



## A STUDY TO ANALYZE THE UTILITY OF TELEMEDICINE DURING COVID-19 LOCKDOWN PERIOD IN INDIA

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**ABSTRACT** Telemedicine services provide access to well-equipped healthcare experts in the case of a pandemic. Telemedicine is taken into account to be the remote diagnosis and treatment of patients using telecommunications technology. This research aims at analyzing the utility of telemedicine during the COVID-19 lockdown period. During the lockdown period, everyone cannot visit hospitals for the treatment except there is an emergency; hence an alternative is availing telemedicine services for normal health problems. The research is based on primary data and responses were collected by questionnaire. Analysis of the responses demonstrated that the utility of telemedicine has increased during the lockdown period as compared to earlier usage during a normal period. The result shows that the lockdown period has had an impact on the usage of telemedicine services and the future usage of telemedicine will grow in India.

**KEYWORDS :** Telemedicine, Telecommunications, COVID-19.

### INTRODUCTION

Telemedicine is the delivery of healthcare services over the telecommunications infrastructure. Telemedicine permits care suppliers to judge, diagnose, treat patients with not the necessity for an in-person visit. Patients can communicate with physicians from their homes by using technology. Technologies that are used to deliver telemedicine consultation are Video, Audio, or Text. Telemedicine isn't applicable for emergency things sort of heart failure or stroke, cuts or lacerations, or broken bones that need x-rays, splints, or casts, something that needs immediate, active care ought to be handled in the flesh. However, telemedicine is incredibly helpful for straightforward problems and follow-up consultations. Telemedicine is needed once on holidays, whereas traveling, late-night, or the other state of affairs once regular medical aid isn't potential like a patient's inability to go away the house because of illness, because of the pandemic. NITI Aayog on 25th March 2020 released new Telemedicine Practice Guidelines enabling Registered Medical Practitioners (RMPs) to provide healthcare remotely in this pandemic crisis. Only a RMP is entitled to counsel or directly communicate with a patient. Doctors should assess patient's needs and make sure it is an appropriate time to use the technology. During this lockdown period telemedicine is coming as an important innovation in healthcare industry.

### LITERATURE SURVEY

Telemedicine is the evolution of healthcare in the digital world. The term health information technology (health IT) is a broad category of solutions that features technologies to store, share, and analyze health information. Telemedicine technology is a subset of health IT that refers to the remote delivery of healthcare services, where distance is a critical factor, by healthcare professionals using telecommunication technologies. Doctors use telemedicine to examine, investigate, monitor, and treat patients in remote areas through satellite video-conferencing and for transmission of digital imaging, video consultations, and medical diagnosis. Doctors and patients can share information in real-time from one computer screen to another. The use of secure video and audio connections makes it possible for doctors to treat patients who reside in locations with limited access to care. A telemedicine clinic brings patients in touch with doctors who are experts in their fields and the finest doctors in India can effectively offer their services to patients living hundreds and kilometers away.

### History of Telemedicine in India

ISRO (Indian Space Research Organization) created a starting in telemedicine in India with a Telemedicine Pilot Project in 2001, linking Chennai's Apollo Hospital with the Apollo Rural Hospital at Aragonda village in the Chittoor district of Andhra Pradesh (Chellaiyan, Nirupama, & Taneja, 2019). Initiatives taken by ISRO, Department of Information Technology (DIT), Ministry of External Affairs, Ministry of Health and Family Welfare and the state governments played a significant role within the development of telemedicine services in India. ISRO has created the technology accessible to plenty with that delivery of quality health care has been

created doable with the first focus to supply health care accessibility in distant areas. Within the past few years, ISRO's telemedicine network has come back an extended means. It's swollen to connect forty-five remote and rural hospitals and fifteen super-specialty hospitals.

### Current scenario in India

Telemedicine services in India come underneath the combined jurisdiction of the Ministry of Health and Family Welfare (MoHFW) and the Department of Information Technology. To make sure safe information transmission throughout telemedicine practices, MoHFW has developed a set of Electronic Health Records (EHR) standards in 2013 and a revised version of the same in 2016. In 1953, the doctor-population ratio in India was 1:6300, which implies for each doctor there were 6,300 potential patients. Whereas the amount of Indians has augmented since 1953, the amount of doctors in India has increased seventeen times, and India currently features a healthy doctor-population magnitude relation of 1:921. Despite a healthy doctor-population ratio in India, many people living in smaller towns and rural communities in India don't have access to the best medical experts (Chellaiyan, Nirupama, & Taneja, 2019). However, with the emergence of telemedicine, this example is dynamical because the best doctors' square measure is being brought in conjunction with patients living within the overseas of India by the employment of technology. Sixteen mobile Telemedicine units are part of ISRO's telemedicine network. Andaman & Nicobar Islands and Lakshadweep are linked to dry land specialty hospitals through satellite connectivity. In alliance with state government it has supported establishment of Karnataka state telemedicine network where all the district hospitals in the state are connected with five expertise hospitals in Bangalore and Mysore. Similar operational network has been effectively functioning within the state of Rajasthan where all the thirty two district hospitals are connected with six medical college hospitals ( Mishra, Singh, & Chand, 2012).

The private sector has emerged as a spirited force in India's healthcare industry. It accounts for nearly 74 percent of the country's total healthcare expenditure. Telemedicine is an emerging trend in India. A number of the present major Indian non-public sector players in telemedicine embody Narayana Hrudayalaya, Apollo Telemedicine Enterprises, Asia Heart Foundation, Amrita Institute of Medical Sciences, and Aravind Eye Care (ibef.org, 2020). They operate with support from the central and state governments and from organizations like ISRO who guide them with appropriate and updated technology. Hospitals such as AIIMS Delhi, AIIMS Bhopal, J. J. Hospital Mumbai have also started providing telemedicine services. Sir Ganga Ram Hospital, New Delhi and Amrita Institute Medical of Sciences (AIMS), Kochi has launched mobile Tele-hospital for rural access of health information and healthcare services ( Mishra, Singh, & Chand, 2012).

