

Usefulness of Telemedicine during Covid-19 Pandemic Situation in India: A Review

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ABSTRACT

INTRODUCTION: The spread of the corona virus infection led in an unprecedented rise in demand for healthcare services, emphasising the deficiencies of today's health systems throughout the world. Because there is no known cure for the disease, countries that have been affected have had to increase the efficiency of their healthcare delivery systems. Telemedicine can assist non-critical COVID-19 patients avoid hospital visits, saving time and money for both providers and individuals who have not been exposed to COVID-19. Broad adoption of telemedicine at this critical juncture in India's healthcare system will provide a new public health delivery option capable of dealing with the COVID-19 outbreak and beyond.

OBJECTIVE: To document the usefulness of telemedicine during COVID-19 in India and document the challenges in availing and provisioning telemedicine services from provider and client perspective in Indian scenario.

METHODOLOGY: This review was conducted using PubMed Central and Google Scholar to search two databases. Inclusion criteria included studies clearly defining any use of telemedicine services during the COVID19 pandemic and its uses, written in English, published from 2019 to the present, and including studies conducted in India.

RESULT: According to studies reviewed, patients have expressed high satisfaction with telehealth services, despite hindrances and potential barriers such as limited Internet availability, devices, a lack of technology awareness, high implementation costs, and a legal framework that includes privacy and confidentiality policies. As a result of the outcomes of this study telemedicine has been determined to be a successful method of health care in these challenging times. There are certain concerns about its usage that need to be addressed.

CONCLUSION: The utilisation of telemedicine and telehealth services during the COVID19 pandemic appears to be of great benefit, since when compared to the hurdles, it may allow a huge population to be reached from home without putting the lives of health-care personnel and patients at danger.

KEYWORDS: telemedicine, hurdles, benefits, limits, problems, COVID19 pandemic, or COVID19

1. INTRODUCTION

BACKGROUND:

The outbreak of the corona virus illness resulted in a surge in the call for healthcare services that has not been seen before, highlighting its inadequacies in today's health systems throughout the world. Because there is no known treatment for the disease, impacted countries have had to improve their efficiency of healthcare offering systems.(1) Telemedicine is a rapidly growing field. Telemedicine tools are more accessible and affordable because of technological advancements. Telemedicine was first used to manage patients in the 1990s. Healthcare services are

scarce in distant areas. It is, nonetheless, becoming a useful tool in healthcare.(2) The new corona virus infection has become a major public health concern around the world. As a result of the current crisis, telemedicine has emerged as a preferred method of health-care delivery. Although it is impossible to build an efficient telemedicine programme overnight, health systems which have previously done so can use it to combat COVID-19. Health-care systems will spend more money on telemedicine in the post-COVID environment.(3) In telemedicine, there are

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three modalities of communication: video, audio, and texting. A bunch of norms for the administrator managing teleconsultations ought to be accessible at a tertiary consideration place.

When a patient registers for teleconsultation, his or her implicit agreement is evaluated. Patients can be "virtually triaged" via telemedicine.(4) The delivery of health services and information through the Internet and other similar technologies is referred to as "e-health," a developing topic at the nexus of medical informatics, public health, and business. E-Health has become basic for current medical care frameworks across the world, and it includes a wide scope of uses, for example, electronic health records, e-prescription and telemedicine-related administrations. Essentially, telemedicine is the ICT-assisted delivery of health services when patients and healthcare providers are not in the same place at the same time. In this context, allowing for the secure transfer of text, sound, and image-based medical data, all of which are considered sensitive content, is a must for medical prevention, diagnosis, treatment, and follow-up.(5) Sometimes we get to hear about telemedicine or telehealth or e health etc. also these words are often misunderstood and misused. Like eHealth and mHealth, however, the former term has a broader meaning. In this comparison, telehealth is the broader term. Telehealth encompasses both clinical and non-clinical services, as well as practitioner training and education. Telemedicine is a term that only relates to clinical services that are provided via internet. Telemedicine developed as a means of treating patients who resided in remote areas. With more and more services depending on virtual resources over the last year, it has served a wider function — allowing patients to get care without risk of catching COVID-19. As more individuals acquire access to health services, their expectations for wait times, access to treatment and ease of care are shifting. In India, telemedicine is slowly but surely gaining traction. ISRO's and the Ministry of External Affairs' Department of Information Technology (DIT) efforts, as well as those of the Ministry of Health and Family Welfare, and state governments, have contributed to the rise of telemedicine services in India.(6)

Its primary goal of telemedicine and virtual consultation is to deliver high-quality healthcare services across India. This entails delivering faster, less expensive, and more effective therapeutic communication, professional follow-up, and data preservation, as well as increasing healthcare accessibility for both wealthy and poor individuals. It aids in the removal of geographical obstacles to healthcare, particularly by reaching out to remote

locations that are poorly linked by any mode of transportation.(2) Still we are now unable to deliver even complete primary medical treatment in rural areas in India.

