

Teletherapy in India: A review

Urmita Chakraborty, PhD.

Founder, Director and Consultant Psychologist, Alo Psychological Counselling & Psychotherapy Clinic (Regd.), Kolkata, West Bengal, India.

Abstract

Remote health care is an existing method for treating individuals with moderate to severe health issues. The Pandemic years make this specialized service more popular and recognized in every country. The fields dealing sensitive health queries mainly mental health (psychology or psychiatry), gynecological health and infectious disease's symptoms require non traditional approaches. Patients feel uncomfortable in explaining their health issues in formal clinic settings. Therefore, telemedicine has some logical basis for these fields. In this chapter, various approaches in traditional health treatment along modern telemedicine will be discussed. Field wise usages of remote health settings will be critically discussed. Mobile app based consultation guidelines will be critically reviewed. Technological sides for such digital empathy will also be highlighted. Consultations now involve video teleconferencing, smart mobile devices, cloud computing, virtual worlds, virtual reality, and electronic games. The advantages and disadvantages will be considered.

Keywords: Health settings, traditional method, telemedicine method, technological changes.

Introduction

In India a great concern has been observed over the years. Family members of patients with any disease or disorder face a lot of anxiety during a visit to a health professional. Starting from taking appointment for in person visit the anxiety includes finding and buying prescribed medicines or attending further counseling sessions. A digital platform can heal this primary yet significant anxiety on the part of patients and families. Significantly, if I cast a look at the available hospitals in India the number is quite less in comparison to foreign countries. In India the total number of hospitals is 69,000 approximately which includes public and private hospitals. The number of mental hospitals is 45. Lack of Indian researches in this aspect is a barrier standing in this Pandemic era. Hence, there is a significant need for digital health care facilities along traditional in person health services. The Pandemic time has initiated this development with utmost sense.

Psychology is a much needed professional discipline in India. Practically every non psychology professional must have a brief training of psychology in India. Whoever is dealing Public in bottom level of society must incorporate the basic ideas of psychology discipline. Every citizen of India should have psychological health awareness in the utter socio economically diverse situation in India. Imbalanced resource allocation has caused severe mental health issues here. Uncontrolled population increase has resulted in unemployment. Telepsychology is needed similarly telemedicine. However one must be aware about the ethical standards specially addressed for Psychologists in any situation. The ethical code of Psychology profession depends upon moral training said in a chapter of APA. Ethically a Psychologist must have to be a responsible care giver. The professional is also restricted to deal online cases by the same protocol. In another work APA (2017) has expanded the notion. Principles important for a clinician are working beneficence, responsibility, integrity, justice, and respect for individual's dignity. However, the Psychologist must have adequate competence while delivering online or in clinic remedies. Competencies must include professional knowledge, capacity for emergency services, awareness about personal conflicts. Other ethical grounds focus on quality of relationship with clients. Psychologists need have to be free from illogical discrimination, sexual harassment, harmful conversations, and exploitative communication. However a morally upright and well trained Psychologist always adopt principles such as informed consent, cooperative mindset to be in a professional team, and keeping records confidential. A Psychologist is responsible for sharing client records even if the client isn't paying the fee. In a recent document, Department of Clinical Psychology, NIMHANS (2020) has narrated telepsychology based treatment principles. According to the opinion, an identity verification of patient and an in person assessment have been mandated. All patients are not suitable for tele psychotherapy. Weitz(2015) in the article mentioned the diluted role of local authorities for allowing a Clinician practice internationally through digital platforms.

Psychological treatment often relies upon mutual trusting relationships between clients and patients. A sense of reciprocal understanding is needed even if it is the online consultation. Different online app companies have also stretched the importance of reciprocal behavior in context of organizational benefits in general terms. Pieperhoff (2018) in his article has shown importance of reciprocal behavior among employees in different organizations in order to boost inter organizational harmonic relationships. Besides, competitive mindset its important to work in a collaborative framework to sustain in Pandemic situations. Besides direct reciprocity, indirect reciprocity is a reason for economic rise through inter organizational relationships. Reciprocity can be generalized or dyadic (Eastwick et al,2007). Tamm(1993) has given away six models of health namely religious, biomedical, psychosomatic, humanistic, existential and transpersonal. Except the biomedical model all are holistic and inclusive in nature.