### Challenges Faced in Implementation of Telemedicine in India

One of the key challenges is that the inclined distribution of supply

infrastructure. More than 65% of the Indian population lives in rural areas and most of them lack computer knowledge. Telemedicine has the potential to play the bridging role in overcoming these infrastructural challenges. People hesitate to use telemedicine due to a lack of computer knowledge and also not aware of the technology. The health profession is not totally responsive to the probabilities of telemedicine. There's need for a good unfold effort to form awareness amongst doctors and health directors and therefore the public concerning the varied potentialities of adopting Telemedicine technology and reaping its edges. (B.S.Bhatia). Doctors should be given training on how to use Telemedicine. People in urban areas are also not much aware of telemedicine services. Very few people are currently availing services in urban areas. The COVID-19 pandemic has highlighted the importance of strong and reliable information systems. Each telemedicine network ought to take into account a speedy information security audit while they're scaling up to fulfill the strain exhibit by COVID-19.

### OBJECTIVES OF THE STUDY

1. To study the current scenario of telemedicine in India.
2. To analyze the utility of telemedicine during lockdown period.
3. To understand the future perspective of telemedicine.

### RESEARCH METHODOLOGY

Type of Research – This is a primary research aiming to analyze utility of telemedicine during lockdown period.

**Type of data** - The study is conducted based on primary data obtained through a designed questionnaire.

**Source of data** - The data for this study has been collected from questionnaire. It was administered to users & non users of telemedicine services for the survey. Responses of 194 respondents from India are taken. For data collection, random sampling method is used.

**Statistical tools used** - For analysis of collected data, MS-Excel and SPSS tools are used.

### DATA ANALYSIS AND INTERPRETATION

Out of total 194 responses, 137 said they are currently using telemedicine. Respondents were asked a question whether they were using telemedicine services before lockdown. The data shows that 62.4% people were not using telemedicine before lockdown in India & have started availing services during lockdown period.

H0 – The use of telemedicine has not increased during lockdown period in India.

H1 – The use of telemedicine has increased during lockdown period in India.

The crosstab and chi-square test is applied to prove the first hypothesis.

Time_period * Before_lockdown Crosstabulation				
		Before_lockdown		Total
		Yes	No	
Time_period	less than 2 months	31	34	65
	2 - 4 months	14	29	43
	4 - 6 months	5	22	27
	less than 1 year	0	1	1
	Sometimes, whenever required	1	0	1
Total	51	86	137	

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.771 <sup>a</sup>	4	.044
Likelihood Ratio	10.769	4	.029
Linear-by-Linear Association	5.026	1	.025
N of Valid Cases	137		

The p value (0.044) is less than the significant value (0.05). Hence the null hypothesis is rejected. Therefore, the alternate hypothesis is accepted. Hence, it is concluded that the use of telemedicine has increased during lockdown period in India.

H0 – Telemedicine usage will not grow in India in future with remote access to healthcare.

H1 – Telemedicine usage will grow in India in future with remote access to healthcare.

The question related to future use was asked that is would you continue to use in future. The majority of respondents (80%) said yes that they will continue to use telemedicine in future. Also for testing the second hypothesis, likert scale is used.

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18.526	2	9.263	19.894	.000
Within Groups	62.394	134	.466		
Total	80.920	136			

The test is applies to two likert scale variables that are found telemedicine useful and more frequent use in future. As significant value (0.000) is less than 0.05, the null hypothesis is rejected and we accept the alternate hypothesis.

### FINDINGS

- From the 194 responses, 71% people (137) are currently availing services.
- Out of the total 137 respondents who are currently using telemedicine services, 63% said they were not availing services before lockdown period.
- 93% respondents find telemedicine services convenient to use.
- 79% respondents are using mobile applications such as Practo, Mfine & Docsapp to avail services and 21% avails on call with a doctor.
- 59% respondents said the quality of care delivered by telemedicine services when compared to quality of traditional care is as about the same and 25% said it is better.
- Currently, ISRO Telemedicine network covers about 384 hospitals with 60 specialty hospitals connected to 306 remote/rural/medical college hospitals and 18 Mobile Telemedicine units.

### CONCLUSION

During the COVID-19 lockdown period, many individuals have started using telemedicine services as people who live in small towns who visit a doctor in the city and even living in cities cannot go outside the home unless there is an emergency hence they prefer to avail services from the comfort of their home Most people find the services easy to use through mobile phones. The Common Service Centers (CSCs) provides telemedicine services in rural areas through video conferencing in collaboration with the Ministry of AYUSH. CSC healthcare services provide quality, preventive and curative primary healthcare solutions like telemedicine, to the masses in rural and remote areas of the country under one roof. The study concluded that the utility of telemedicine has increased during the lockdown period.

### RECOMMENDATIONS

It is recommended that awareness on telemedicine should be increased among people by advertising on TV and word of mouth by people who avails services so that more individuals can take advantage of such services to solve health problems. A study on the comparison of the utility of telemedicine can be done with other countries.

### LIMITATIONS

The study is limited to urban area. As due to pandemic, visiting the field and collecting responses from rural area people was not possible. The sample size is less due to lack of awareness among people.

### FURTHER RESEARCH DIRECTIONS

A study regarding usage of telemedicine specifically for rural areas can be conducted. A study on the comparison of the utility of telemedicine can be done with other countries.

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