Even in suburban and metropolitan regions, secondary and tertiary medical care is not universally available. Even in suburban regions, incentives to encourage experts to practise have failed.(7) As of January 10, 2021, COVID-19 has infected 223 countries/territories, resulting in about 88 million sickness and 1.9 million deaths, placing a tremendous burden on global health care systems. A large-scale medical resource deployment to treat COVID-19 patients and decrease the risk of viral transmission has caused health care providers to postpone a number of surgeries, elective treatments, and outpatient services. Furthermore, due to doctors' unwillingness to meet with patients in a hospital environment, face-to-face consultations have been disturbed.(8)

The recent development of the novel corona virus disease, or Covid-19, has given telemedicine a boost. The Board of Governors of the Indian Medical Council (Professional Conduct, Etiquette, and Ethics) Regulations of 2020 ('Guidelines' hereafter) amended the Medical Council Act, 1956 (102 of 1956) in response to the pandemic, and published the Telemedicine Practice Guidelines as part of the Indian Medical Council (Professional Conduct, Etiquette, and Ethics) Regulations of 2020 ('Guidelines' hereafter). The Government of India (GoI) then released these Guidelines, which became effective on May 12, 2020. Patient education via images and videos, medical image transmission such as Xrays and scans, and real-time audio and video consultations have all become a reality as wireless broadband technology has developed and mobile phone and internet usage has been virtually prevalent over the last several decades. Improvements in network infrastructure, such as broadband communication speeds, information storage databases, web service backups, standard formats for data transmission, encryption, password security, HIPAA (Health Insurance Portability and Accountability Act of 1996) requirements, data digitization, and the introduction of EMRs (electronic medical records), have made ehealth and telemedicine less stressful and more cost efficient.(9) Present day telemedicine collects clinical data using current computer devices owned by the patient or physician, as well as affordable, self-owned equipment such as smart phone cameras, wearable biosensors, and other devices, making it simpler to use without explicit preparation.

Ongoing telemedicine methods minimise travel costs, save time, reduce medical costs, and make expert doctors more accessible to the general public without interfering with their everyday lives. Telemedicine is also used in regions where huge crowds congregate on a regular basis and medical treatment is required; The government of Uttar Pradesh, for example, utilizes telemedicine during Maha Kumbhamelas. One such field is telemedicine. that has succeeded in piqueing the business sector's attention and encouraging them to participate actively in public health management.(9) Telemedicine is one field that has succeeded in piqueing the business sector's attention and encouraging them to participate actively in management of public health. They are supported by the federal and state governments, as well as organisations such as ISRO, who provide them with relevant and up-to-date technology.(9) The COVID-19 pandemic is still causing enormous illness and mortality in several countries. As a result, this is a good moment to think about expanding teleconsultation options to relieve hospital pressures and promote a safer working environment for healthcare workers.(10)

Telemedicine, as an extra healthcare delivery method, can help non-critical COVID-19 patients avoid hospital visits, reducing both provider and patients who have not been exposed to COVID-19. At this critical point in India's healthcare system, broad adoption of telemedicine would give a new public health delivery alternative capable of coping with the COVID-19 outbreak and beyond.(10)

The most common reasons for interruptions in health care services were a lack of health workers' availability, health workers' diversion to COVID-19 administration, cancellation of scheduled treatments, and the risk of viral transmission during on-site patient visits. The emergence of the Coronavirus has prompted a compelling need for radical modifications in health-care routes in order to reduce the pandemic's

impact on vulnerable populations and society as a whole.

RATIONALE OF THE STUDY

Telemedicine has been considered as an ideal tool to face this COVID 19 pandemic. But still in India there are challenges in delivering the telemedicine facility and also availing it due to numerous reasons

COVID has put a lot of travel restrictions and has also restricted access to hospital so telemedicine was the only option to remote places and containment zones and also for people who needed regular follow up due to chronic diseases.

So now it is the need of the hour to spread awareness and promote telemedicine services in India.

OBJECTIVE

1. To document the usefulness of telemedicine during COVID-19 in India.
2. To document the challenges in availing and provisioning telemedicine services from provider and client perspective in Indian scenario.

2. METHODOLOGY

METHODS

The goal of this scoping study is to look at the usefulness of telemedicine during the COVID19 pandemic in India. The purpose of this review is to examine the usefulness and drawbacks of telemedicine, as well as to describe the perspectives of both physicians and patients in Indian Scenario.

Search strategy and data sources

1. Relevant and published papers were found by searching two internet databases: PubMed Central and Google Scholar. The title and abstracts were used to do the search.
2. The terms telemedicine, hurdles, benefits, limits, problems, COVID19 pandemic, or COVID19 outbreak were used in combination.
3. Each database's search was tailored accordingly.