In India, telemedicine usage has a long struggling history. In the year 2000 in the village Aragonda in South India telehealth system was first launched (Ganapathy,2006). By that time, India has been empowered with satellite transmission, high speed broadband access, mobile phone technology and wireless communications. According to the author, at the initial phase telehealth had covered almost all major fields namely cardiology, general medicine, general surgery, sexual medicine and dermatology. Telehealth covered applications such as mobile truck based telemedicine, educational video conferencing, and academic activities. During this initial phase concerns were huge for carrying this system for many years ahead. Challenges were acceptance by Indian society at large, inventing low priced hardware and software, drafting telehealth act in India, adequate training of users and providers, authenticating telemedicine units and so on. Overseas telehealth consultation was also a major focus for India. The significant issue was also regarding inclusion of telehealth system in the curriculum. Chellaiyan et al (2019) had spoken about role Govt of India, ISRO, NASA and disaster management led by telemedicine in providing telehealth especially in economically backward regions of India. In the year 2005 health ministry took initiative to spread awareness about telehealth. Supportive systems emerged namely ICMR Arogyasree, village resource centers, National eHealth Authority or NeHA, Authors have also named government's initial projects namely National Rural Telemedicine Network, Digital Medical Library Network, and Pan African eNetwork project, SAARC telemedicine network projects. Kustwar et al(2020) supported the concerns about telehealth facilities in rural areas. Through telehealth system India is one nation and there is no differences in daily life of people living in villages and those in urban areas. Gap has been reduced in terms of health care facilities. Brindha(2013) has ascertained that with the help of teletherapy, pressure on a single doctor will be decreased. Similarly, number of hospitals will be reduced. Evisit(2021) has depicted the historical background of telemedicine in global arena. In early 19th century radio based communication takes the initial attempt for telehealth services. In 1940 Pennsylvania was the place where electronic medical record transfer was utilized through telephone lines. Rural people were initially connected with health care providers. Then emergency medicine for urban people also was started. Important projects were Space Technology Applied to Rural Papago Advanced Health Care(STARPAHC). Initially radiology images followed by electrocardiographic rhythms were sent as telehealth records of patient's problems. Shirzadfar et al(2017) had listed several early uses of e health mechanisms. These are.

Supplying medical care in a war area

Transferring medical care to remote scientific stations in Arctic and Antarctic.

Providing medical care to correctional facilities without releasing inmates to the hospital.

Digital transmission of radiology images.

In this article necessities in arranging internet facilities has been emphasized. Concerns narrated are

Internet infrastructure improvements

Communication speeds (bandwidth and latency).

Storage of information (databases, object-store for large files such as images and video).

Accessibility many web services employ backup servers, and even dynamically start up additional servers if traffic increases.

Standard formats to transmit data (MP4, PNG, etc.).

Security (encryption, password protection, access levels, etc.).

Application development new programming languages (JavaScript), frameworks, and open-source software (Apache).

The Cloud using virtual servers hosted by an infrastructure provider such as Amazon Web Services (AWS).

Digitizing information (digital cameras, scanners, etc.).

Much evidences are around medical help transmission. So the e health consisted of

Arranging affordable measurements devices that are widely used with telemedicine

Smartphone cameras.

Digital stethoscopes.

Ophthalmoscopes (for eye exams).

Otosopes (for ear exams).

Vital sign monitoring devices.

Copyrights @Kalahari Journals

International Journal of Mechanical Engineering

332

Vol.7 No.3 (March, 2022)

Wearable biosensors.

Microstrip patch Antenna.

These authors have also mentioned the inclusion of micro strip patch antenna,ATS I Satellite and ATS 6 Satellite for scientific advancements in telehealth transmission.

