (SEOC).[8] Following the establishment of the state level call center, it was established in all the cities to meet the needs of the people from the particular location. It provided wide range of services to the public and the healthcare authorities.

METHODOLOGY

STUDY DESIGN :

A secondary data analysis was conducted to assess the profile of calls received in the COVID-19 call center initiated by the Health and Family Welfare department to help the

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general public regarding queries related to COVID-19 and other related problems. The study included details of calls received from the period of November 2020 to June 2023.

FRAMEWORK :

The Covid 19 call center has been functioning in the SEOC. The following category of calls are being handled at the Covid 19 call center on 24*7 basis. All the employees employed were from the Directorate of Public Health and Preventive Medicine with advanced degrees and training in one of the fields of healthcare delivery system like medical officers, Epidemiologist, nurses, health inspectors, Sector health nurse, and block health supervisor. The telephone number for the call center was distributed in government announcements, in correspondence with the all the directorates of health in Tamil Nadu. In some cases, patients were advised by their providers to contact the call center rather than the official. The call center operated on all days of the week even on government holidays.

COVID-19 CALL CENTRE FUNCTIONS :

The Covid 19 Call Centre (CCC) / Health Help line SEOC was functioning in four different shift patterns.

Shift-01: 8:00 AM to 2: 00 PM - First Shift

Shift-02: 2:00 PM to 8:00 PM - Second Shift

Shift-03: 8:00 PM to 8:00 AM - Night Shift

Shift-04: 10:00 AM to 5:45 PM - General Shift

During peak hours, medical officers and health inspectors assist in answering voice calls received from the general public. They handled following types of voice calls from general public.

1. COVID-19 related doubts
2. Self-reporting of Covid Symptoms
3. COVID-19 Testing facilities
4. COVID-19 Admission facilities
5. COVID-19 Vaccine Related Calls
6. COVID-19 Vaccine Certificate Complaints
7. Complaints regarding passport issues in COVID-19 vaccine certificate
8. COVID-19 Lab Test Results
9. Complaints
10. ArogyaSetu App
11. E-Registration
12. e-Sanjeevani related call
13. Help for Treatment (Non-Covid Conditions)

DATA RECORDINGS :

A dedicated database platform was created for the call centre to record the details of each call. The data collected were the name, age, gender, time, date and place of each caller, the question asked by the caller and the answer provided in a google form through Gmail ID.

DATA COLLECTION AND ANALYSIS :

After approval from the DPHPM data for the analysis was collected. It included call details of all the call received from the initiation of call center on March 2020 till June 2023. The data was extracted as Microsoft excel and analysed in Microsoft excel. Results are expressed as tabular columns.

RESULTS :

Table 1 shows the call timings and the number of calls received during the call hours. Most of the calls were received during 8:00 am to 2:00 pm followed by 2:00 pm to 8:00 pm.

Table 1 : Duty timings

Shift Timings	Frequency	Percent
8:00 AM to 2:00 PM	1,22,273	43.9
10:00 AM to 5:45 PM	7,823	2.8
2:00 PM to 8:00 PM	1,14,769	41.2
8:00 PM to 8:00 AM	33,800	12.1
Total	**278665**	**100**

Table 2 : Frequency of calls during the years.

Call Received Year wise	No. of Calls	Percent
From 14th November, 2020	7,964	2.86%
2021	2,17,905	78.20%
2022	52,461	18.83%
2023 Upto 6th March 2023	335	0.12%
Total	**278665**	**100**

Figure 1 shows the distribution of gender among the callers. Males were the predominant callers. Table 2 shows the age grouping of those who called the call center. Majority of the calls were from those with in the age group of 16 to 39 years.

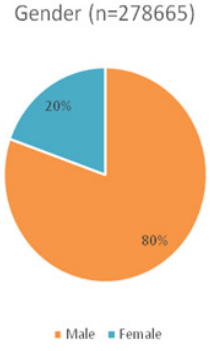

Figure 1: Gender distribution of the callers

Table 3 : Age distribution of the callers

Age	Frequency	Percent
0-15 years	1,124	0.4
16-39 years	1,92,834	69.2
40-59 years	77,211	27.7
Above 60 years	7,496	2.7
Total	**278665**	**100**

Table 3 shows the category of call received in the call center. Covid vaccine related calls were the queries for which the call center was used most frequently followed by covid vaccine certificates. It also had international calls from those who wanted to return back to India regarding the guidelines for international travellers. Details other than covid 19 was also among the call received.