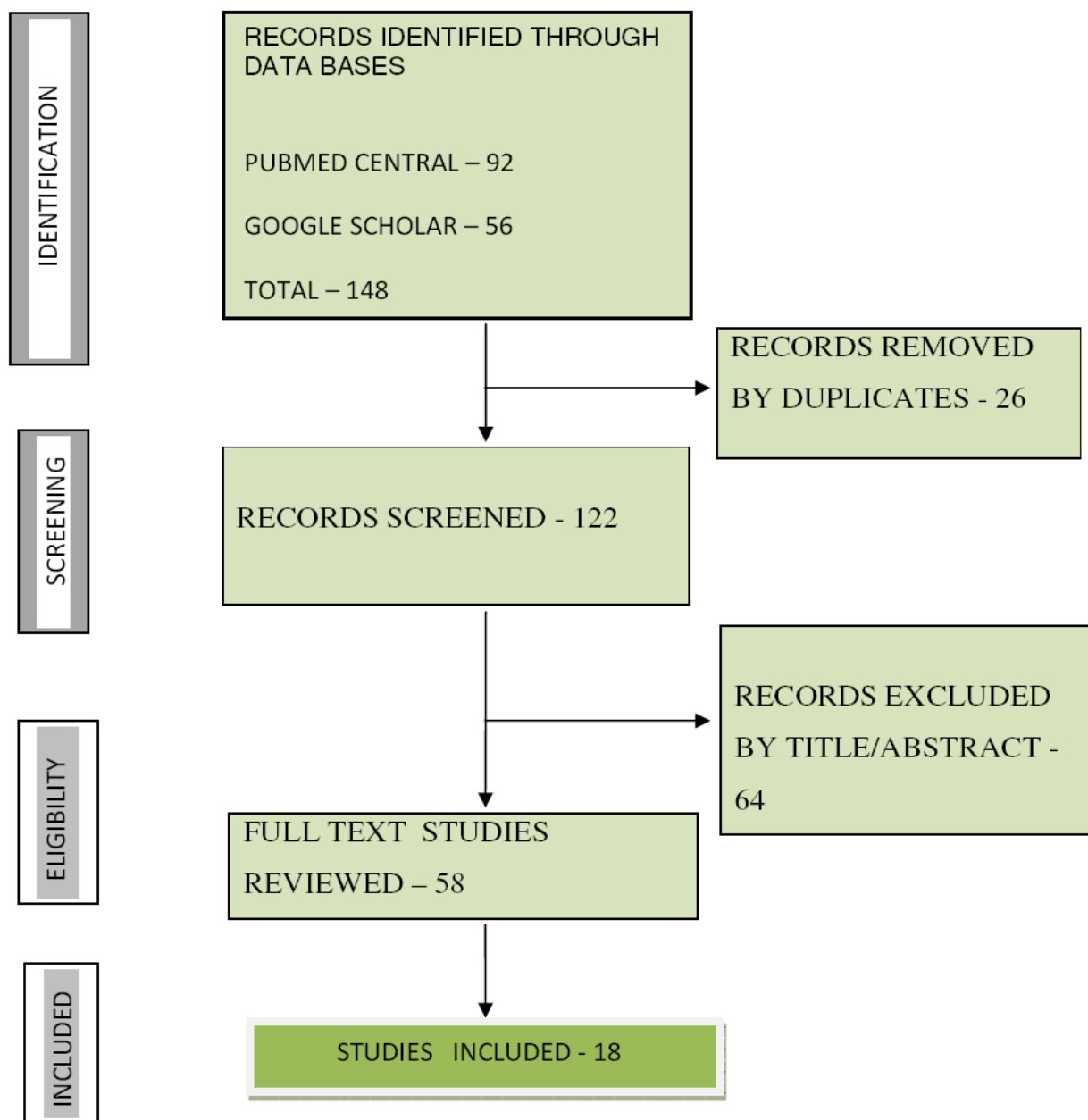


Figure 1: PRISMA flow chart: search strategy and selection

TABLE 1: THE SELECTION CRITERIA

INCLUSION CRITERIA	EXCLUSION CRITERIA
In COVID 19, all studies showing evidence of the role of telehealth services were included.	Removed duplicate or similar studies and irrelevant studies
Articles published from 2019 to till Feb 22	Articles are not related to COVID-19 were excluded
Original articles: Studies published in English focusing on telehealth and COVID-19 with no restrictions on research type or design.	Studies reporting incomplete information and outcome were excluded

Eligibility criteria

Table 1 summarises the selecting criteria.

Study selection and data extraction

A literature search was conducted using the inclusion and exclusion criteria, and papers were screened using the titles and abstracts. The complete text of research was acquired after screening. Data was gathered from all papers that satisfied the review's eligibility criteria and were about telemedicine services, efficacy, and barriers to use during the COVID19 pandemic and from the perspective of providers and clients. Feb 28, 2022 was the final date of search.

3. RESULTS

Telemedicine can be extremely beneficial in the treatment of adnexal and ocular surface illnesses, but it has a limited function in other subspecialties such as retina, uvea, and ocular cancer. In fact, throughout the epidemic, we saw a tendency toward increasing diabetic retinopathy.(4)

Teleconsultation necessitates a shift in norms as the country progressively emerges from lockdown. Many normal eye clinic appointments, For example, to reduce in-person interaction, a diagnostic in-person visit (biometry, OCT retinal scan) might be broken into two parts: a teleconsult to evaluate the results. This reduces the number of encounters between professionals and patients as well as the time spent waiting in clinics.(4) Persons who are hesitant to have in-person consultations or who have trouble receiving in-person treatment, as well as people with chronic diseases, have found telemedicine to be particularly effective.(12) Telemedicine may also be utilised to provide psychological support to patients and their families while limiting the spread of illness.

Telemedicine can assist in the training of caregivers for unwell and handicapped children as well as the elderly by assisting in the reduction of demand on tertiary institutions by providing diagnosis and treatment to patients in their local geographic region and minimising the risk of patient exposure due to hospital visits. Patient satisfaction with video sessions is high, therefore a shift away from traditional in-person clinic visits is not an issue. Patients in all of these trials expressed great satisfaction with the telehealth services which includes telemedicine employed in general practise during the lockdown.(12)

Telemedicine has the potential to be a valuable addition to healthcare institutions:

- A. To create new, more egalitarian health-care systems,
- B. Be more cost-effective for both the country and the patients,
- C. Allow access to the best medical expertise regardless of geographic barriers,
- D. Be beneficial in medical diseases that need multidisciplinary competence and when arranging several consultant appointments creates a bottleneck in diagnosis and patient care, and
- E. Quackery will be reduced.
- F. Can reduce reliance on inexperienced practitioners, which is particularly important in countries with poor health infrastructure.
- G. Can reach the large number of patients who turn to alternative (false) medicine because they are unable to access mainstream evidence-based contemporary medical systems.(10)