Garg(x) has cited Indian national health policy 2017 in the article. After 1983 and 2002 a much waited national level health policy suggested digitalization of health information, district level electronic databases for securing health information, and an integrated health information architecture. This latest policy has also considered a network and exchange methodology for health information to reach everyone. Dahiya(2018) has reported the national health policy 2017 focuses on preventive health issues. It also aimed to reduce the costs and expenses for health services to be obtained by people from diverse backgrounds. Ghosh et al(2017) have suggested more focus to be cast on states of India such as Bihar and Uttar Pradesh for getting health related services. Pandey et al(2010) had listed main sources of health data in India. These are population census, civil registration system,surveys, service records, administrative records.

Online crime in India has raised as reported in news reports. In march 2021 the Hindu has reported a government estimation of 3.17lakhs cyber crimes in India occurred in last 18 months. Still, online health has to be continued for certain significant reasons.

Online treatment procedure is a common approach in India. It can be adopted by a hospital, a clinic or an independent practitioner.

It is being practiced successfully in overseas countries with higher economic standards. Though India is a developing country the same procedure practiced in developed countries has been found efficient. A handy smartphone can now be available in low prices in India which has opened the door. More recently the COVID19 Pandemic situations has taken this way of treatment to the peak. The in clinic and online video consultation methods differ to a certain degree however. But, no difference is substantial if a case is dealt by a trained, empathetic and active professional. Moreover, some departments of health profession do require extreme privacy. The fields such as mental health and gynaecology ask sensitive case histories often. Thus, patients feel unsafe and insecure to meet any professionals from these fields with ailments. The online consultation is thus best way to reach out to the patients with lack of confidence in sharing personal space. Another support came from advanced telecommunications services. Various mobile app technologies have guided the innovative treatment style to become more distributed among Indian population. The practitioners are allowed to ask any amount from patients. Some apps also ask a deducted fee structure to help lower middle class patients. Above all it's the patients who are selecting their doctor. The whole process is quite budget healthy from both sides. The app developers and smartphone manufacturers are making a proportionate business without causing any harm. Ethical parameters are bit different in dealing cases online and in clinic. Visual gestures, vocal tone, whole personality are among them. India's current population in 2021 is 1391.99 million (O'Neill,2021) and the number of people using smartphones in the same year is 760 millions (Statista Research Department, 2021). This estimated digit is quite hopeful for online consultation business.

Evisit(2021) has mentioned telemedicine and its system for delivering treatment help. Analog telephone system can be used in this regard. Basic intention is to offer instant and time saving treatments. Method can be real time or store and forward. In situations, instead live video, still images are taken for future reference. Deldar et al(2016) opined that teleconsultation reduces the effects of distance variable. This type of health facility further facilitates proper diagnosis, treatment plan and referral plan. This study had also cited different telecommunication required for telehealth services. It had spoken for a virtual communication between health providers, between physicians and primary care providers, between primary care providers and patients or between physicians and patients. Guillot(2021) has supported in the article on telehealth certain issues. Telehealth has been serving best option for alternative treatment facility in place of office based in person case dealing. It is also best option for treating elderly population. Further fields such as cardiology and mental health are found to be significantly improved by telehealth based protocols. A system of connected communication brings low level of stress. Teladoc.Health(2021) has brought a new telemedicine technology solo which has improved software support for data exchange during virtual communication. It's cloud based integrated service for third party communication on a single platform. Kent (2021) has significantly delineated the importance of artificial intelligence in treatment industries. Field wise different algorithms have been designed for quick investigation of illnesses. This researcher has spoken about machine learning techniques for treatment. New technologies for visual inspection, fastest screening and assessment , pulse and respiration detecting techniques all provided support for telehealth system as an improved platform. Aithority (2020) has ascertained that telehealth platform utilizes technologies covering electronic data and broadcast communications. Mainly four fields can be successfully monitored by the artificial intelligence based telehealth services. These are radiology, pathology, dermatology and psychiatry. Artificial intelligence based telehealth service is assisting elderly population, monitoring remote patients, making diagnosis more accurate, and promoting big data analysis. However security of data has remained utmost important fact. Google AI calculation for clinical data analysis has added a feather to the successful journey of teletherapy. Dyrda (2020) has also ascertained the positive roles of AI in tele care. Support gained for quick gathering of clinical data , sending patients to right Clinician based on questionnaire based information, or setting images for operating cases. Vsee(2020) has also supported the benefits of Artificial Intelligence as a collaborator in telehealth programs. As a technology driven patient care telemedicine system has offered electronic health record system, timely supervision, interactive chatbots, low cost for treatment, and easy clinical diagnosis methodology. Further, uses of natural language processing, advanced medical imaging techniques, telemedicine mobile apps,advanced computer algorithms, personalized care and decision making by technology, AI empowered databases for tele diagnosis, make remote consultation more easier. An electronic reception system enabled by AI has made distant health service more appropriate and accessible in Indian context predictably. Miklashonok (2020) has similarly highlighted the significance of teletherapy renovated by AI technology. Capterra(2021) listed telemedicine softweres. These are continuous care, vivadox, e health flex, simple practice, thera nest, kareo billing, therapy notes etc.. Evisit(2021) gathered supportive