Table 4 : Category of call received

Call Category	Frequency	Percent
Covid-Vaccine Related Calls	102163	36.7
Covid-Vaccine Certificate Complaints	83301	29.9
Covid -Related Doubts	32758	11.8
Covid -Lab Test Results	14347	5.1
Complaints related to Covid-19	14276	5.1
Covid -Testing Facilities	12076	4.3
Covid -Admission Facilities	7201	2.6
E-Registration for travel within the District	5414	1.9
Self- reporting of Covid -symptoms	2237	0.8
Complaints regarding passport issues in COVID Vaccine certificate	1383	0.5
E-Pass	1271	0.5
Arogya Setu App	1095	0.4
Covishield vaccine Volunteer call for Sero Survey	466	0.2
Help for Treatment (Non-Covid Conditions)	386	0.1
complaints regarding flood due to rain	214	0.1
eSanjeevani related call	50	0
UK / London returnees Call	19	0
Others	6	0
Complaints regarding water born related illness	2	0
Total	**278665**	**100**

Table 4 shows the details of the action taken or response given to the call. Sharing of information regarding the vaccine was the most common action taken to the calls followed by sharing details of district EOC for local guidance.

Table 5 shows the details of the location from where the calls were made from. Majority of the calls were from Chennai. The call list also contained calls from other state and from other countries.

Table 5 : Type of action taken to the calls received

Action Taken to the Call	Frequency	Percent
Vaccine related information given	102046	36.6
District EOC Helpline contact details given	99544	35.7
Doubts answered	32782	11.8
Complaint related information given	14170	5.1
Testing facilities details given	12102	4.3
E registration related information given	7246	1.9
Admission facilities details given	7169	2.6
Advised & Nearby health facility details given	2452	0.9
E pass related information given	1266	0.5
Counselling Helpline numbers given	584	0.2
App related details given	539	0.2
Volunteer details collected	464	0.2
Non-covid conditions related details given	118	0
eSanjeevani login details given	48	0
Doubts cleared & Local Helpline numbers given	16	0
Others	6	0
Covid -Testing Facilities	1	0
Dialysis Help related details given	1	0
Total	**278665**	**100**

Table 6 : District wise distribution of calls.

Sl No	Name of the District	Frequency	Percentage	Sl. No	Name of the District	Frequency	Percentage
1	Ariyalur	1397	0.5	21	Ramanathapuram	2219	0.8
2	Chengalpattu	12143	4.4	22	Ranipet	2512	0.9
3	Chennai	73431	26.4	23	Salem	7931	2.8
4	Coimbatore	27274	9.8	24	Sivagangai	2706	1
5	Cuddalore	6856	2.5	25	Tenkasi	1819	0.7
6	Dharmapuri	3119	1.1	26	Thanjavur	6402	2.3
7	Dindigul	3376	1.3	27	Theni	3011	1.1
8	Erode	7784	2.8	28	Thiruchirapalli	8457	3
9	Kallakurichi	1795	0.6	29	Thiruvarur	2746	1
10	Kancheepuram	8036	2.9	30	Thoothukudi	2208	0.8
11	Kanyakumari	4508	1.6	31	Tirunelveli	3082	1.1
12	Karur	2967	1.1	32	Tirupattur	1529	0.5
13	Krishnagiri	5322	1.9	33	Tiruppur	7288	2.6
14	Madurai	8180	2.9	34	Tiruvallur	9974	3.6
15	Mayiladuthurai	1628	0.6	35	Tiruvannamalai	3755	1.3
16	Nagapattinam	1743	0.6	36	Vellore	4595	1.6
17	Namakkal	4422	1.6	37	Villupuram	3371	1.2
18	Nilgiris	2041	0.7	38	Virudhunagar	3762	1.4
19	Perambalur	1567	0.6	39	Other State	19358	6.9
20	Pudukkottai	3191	1.1	40	International Call	961	0.3

Table 6 shows the details of maximum calls were received from Chennai District (73431) followed by Coimbatore District (27274) and least calls received from Ariyalur District (1397).