When compared to other medical specialties, psychiatry has the benefit of being able to diagnose and treat patients with little or no physical touch. Telepsychiatry can handle a large chunk of psychiatric evaluation (history gathering and mental state examination). For people who are unable to meet with their therapists in person, nonpharmacological treatments like as meditation and yoga can be delivered via teleconsultations. Assessing motor side effects of psychotropics and checking physical parameters, on the other hand, need an in-person consultation. Thus, a delicate balance must be struck between the requirement for a teleconsultation and the necessity for an in-person visit in order to effectively administer individualised therapy.(13) Patients must visit their dentist on a regular basis to have their treatment progress monitored. Telemonitoring can be used to replace frequent physical visits with virtual visits to assess treatment results and disease progression.(14) A risk factor might be limited access to the Internet or gadgets like cellphones, tablets, or laptops, as well as digitally stored information about the patient. There might be a lack of technological understanding, computer illiteracy, or communication hurdles between the practitioner and the patient.(12) Telemedicine may be utilised to offer acceptable patient care if healthcare policymakers are willing to invest in the infrastructure required to make it more accessible.(15)

TABLE 2: SUMMARY OF CHARACTERISTICS OF THE INCLUDED STUDIES

S. No	Title	Author	Year	Use	Area (If Any)	Opinion	
						PROVIDER	CLIENT
1.	“Commentary: Teleconsultation at a tertiary care set-up during COVID-19 lockdown in India”	<i>Atul Kumar, Harpreet Kaur Narde</i>	July 20	- used for reassurance and chronic disease follow-up. - functions as a	Tele-ophthalmology	- It is possible to treat a non-urgent ailment. - may be immensely	- acce-ssibility confined to the upper strata. - issue in access for elder people

				guidance for patients' symptoms		useful for supporting structure diseases of eye	
2.	“Telemedicine in India: A tool for transforming health care in the era of COVID-19 pandemic”	<i>Neema Agarwal Et. Al.</i>	July 20	- utilised to manage chronic conditions. - assisting in the provision of training to care providers		- aid in the reduction of the pressure on tertiary hospitals.	
3.	Effectiveness and Barriers of Telehealth Services during COVID-19 Pandemic: A Narrative Review	<i>Nipin Kalal Et. Al.</i>	Mar 22	- Patients' indirect costs have been lowered because to telehealth.	Telehealth services includes the telemedicine	- Authentication of health-care professionals has also been identified as a key issue.	- A portion of the public has a favourable view about telehealth
4.	Deployment of telemedicine as another mitigation tool during the COVID-19 pandemic in India	- <i>Payal Das, Amit Sharma</i>	July 21	- forward triage - Non-respiratory illness patients are scheduled for visits. - online pre-screening - can ensure that all strata of society in India have fair access to medical care		- it discourages quackery - technological barriers	- it gives the comfort feeling associated with direct contact with health professionals
5.	Meeting the unmet mental health needs during covid-19: where does telemedicine stands during these times in india?	<i>Santanu Et. Al.</i>	2020	- Continuation of care - assess the emergency condition	Telepsychiatry	- assist in the advancement of excellent mental health services	- technological glitches are issues faced during consultation
6.	Pitfalls in telemedicine consultations in the era of COVID 19 and how to avoid them.	<i>Karthikeyan Iyengar</i>	2020	In difficult situations, physicians have switched from traditional "face-to-face" meetings to	Focusing on chronic diseases During covid - 19	evolving role in various specialities esp. endocrinology and orthopedics	

				telephone or video consultations for management of chronic diseases			
7.	Teledentistry during COVID-19 pandemic	<i>Suhani Ghai</i>	June 2020	- Dental care for suspected COVID-19 patients is triaged remotely.	Teledentistry	- dental offices are not burdened with Positive or suspected cases.	- used for differential diagnosis of oral lesions or suspected oral malignancies.
8.	Telehealth - A Boon in the Time of COVID 19 Outbreak	<i>Tasneem Sajjad Burhani, Waqar M. Naqvi</i>	July 2020	This facility caters to the requirements of a large number of elderly individuals - patients with knee osteoarthritis - stroke rehabilitation	Telephysiotherapy	- Promoting broad and speedy collaboration , as well as assessing catastrophe preparedness and reaction in real time	- better option during travel restrictions for management of neurological issues.
9.	Telemedicine in the COVID-19 era: a tricky transition	<i>Kavya Bharathi dasan</i>	2021	Virtual check-ins and e-visits are among the new health services being introduced.		primary care and chronic illness management	Clients claim that they have saved a substantial amount of time and money.
10	A Review of Patient Satisfaction and Experience with Telemedicine: A Virtual Solution During and Beyond COVID-19 Pandemic	<i>Aashima Et. Al.</i>	Dec 2021	- can come as an aid in remote examination. - follow up and reviewing radiological images.		Telemedicine was shown to be a good fit for follow-up visits by providers.	Patients satisfied with video visits and choose to opt for this service in futures

4. DISCUSSION

The quick expansion of the tool is demonstrated by the high number of articles published in such a brief span of time in the years 2019, 2020, and 2021, as well as the diversity of countries that have shared their experiences. As a result, telemedicine has emerged as a key strategy in the fight against SARS-CoV-2 as well as the pandemic that has ensued from its global spread.(16) Though telemedicine has reduced the burden on medical care, it still faces a number of challenges.