evidences for telehealth facility. Most importantly this distantly assisted program help clinicians to understand early warning signs and provide appropriate treatments at the outset. Several clinical devices have been invented for this technology driven care system. This category health service includes store and forward software, real time software, and alike softwares. The features of this highly advanced and sensitive software have high security interms of country wise health acts, intuitive user interface design, electronic visit notes, e prescription and service records, budget friendly. Mocdoc (2020) has cited integrated hospital system that can be followed during Pandemic urgency. Automation and digitization have been inserted in modern hospital care packages. As per this model, a hospital can utilize technological advancements for patient care, billing, security of data, customizable data on dashboards, tele consultation, quick set up, integrated interfaces among all departments in a hospital, affordable pricing. Productivity and reputation have remained the aim for such online patient dealing. MIT Harvard Medical School (2021) has suggested an online bootcamp program for improving health delivery approaches. It has focused on aspects namely online coursework, faculty seminars and team based innovation projects. Hence, an integrated system including global collaboration, interactive sessions and theory practice can solve health issues smoothly. Turner et al(2021) has ascertained efficient telemedicine softweres for healthy and beneficial talk between caregiver and patient. These are

[1. Mend](#)

[2. Doxy.me](#)

[3. AMC Health](#)

[4. swyMed](#)

[5. Teladoc](#)

Existing medical and health service softweres include

6. Medical practice management software

7. Electronic Health Record

8. Medical billing software platform

All these 8 software can be integrated while connecting with patients during Pandemic era.

Riopel(2020) has discussed telehealth approach while dealing psychological issues. Online consultation has dissolved language barriers along remote distance coverage. Patients with certain psychological issues may find video conferencing a suitable medium to get treated. Pandemic situations have made this possible for these patients who rarely seek help out of uneasiness in direct communication. Telepsychology also comprises of

1. Videoconferencing

2. Email and telephone

3. Real-time chat

4. Cell phones

5. Websites

This article has also emphasized certain benefits. Online consultation can provide better security. Patients can consult anytime in a day with urgent registration.

International board of credentialing and continuing education standards (2020) is in support of HIPAA system. HIPAA means Health Insurance Portability and Accountability Act of 1996. It is based upon The Privacy Rule, The Security Rule, and The Breach Notification Rule. The softweres under HIPAA are zoom, doxy.me, simplepractice, theralink, and vsee.

Onlinetherapy (2021) has recommended authentic tele mental health platforms namely Vt connect, wecounsel.com. These are few additional servers.

All these 7 softweres are characterized by encrypted online office, video tutorials, e signed document for patients, group sessions, customized branding, online waiting room facility, affordable pricing tiers, and better industry encryption standards. All these are HIPAA approved.

Technological aspects for transferring digital health benefits include latest computer innovation. IOT, Cloud based software, Artificial Intelligence and Blockchain have created this digital savior more stronger. Rahman (2020) has shown five important core technological principles of artificial intelligence. This type of software can create enormous changes in telehealth domain. Computer vision, machine learning, natural language decoding, robotics, and speech identification are the dynamic facilities offered by AI. On the other side, blockchain has certain other elements much advanced for telehealth platform (iscoop, 2021). The Block chain uses ledger technology, computational technology such as digital signature, distributed network, encryption method, and innovative database. Apart these two, cloud computing is another way of data sending and receiving technology. Three types of cloud computing are doing the data communication. These are softwere, infrastructure, and platform or

SaaS,IaaS,PaaS (Salesforce platform, 2021). IoT is the basic and earlier technical support for data transfer process. It involves sensor, computer and thing (IoT For All,2021).