DISCUSSION

The State Emergency operation Centre caller's Help Desk was initiated by the Health and Family Welfare Department, Government of Tamil Nadu at Directorate of the Public Health and Preventive Medicine to compact the Covid pandemic. It has been successfully functioning for

serving the general public. It has been managed effectively by providing adequate training and retraining of those who were posted in the EOC to handle calls and provide guidance to the public. The dedicated healthcare personals made the functioning of it more effective.

Maximum calls were received during the morning shift followed by afternoon shift indicating the high traffic of calls during the standard working hours. This was the time when maximum healthcare workers were posted in the EOC to manage the heavy traffic of calls. Moreover, the public are more health seeking during day times rather than at nights which could be due to lack of awareness in the working time of EOC.

Males were those who reached the call center frequently rather than the females which could be due to the role of head of family lead by males in most families. Middle aged population between the ages 16-39 years were those who used the call centers which could be due to the responsibility and the burden on the middle-aged population to look after the elderly and paediatric population. It also could reflect the awareness on the latest information technologies available in healthcare among the young adults who explore media more frequently than the elderly. Most of the migrant worker in Tamil Nadu are males and the migrant workers who were strongly affected in the lockdown period called for food, groceries, basic needs and health care related queries.

Post introduction of COVID-19 vaccination maximum queries to the call center were regarding vaccine. This was further classified as vaccine related calls such as places of vaccination and availability of vaccines, followed by queries regarding vaccines certificates. Vaccination and certificates of vaccination played a major role in controlling the spread of disease and helped the public to avail resources. COVID-19 related doubts were the most common calls at the initiation of the call center which was during the pandemic.

Call center guided the public in accessing details regarding the testing labs, lab reports of COVID-19, facilities for receiving the care and for applying the travel pass which was difficult to access during the lockdown. Without the call centers many rural communities and marginalised communities would have had a hard time in accessing the health care and general COVID-19 related information. It also provided support to public travelling from other states and nations regarding the guidelines for travellers to reach their family at times of needs,

The actions taken following the calls have been satisfactory from the beneficiaries. Vaccine related queries were given information regarding the purpose of call. Several of the callers from various districts were guided to their appropriate district EOC for details pertaining to that particular district which varied within the state. Complaints were sorted appropriately and settled on time to relieve the beneficiaries from theirhardships. Non-covid queries were also settled with proper directions and guidance.

Majority of the calls to the call center were from Chennai district followed by Coimbatore and Chengalpattu within Tamil Nadu. When considered all the calls queries from other states were the second highest callers to the call center. Travel was a major problem and crossing interstate boundaries was also a problem for many which was guided through the call center. During the covid19 pandemics the cities that were affected most were those who accessed the call center. Chennai had the maximum number of Covid cases in the entire state and the SEOC call center being available in Chennai was easily accessible by the public in and around it. The least affected cities were those who made the least calls. The call center received reasonable amounts of international call. This indicates the spread of information to those who were in countries other than India.

The call centre in addition to providing the support during the COVID-19 pandemic it all catered other services like helping the 104 health helpline when there was high traffic in calls regarding COVID-19 related queries like the availability of 108 ambulance service and bed for the patients, triaging and covid care center details for those who turned positive for COVID-19. It also guided the health care providers to track the beneficiaries of the Non-communicable disease program in receiving medications and follow-up of cancer patients when they failed to follow up on time.

CONCLUSION

Our study is the first of its kind in Tamil Nadu to assess the healthcare services offered through call centers to the public during the COVID-19 pandemic. The volume and timing of calls received by the call center support our assumption that it served a temporary essential function, facilitating rapid information transfer to the community. Every district and every state should have a dedicated call center to address the problems of the public. In addition to the regular call centers there should be additional dedicated call centers to the public at times of epidemics and emergencies similar to the hotlines available for disaster by national disaster management authorities. There should be provision of calculation of time taken to collect information from the public and the time taken to address the problem to assess the efficiency of the information providers.

This call center should be incorporated with the Disaster Management Authorities at times of natural calamities to provide more support to the public in reducing their sufferings. More dissemination of information regarding the call centers functioning, working hours and periods and the information shared through it should to done to improve the access by all the people from highly developed cities to poorly developed villages. The challenges of reaching the marginalised communities can be easily accessed by these centers with development and usage of telecommunication in the modern era.

CONFLICT OF INTEREST

Nil.

FINANCIAL ASSISTANCE

Nil.

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