Without jeopardising social alienation, cell phones and social media applications can be beneficial in developing patient-doctor engagement. It may also be used as a reference for symptoms of patients who have been told that a sudden or significant loss of eyesight, trauma, or lack of treatment after a first teleconsultation necessitates a

physical examination.(4) In the midst of the current epidemic, telemedicine has shown to be a valuable asset, benefiting both the health-care practitioner and the patients.

Telemedicine may be used to treat chronic illnesses including bronchial asthma, hypertension, and diabetes mellitus on an ongoing basis, which is especially useful at a time when social isolation is on the rise. Individuals with these disorders are more susceptible to COVID19, and adherence to medications and disease management are critical strategies for reducing the disease's severity. Telemedicine has the potential to be a safe and effective alternative to in-person treatment. A 2015 Cochrane systematic review compared the impact of telehealth utilising remote monitoring or videoconferencing to in-person or telephone consultations for chronic conditions such as diabetes and congestive heart failure and found comparable health results in both. During the COVID19 outbreak, the use of telehealth has skyrocketed all around the world. From January to March 2020, the Centers for Disease Control and Prevention (CDC) conducted research that demonstrated a large rise in telehealth use, and with the availability of telehealth services decreasing infection rates and benefiting the general public.

In India, a sizable portion of the populace has a favourable attitude towards telehealth. The psychiatrist was one of the practitioners who utilised telehealth throughout the epidemic and found it to be simple to use and without any serious issues. Furthermore, the Indian government has amended its telemedicine standards, which were initially released in 2005, in 2020 for better adaption, while the CDC has updated its infection prevention recommendations and emphasised the use of telemedicine services to reduce the risks of transmission during the pandemic. Video visits were far more common than in-person visits during the COVID-19 outbreak.

Despite the fact that telehealth services have proven incredibly helpful during this pandemic, some studies have discovered limitations to their use, such as the risk that they might be a barrier to direct clinical decision-making and treatment. It might also have an effect on the doctor-patient relationship and trust. Virtual visits may not be appropriate for some people with specific diseases. High implementation costs and poor reimbursement policies for care delivery, licencing issues, Major hurdles to telemedicine acceptance and implementation have been noted as a lack of legislative framework linked to patient privacy and confidentiality regulations, as well as health professional identification. Many advantages are associated with a national health system that includes telemedicine, which may be particularly advantageous to rising and developing countries.

Furthermore, in this COVID-19 period, the global health imbalances stemming from decades of socioeconomic and racial inequity are much more prominent. We think that digital healthcare solutions can create a level playing field for society's most vulnerable citizens by allowing medical access and performance to be monitored without bias.

In many countries, COVID-19 has required a rapid infusion of financial resources as well as uniformity in national public health policy, so now is the time to remove any hurdles on the route to universal telemedicine.(10)

TABLE: 3 FUNCTION OF THE ABOVE VIA TELEMEDICINE

Function in Public Health	In family medicine, what is its role?
<p>One of the most significant components in providing great healthcare to the poor is telemedicine technology, which allows physicians and patients to be almost anywhere.</p> <p>Distance is no longer a hindrance to delivering care to persons living in rural areas thanks to the emergence of telemedicine.</p> <p>The program's original concern of a lack of a central centre for practising telemedicine services in many remote areas was addressed with the development of mobile telemedicine units with satellite connectivity.(9)</p>	<p>Telemedicine is already bringing health care to people's homes across the country and around the world, owing to modern information and communication technology (ICTs).</p> <p>Remote patient monitoring is possible with the use of a CTI system that allows for continuous vitals monitoring. The CTI system enables family doctors to maintain a close check on chronically ill patients and receive real-time vitals warnings as necessary.</p> <p>A family physician can also use telemedicine to have remote access to a specialised medical opinion for cross consultation if necessary.</p> <p>Visiting a cardiologist to confirm a skewed ECG or a dietician to design a suitable food plan for an elderly bedridden patient with several comorbidities is an ideal example.</p>

Despite having a number of promising traits (Table 3) for assisting family physicians, telemedicine has yet to reach its full potential in family medicine. The main stumbling block is a scarcity of relevant scientific research confirming its relevance and cost-effectiveness in family practise.(9)

The short-term consequence of the pandemic was that hospital-based telemedicine services were quickly embraced by patients, who expressed high levels of satisfaction. However, by extending the use of telemedicine to all levels of physicians and their patients, insuring easy medicine availability, additional gains at the health policy, hospital, and community levels may be realised. Because most patients still used to prefer in-person consultations in 2019, it was questionable if telemedicine for routine NCD therapy could survive the pandemic in 2019.(15)

Table 4: What Telepsychiatry Has to Offer -

- When a countrywide lockdown prevents hospital visits, treatment must be continued. This avoids and mitigates the withdrawal symptoms of addictive drugs, as well as relapse from severe mental illness.
- Preventing hospital visits and thereby lowering the risk of infection.
- Identifying emergency situations such as suicidality and pharmaceutical side effects that may otherwise go missed.
- Ensures legal safety by maintaining proper documentation of a teleconsultation by both patients and physicians.
- Providing expert psychiatric treatment to people in rural places. Being a cost-effective alternative to in-person consultations (travel costs, hospital visit costs etc).(13)

Some of the claimed drawbacks of telemedicine include the lack of privacy and confidentiality of information on both the psychiatrist's and the client's ends, as well as the lack of a full evaluation. When a psychiatrist works in the private sector, there are technology difficulties, consent concerns, medicolegal issues, and even fee payment issues. In this pandemic scenario, however, risk-benefit analysis will always favour telepsychiatry as a more effective means of consultation, with active backing from guidelines being produced in many nations.(13)

TABLE 5: THEY SAY- THE CLIENT IS ALWAYS RIGHT TELEMEDICINE – THE PATIENT'S PERSPECTIVE

A thorough understanding of patients' experiences is essential to ensure optimal telemedicine utilisation and to resolve shortcomings and impediments found during virtual encounters.