Method

Aim of the study is to gather and analyze critically all the relevant literatures for telehealth consultation in India. Psychological teletherapy is another major concerned area. Limitations of telemedicine methodology will also considered.

This is an exploratory research based on secondary data. This systematic review was conducted through searching google based sites publishing articles, five databases including PubMed, Scopus, Embase, Web of Science, and Science Direct, and google books. Predetermined search queries were typed in google search and relevant high quality pieces of writing were included in the two month long study. Inclusion criteria included studies clearly defining any use of telehealth services in all aspects of health care, published from 1993 written in English language and published in peer reviewed journals. Reviewer independently assessed search results, extracted data, and assessed the quality of the included studies. Quality assessment was based on the Critical Appraisal Skills, Narrative synthesis was undertaken to summarize and report the findings. In total 76 pieces of writing concerning tele health care have been included.

Discussion

Becker's Health It (2013) has listed technological systems used in tele care. These are Video conferencing, Wireless technologies ,Data monitoring ,Internet-based technologies ,Smartphone apps ,Interactive voice response technology ,Fax ,Audio conferencing ,Mobile broadband ,Fixed-line broadband ,Mobile diagnostics ,Narrowband technologies.

Penate (2012) has studied internet based psychological treatment with resolved validity issues. This study was successful in showing effectiveness of virtual clinics in dealing anxiety and depression. In another study Monaghesh et al,(2020) noted that telehealth system can be applied in dealing COVID19 Pandemic which has psychological symptoms. This virtual system as per this study observation has been found as effective in stopping direct transmission of the deadly virus. The telehealth system has been found to be composed of email, telephone, live conferencing, social media communications . Villines (2020) has discussed the advantages and disadvantages of using telemedicine through desktops and smartphones. Messaging, live video conferencing and emailing have certain limitations as per this study. The fields of health care requiring physical examination face difficulty in advising patients through this system. Psychological issues are treatable and this study shows the supportive documents. Barriers mentioned are less insurance policies can carry expenses for online consultation and data privacy is questionable. Unencrypted channels can leak confidential information that a patient has shared.

Maheu et al(2012) in their article emphasized on rules of Professional organizations of psychology. It is high time to sustain psychology's leadership position in tele world too. Thus, specific guidelines and policy for science, practice, and education are urgently asked. Protection of clients search for new legal and regulatory steps. Therefore, work for licensure, referrals, client education, privacy, screening, assessment, record keeping, reimbursement, and self-help product development are needed. Protections for psychologists require new risk management procedures. Scope for multidisciplinary health teams has seen and new public and private sector areas are forming in this regard. Ahmed et al(2021) argued that Blockchain technology is a suitable medium for supplying telehealth and telemedicine services. It relies on remote healthcare services in a manner that is decentralized, tamper-proof, transparent, traceable, reliable, trustful, and secure. It accurately identifies frauds related to physician educational credentials and medical testing kits commonly used for home-based diagnosis. Wholesome utilization of blockchain in telehealth and telemedicine technology is still under making. The current blockchain technology provides security and privacy, operational transparency, health records immutability, and traceability to find frauds in patients' insurance claims and practitioner's credentials. Kabir (2012) has mentioned important psychological principles that should be kept in mind while dealing patients in general. These are confidentiality, informed consent, autonomy and diversity on the part of client. All these should be looked into with great vigilance and empathetic mindset. A professional relationship is all that is required in every context between the therapist and client. George et al (2008) have suggested a globalized ethical and regulatory system for online medical practice. The legal, social and ethical limitations in this regard have been pointed out with respect to UK and USA context. Web cam based doctor patient communication has been taken as casual transaction. This sort of treatment may bring out legal issues such as possibility of contra indication of medicine and lack of physical examination. Ethical restrictions may include not following treatment as per patient ' best interest. Shah et al (2018) in their study recommended the notion of teletherapy can be taken by a smaller number of suitable cases. They utilized the Roter interaction analysis system to assess the doctor patient interaction through tele consultation. This study has also emphasized the importance of telemedicine in the time of chronic illness spread worldwide. But on contrary a demand of established trust between doctor and patient has spoken by authors. In another research patients with varicose vein were studied. The patients had attended virtual clinic and traditional clinic. Patients in both clinic setup had been found to have similar pre-operative demographics, clinical classification and patient outcomes (Lin et al, 2020). In a 2018 study cognitive behavior therapy has been administered through online methodology. Clinics in countries such as Sweden, Denmark, Norway, Canada and Australia were included. These clinics maintained systems of governance to monitor quality of care, patient safety, therapist performance and data security. Result of survey indicated good patient 's satisfaction and adequate clinical intervention (Titov et al, 2018). Sussman(2004) has shown the importance of online counseling in the research. Risks of underqualified internet therapists may create sufferings on patients.