Patients said telemedicine saved them time by minimising travel and line waiting, as well as money, convenience, and accessibility.

Telemedicine was found to be good on several outcome measures, including responding patients'

concerns and questions, communication with health care providers, formulation of a treatment plan, disease comprehensibility, usefulness, and reliability.

Patients regarded telemedicine as a viable substitute for traditional in-patient visits and chose virtual contacts over skipping appointments due to infection fears.

Patients agreed that video visits gave the same level of satisfaction as in-person appointments, and that they were able to express their medical issues to their doctors, who were able to comprehend them.

Age, sex, education, and dependency on others for WhatsApp or a private automobile had no influence on the choice to continue teleconsultation.

Sex and educational level had no effect on this technique of consultation. Females, younger people, and first-time visitors, on the other hand, were shown to be less satisfied in one study.(8)

LIMITATIONS

This scoping review has two limitations –

First, papers published in languages other than English (such as Mandarin and French) were excluded.

Second, despite the best attempts to adopt a thorough search strategy and cover a broad array of facts and evidences, some essential research may have evaded attention or been unable to reach them.

5. CONCLUSION

There are a number of other notable benefits of telemedicine during COVID-19, which are listed in Table.7.

Telemedicine has proved to be beneficial, cost-effective, and enjoyable for patients and physicians across a wide variety of ailment types, unless a physical examination is necessary. Overall, telemedicine's ability to enhance traditional health-care pathways has been proved even after the pandemic has ended. According to forecasts, telehealth might account for up to 50% of consultations for rural patients by 2025, resulting in improved access to cost-effective medical care.

Technology, the internet, provider and patient training, reimbursement, data protection, regulatory requirements, and framework must all be thoroughly examined for long-term telemedicine viability for all socioeconomic classes. The review focuses on patient/provider experience; however, provider experience is an equally significant parameter that might be the subject of future research.

Despite a number of roadblocks faced during telehealth, their advantages have been proved, and the

focus now should be on their successful integration into the public health system. A lack of appropriate funding, infrastructure, technological access, internet connectivity, an insufficient legislative framework and standards, and insurance coverage and reimbursements are only a few of the roadblocks to telemedicine's successful implementation. Other major problems concerning telemedicine use include legal, privacy, and security concerns. To stimulate telemedicine use and assure its long-term deployment, reimbursement for virtual and telephonic visits should be incorporated in health care finance.(8)

The user-friendliness of the telemedicine modality is the most important ethical problem to consider. It must be flexible to a variety of contexts (home, workplace), as well as the people that will be utilising the technology (geriatric patients, rural populations). Unsuitable language, poor posture, inappropriate dress, room selection that does not restrict surrounding distractions, and professional boundary violations have all led in unpleasant interactions to a degree seldom seen in formal face-to-face consultations in office or hospital settings.(17) In the case of telemedicine, the standard of treatment would be determined by the physician's speciality and the manner of contact. Physical tests or investigations are necessary to arrive at a diagnosis in some clinical fields, such as surgery or orthopaedics. Telemedicine through voice call or even videoconferencing may not be appropriate in this situation. Under the present Guidelines, doctors can only give counselling, prescribe a restricted number of drugs, and recommend first assistance. An emergency scenario should be recognised by a registered medical practitioner, who should then provide first aid guidance before referring the patient to a physician who can assist them. Whether an emergency exists or not must be determined by the doctor.

TABLE 6: THE DOCTOR – PATIENT RELATIONSHIP

A solid doctor–patient relationship is essential for patients' satisfaction, comprehension of their health condition, adherence to therapy, treatment outcome, and even psychological well-being. These parameters, in turn, are frequently modified by the consultation medium.

In any event, doctors must now be educated how to acquire medical information from patients while simultaneously providing a secure and comfortable environment with few distractions throughout the teleconsultation process. The patient's nonverbal behaviour (both physical and emotional) and touch are two other features of a face-to-face session that

are lost through telemedicine.

These could be crucial in particular fields of medicine, such as psychiatry, where the diagnosis is frequently reliant on the patient's nonverbal behaviour and affective responses.

Telemedicine may be able to assist change in the focus away from short-term returns and toward long-term outcomes, since the present infrastructure focuses on annual balance sheets and profit margins rather than the overall health of the population. By supporting telehealth services in a way that is targeted to minimise the progression and consequences of chronic diseases, we may be able to catalyse a much-needed paradigm change in healthcare delivery. Of course, implementing such a major change may take five to ten years, and considering the number of regulatory organisations involved, it will undoubtedly be a difficult-but necessary task.(18) The patient saves a lot of time and money by not having to take time off work, drive to the doctor's office, and wait to be seen. The convenience of attending a tele-visit from the comfort of one's own couch is unrivalled as a patient or provider. While it may take some time to adjust to the new system, there are a number of incredible tools that can simulate inspection almost as well as human touch.(18) The telehealth platform can take the place of an EMR system in a practise if it is out of date or nonexistent.(18)

The definition of costs will have an influence on healthcare delivery between patients, providers, insurers, and third-party platforms. While it is unknown if the shift in consultation paradigm would result in poorer health results, it is often assumed that in-person services constitute the gold standard.