Frankland (2010) mentioned barriers during face to face psychotherapy sessions. Boredom and silence on the part of patients, verbal attacks on therapists and sadness in therapy taking clients. Apart them, erotic transference and counter transference are of major concerns according to him. Hence, online consultation could be a better medium to deal sensitive cases. Chamberlain(2021) has narrated the best way to treat a patient with psychological issues is by connections. Thus, to maintain a best connectivity with patients is only possible through online consultation. McLeod(2013) made a clear conclusion that practice goes hand in hand with research. The four types of knowledge namely personal, practical, theoretical and research work simultaneously in a therapy while dealing a psychological case. Zeavin(2021) has proposed a thorough investigation in tele psychological guidance since the Freud's time. He has included a detailed analysis of Psychotherapy across distance and time, from Freud's treatments by mail to crisis hotlines, radio call-ins, chatbots, and Zoom sessions. Scharff(2013) had discussed Psychoanalysis through online medium. Emphasis has given on fast spreading economic changes that led people relocate for work. Skype based computer to computer communication has been prioritized. Cruz-Cunha et al(2010) have directed utilization of certain technologies while providing tele health services. Besides, using biomedical wearable systems, emerging techniques namely intrabody communication, Microsystems for wireless sensor networks, hierarchical wireless networks, and quantum computation in medical image processing can provide smooth communication. Critical areas have been discussed by the authors. These are telehealth access by blind people, telerehabilitation facilities, and oncology care for patients and their family members. National Research Council (2015) had given immense focus on concepts such as connecting home health care with larger health care ecosystem and bridging health care with social services. Jude et al(2019) supported the roles of computational biology and bioinformatics in telehealth services. CDSS , WBAN, and telemetry system, and machine learning systems have been given full emphasis. Telehealth strategies can treat patients with hypertension, hyperbillirubinemia, diabetic retinopathy and cardiac problems. Anandabazar news report (2021) showed that wifi Router causes brain abnormalities due to non ionizing radiation. It poses threats for online services. Stamm et al(2000) outlined telehealth evaluation method where Psychologist's role has been emphasized. Besides assessing government policies, technology a Psychologist can be enrolled to assess staffs and other clinicians practicing on a same telehealth company. Therefore according to these authors this is justified to understand telemedical system comprised of two different aspects. These are technology aspect and human aspects. The technology aspect further includes transmission, network support, data storage, and specialty equipment. The human aspect constitutes the technical training, informatics, remote consultation and supervision, specific services namely prevention, education, assessment, treatment, aftercare. The vital human aspect is maintenance of the services offered through education and self care. Board of Governors (2020) has ascertained telemedicine practice guidelines in Indian context.

Different communication channels for telehealth system are mentioned below.

Video mode includes Telemedicine facility, Apps, Video on chat platforms, Facetime .

Advantages are.

Closest to an in person-consult, real time interaction

Patient identification is easier

RMP can see the patient and discuss with the caregiver

Visual cues can be perceived

Inspection of patient can be carried out

Weaknesses are.

Is dependent on high quality

internet connection at both ends,

else will lead to a sub optimal

exchange of information

Since there is a possibility of

abuse/ misuse, ensuring privacy of

patients in video consults is

extremely important.