Patients may be encouraged to switch to physicians that provide telehealth services if given the option. Clinics and hospitals are forced to adapt swiftly or suffer financial penalties.(18)

In the face of the COVID-19 outbreak, the government's ongoing attempts to extend the use of telemedicine, including the eSanjeevani experience, as well as private sector initiatives, have the potential to alleviate India's crucial healthcare constraints. These telemedicine programmes should be mainstreamed to enhance Indian health care access, fairness, training, and quality, even beyond the pandemic. Success will involve the prioritisation of short-, medium-, and long-term objectives. Improving internet infrastructure is critical in the long run. Government efforts to connect the smallest administrative and healthcare units, such as Public Health Centres (PHCs) and Health & Wellness Centres (HWCs), with larger hospitals and medical

college facilities .(19)

Objective evaluation is critical in the medium term. It is the time to examine operational telemedicine projects, both governmental and private, such as the eSanjeevani examples cited above. The evaluation's conclusions should be utilised to inform the establishment of recommendations and a legislative framework. In the short term, medical practitioner training is the most pressing concern. Continuing medical education modules or telemedicine 'crash courses' can help raise awareness and keep practitioners up to date on technical, ethical, and legal problems and developments. Progress in the usage of telemedicine in India is expected to continue, paving the way for a more comprehensive healthcare delivery system.(19)

There are various benefits to investing in and increasing the scope of telemedicine in a resource-constrained country like India. While the COVID-19 outbreak is still ongoing, a complete telemedicine infrastructure can aid in the treatment of many cases of noncommunicable and other illnesses, which account for more than 60% of natural deaths among Indians. COVID-19 prevention and control is a top priority for the government and health-care organisations. Despite current public pressure and unchecked spread, actions are required to avoid further congestion and the loss of medical supplies and services in the health-care system. Telemedicine services can help reduce hospital and clinic overcrowding by triaging low-acuity patients, as well as avoid potentially harmful human exposures and promote high-quality treatment delivery. In recent years, months, and weeks, state, federal, and international legislation and regulations have changed to allow for greater usage of telehealth services (particularly during this public health crisis). (18) Healthcare providers are also well-prepared to adopt new programmes. Despite certain legal, regulatory, and reimbursement issues, the COVID-19 outbreak may provide politicians and regulatory bodies with the impetus they need to pass further steps to encourage more telemedicine usage.(20)

Dentistry is a crucial component of our healthcare system, which has been seriously harmed by the present COVID-19 pandemic. The integration of teledentistry into ordinary dental practise is a pressing requirement. During the current pandemic, teledentistry can enhance, if not totally replace, the existing poor dental system.

Teledentistry offers a wide range of uses, including remote triaging of suspected COVID-19 patients for dental care and preventing needless exposure to healthy or uninfected patients by eliminating visits to

already overcrowded dental offices and hospitals..(14)

“Teledentistry (a subset of telehealth, along with telemedicine) is the use of information technology to give patients with distant dental care, guidance, education, or treatment rather than direct face-to-face interaction.” Over time, teledental screening, diagnosis, consultation, and treatment plan ideas have shown to be beneficial. It has been shown to be equivalent to real-time consultations in areas where resources are limited, among kids, and enduring healthcare facilities.(14) Providing ophthalmology services under lockdown was possible with teleconsultation at a government medical institution. The most popular mode of contact was WhatsApp, the most common preliminary diagnosis was computer vision syndrome, and around 60% of respondents did not require a physical examination in person. Tele ophthalmology, which had been a spectator for over a decade, has now taken centre stage in everyday health care delivery as a result of this approaching danger. This virtual treatment modality has been brought to the forefront to alleviate the necessity for the patient and the ophthalmologist to be in close contact.(21)

COVID-19 has prompted doctors to switch from traditional "face-to-face" consultations to phone or video consultations in stressful situations. Appropriate training and adherence to the GMC's core Good Medical Practice guidelines, as well as better documentation, communication, and information governance requirements, will all help to mitigate the risks of remote consultations. Clinical practise will be reinforced by regular reviews of remote consultations, including audits and patient feedback. In the future, telemedicine will play an increasingly essential part in the delivery of health care, and following correct protocols during remote consultations will assist to avoid complaints and medico-legal difficulties.(11) Appropriate indemnification is tied to the degree of clinical care given and is used to settle any medico-legal issues.(11)

Finally, it should be noted that the healthcare delivery system is a constantly evolving and adapting system that has changed over time in response to the requirements of the population. Telepsychiatry, despite being a new concept, has the potential to advance effective mental health care at times and places where in-person counselling is not possible. It can go a long way towards filling unmet needs and closing the treatment gap.(13) There has been widespread neglect in NCD patient care since the outbreak, and the COVID-19 pandemic is thought to