Audio modes are Phone, VOIP, Apps

Strengths are.

Convenient and fast

Unlimited reach
Suitable for urgent cases
No separate infrastructure
required
Privacy ensured
Real-time interaction.
Limitations are.

Non-verbal cues may be missed
Not suitable for conditions that
require a visual inspection (e.g.
skin, eye or tongue examination),
or physical touch
Patient identification needs to be
clearer, greater chance of
imposters representing the real
patient

Text based modes are Specialized Chat based Telemedicine, Smartphone Apps, SMS, Websites.

Strengths are
Convenient and quick
Documentation & Identification
may be an integral feature of the
platform
Suitable for urgent cases, or
follow-ups, second opinions
provided RMP has enough
context from other sources,
limitations are.

Besides the visual and physical
touch, text-based interactions also
miss the verbal cues

Difficult to establish rapport with
the patient.

messaging
systems e.g.

WhatsApp,

Google

Hangouts, FB

Messenger

No separate infrastructure
required,

Can be real time

Cannot be sure of identity of the
doctor or the patient
ASYNCHRONOUS modes.

Email
Fax,
recordings etc.
Strengths are.

Convenient and easy to document
No specific app or download
Requirement
Images, data, reports readily
shared
No separate infrastructure
required
More useful when accompanied
with test reports and follow up
and second opinions
Limitations are.

Not a real time interaction, so just
one-way context is available,
relying solely on the articulation by
the patient
Patient identification is document
based only and difficult to confirm
Non-verbal cues are missed
There may be delays because the
Doctor may not see the mail
Immediately
consultation

Aspects in any telemedicine consultation are.

- 1 Context
- 2 Identification of RMP and Patient
- 3 Mode of Communication
- 4 Consent
- 5 Type of Consultation
- 6 Patient Evaluation
- 7 Patient Management

Patient management is important according to this circular which includes patient education on health, counseling and treatment.

World health Organization(2010) has depicted pertinent barriers of teletherapy. Human factors, cultural factors, linguistic factors, economic factors, legal and technological factors are among them. Software and hardware breakdown often cause disruption in communication between patients and doctors. Additionally, a comprehensive international legal framework refrains professionals from offering help in distant regions. Lack of understanding of ICT usage and non traditional service models for tele care on the

part of patients is a significant hindrance. Confidentiality, dignity and privacy are the core standards to be maintained despite these challenges. Cross border legal permissions need to be looked with great concerns while dealing international patients. According to this report, implementation of policies for telehealth had been found less within Africa, the Eastern Mediterranean and South-East Asia. 47th National Annual Conference of Indian Association of Clinical Psychologists.(2021) has suggested various advantageous aspects of online psychological consultations. Various laws namely Mental Health Care Act 2017, The National Commission for Allied and Healthcare Profession Act 2021, POCSO Act, 2012 and Persons with Disability Act 2016 have to be kept in knowledge. Further, needs of patients would be assessed prior to beginning of tele sessions. Psychiatric medication or hospitalization along local psychiatric help will be served besides psychological supervision. Severe psychopathology and suicidal risk comprise the yardstick for excluding patients from telehealth platform as per this conference discussion. A professional who is offering service through telehealth platform is anyone who is fulfilling the Indian act wise guidelines. In the light of current reforms, tele-psychotherapist is basically a clinical psychologists or Consultant Psychologist or Counselor in India, according to the Rehabilitation Council of India (RCI) guidelines, along The National Commission for Allied and Healthcare Profession Act 2021. The professional can be a qualified mental health professionals as per the Mental Health Care Act, 2017, trainee clinical psychologists, from RCI recognized training institutes, receiving documented supervision from qualified clinical psychologists. However, a post graduate degree with specialization in Clinical Psychology is the only needed knowledge during COVID19 Pandemic in common sense. American Psychological Association (2013) says that the practice of telepsychology involves certain arrangements. These are legal requirements, ethical standards, telecommunication technologies, intra and interagency policies, and other external constraints, along particular professional context. Certain US based task forces are responsible for telepsychology to emerge. These are.

the Committee on National Security Systems (2010),

the U.S. Department of Health and Human Services,

Health Resources and Services Administration (2010), and

the U. S. Department of Commerce, National Institute of Standards and Technology (2008,

2011).