have had a considerable influence on the frequency of in-person consultations. Consultation availability, dread of in-person testing, and consultation duration have all declined as a result of the pandemic. Telemedicine is gaining popularity in India, having been championed by the public health sector to address non-COVID chronic illnesses during the COVID-19 pandemic, and ushered in by recent advancements in internet availability in the nation, among other things. During the pandemic, some of our patients were eager to embrace telemedicine as a viable replacement for their customary NCD care, but not all.(15) While telemedicine cannot solve all problems, it can be highly helpful in tackling a wide range of issues. Telehealth, teleeducation, and telehome healthcare are proven to be the game changers in the healthcare profession. In the realm of disaster management, the importance of satellite communications is emphasised when all terrestrial lines of communication are broken. International telemedicine programmes are bridging the gap between the developed and developing nations, reducing distance as a barrier to accessing high-quality care. Telemedicine has yet to attain the 'boom' that it was expected to bring, despite its immense promise. The lack of understanding and acceptance of new technology among the general public and experts is holding it back.(9) Government's interest in developing telemedicine techniques is growing, resulting in a modest but steady growth in its usage in public health. In a few years, telemedicine treatments should be fully functional.(9) The present COVID-19 problem globally provides a chance to avoid the normal reluctance and sluggishness in implementing new healthcare policies. Telemedicine is certainly a disruptive technology with the potential to have a big influence on public health if it is widely adopted and expanded. The investments in public health management undertaken in response to the COVID-19 emergency must provide long-term and strategic solutions so that when the healthcare emergency passes, the national healthcare infrastructures left behind may easily be repurposed to deliver high-quality treatment. As a result, telemedicine growth will not only help India manage COVID-19 patients better, but it will also help the country's healthcare system grow in the future.(10) In the post-COVID-19 age, health-care delivery will undergo considerable changes. During the COVID-19 outbreak, a patient believes telemedicine is more valuable and suitable than ever before for the delivery of health-care services, according to the research. In the current scenario, patients are more eager to attempt telemedicine, which will lead to increasing telemedicine usage in the post-COVID future. Patients

discovered that telemedicine has become a need for most people due to extrinsic motives like cheaper expenses and quicker travel times. They actively embrace technology and are not afraid of it.. Following the COVID-19 epidemic, respondents felt less complexity in the use of telemedicine, according to the findings of this study.(3) Telemedicine, on the other hand, cannot cure all problems and cannot replace face-to-face consultations or emergency care. However, it has the potential to make a big contribution to the current Covid19 outbreak. Furthermore, if broadly accepted and adopted, it will assist us in better anticipating future pandemics.. Telemedicine has become an important aspect of the healthcare system, especially in low-income communities. Despite its immense potential, it has yet to produce the "boom" that it was intended to produce. Rural communities, particularly in India's mountainous and inaccessible regions, can benefit greatly from telemedicine and technology. It has the ability to give both low-cost and high-quality care. (22) Throughout a number of major specialities of medicine, such as cardiology, palliative care, diabetes and neurology, ophthalmology, dermatology, and many more, telemedicine has created a distinct identity in the globe.

The NITI Aayog has announced telemedicine practise guidelines, under which telemedicine can take on a new identity while making it easier to administer health care services across India.(22) This relieves the strain of patient check-in and allows you to focus on higher-value responsibilities. Clinicians can care for their patients while perhaps supporting other afflicted practises using online visit capability. Distance limits are also decreased by communicating information regarding a diagnosis, care, and illness prevention between the doctor and the patient via electronic means. People in remote locations, where excellent care is normally unavailable, can benefit from the most comprehensive telemedicine application. It improves access to underserved communities by making scheduling and keeping appointments easier. People with limited mobility receive doctor's advice and medications more swiftly. They can deal with medicine, testing, and procedures at their workplace. Telemedicine eliminates the need for doctors and patients to fly across the globe, and it alters the lives of sick people by ensuring that they receive the finest available health care.(22) The COVID pandemic had a significant influence on the health-care delivery system, as well as the restrictions put in place by important health organisations to keep the illness from spreading. To combat this, telehealth and telemedicine have become widely used technologies all around the world. The majority of research

endorsed the use of telehealth services and had favourable experiences with its implementation, particularly in the COVID condition, according to a study of the chosen papers. Telemedicine has been shown to lower indirect costs for patients, including travel time and money, missed work meetings, and waiting rooms.(12) During the COVID19 outbreak, telehealth services were endorsed by not only individual nations, but also international organisations such as the WHO. India, along with a few other countries, has eagerly embraced telehealth services to give treatment to their citizens. Based on the findings of this review study, telemedicine has been judged to be an effective mode of health care in these challenging times; yet, there are some components and obstacles related with its usage that must and yet to be considered.(12)

TABLE: 7 OTHER BENEFITS OF TELEMEDICINES

In addition to limiting provider exposure to SARS-CoV-2, broad telemedicine use can help mitigate COVID-19 by:

- "Forward triage" or categorising patients prior to their arrival in emergency departments.
- Mild cases can be tracked quickly in order to reduce hospital visits.
- Non-respiratory sickness patients' visits can be scheduled in advance to decrease peak load in COVID-19 periods.
- Leveraging access to a wider range of medical specialists
- Remote clinical treatment available 24 hours a day, 7 days a week, especially when physical access is limited due to lockdowns
- Pre-screening through the internet based on medical records
- Long-distance consultations are made easier.
- ICU monitoring programmes tailored to the needs of patients with varied degrees of illness severity
- Even when healthcare personnel are sick or confined, they can offer medical treatment.
- Reduced degrees of physical and mental exhaustion
- Reducing the use of personal protective equipment
- Lowering the expenses of hospital visits, such as transportation, security, and food for the patient's family
- Using digital surveillance to monitor hospital quality

- Creating a standardised, integrated platform to meet all future medical needs during the COVID-19 era and beyond.

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