The guidelines involve compliance with following issues

1. Competencies of Psychologists
2. Standards of care during telepsychology sessions
3. Informed Consent
4. Confidentiality of data and information
5. Security and transmission of data and information
6. Disposal of data, information and technologies
7. Testing and assessment issues
8. Inter jurisdictional practice

Australian Psychology Society has ascertained certain exclusive criteria for telehealth practices. Maintaining an adequate eye contact and auditory sensation is needed. Apart this vital criterion, cultural competence and professional manners in termination of sessions are to be looked into with caution.

Bennett has observed that blockchain technology based telemedicine system has a robust application in nearer future. It has improved quality of data emerged during patient care. For payment, several bitcoin or token systems came under blockchain technology. These are patientory, healthcoin, dentacoin, ethereum. These are cryptocurrencies used in blockchain based tele services. Through such easy, cost effective patient centric system early detection of diseases is possible. Further it will reduce costs of medicine and health insurance policies.

During online sessions interpersonal adjustment between the therapist and client is important. Kenny(1994) assumed interpersonal perception has certain qualities namely friendliness, intelligence and sociability. During online sessions the expression of these qualities from both sides is needed for a successful intervention. Interpersonal perception has been prioritized by the author to include features such as assimilation, consensus, uniqueness, Reciprocity, target accuracy, assumed reciprocity, meta accuracy, assumed similarity, self order agreement. All these nine qualities reflect perception of other person with some reference to perception of self in a certain context. Any psychological healing must consider these qualities while interacting through video conferencing.

Blockchain technology is important in redefining telepsychology as a practicing field. Strebko et al(2018) has highlighted important mechanisms of block chain method. Block chain technology involves data, hash value, secured hash value, and digitally signed data. This system works without

Intermediary. Any person of this Blockchain can make the

Decisions. Each action is recorded to the Blockchain and the data of

records are available to every participant of this Blockchain

and cannot be changed or deleted. The results of this recording

give the Blockchain's transparency, immutability and trusty. It has another advantage of faster processing than any other software. The disadvantages include energy, cost and signature verification. Ambika et al (2019) have suggested applications of block chain technology. These are Diamonds, Health Care, Land Registry, Education, Smart Contract, IBM, Governance Organization, Waste Management, Income Tax,

Insurance, Smart Cities, Ballot Polling, Pharmaceuticals

Industry and many more applications. These authors also mentioned that blockchain technology uses small log and centralized technology. Chowdhury et al(2012) mentioned artificial intelligence is advantageous because some features namely real-time sensing, detection, response, and control. Knop et al(2020) have observed phenomenological misunderstanding during digitally arranged clinical health services.

Conclusion

The progress in the teletherapy field is considerable. Supportive government policies have made the telehealth area more suitable and successful. Technology driven health care has limitations as well. In person patient dealing has certain advantages over video clinic. Though contextual effects turn limitations into facilities often. Indian economic context, socio political situations and high population are considerable aspects always.

References

1. Penate,W.(2012). About the effectiveness of telehealth procedures in psychological treatments. International Journal of Clinical and Health Psychology, 12(3),461-473.
2. Monaghesh,E., & Hajizadeh,A. (2020). The role of telehealth during covid-19 outbreak:A systematic review based on current evidences. BMC Public Health, 20,1193.
3. Villines,Z. (2020). Telemedicine benefits:For patients and professionals. Retrieved from <https://www.medicalnewstoday.com/articles/telemedicine-benefits>
4. Becker's Health It.(2013). 12 technologies used in telehealth programs. Retrieved from <https://www.beckershospitalreview.com/healthcare-information-technology/12-technologies-used-in-telehealth-programs.html>
5. Evisit. (2021). What is telemedicine technology? Retrieved from <https://evisit.com/resources/what-is-telemedicine-technology/>
6. Deldar,K.,Bahaadinbeigy,K.,Tara,S.M. (2016). Teleconsultation and clinical decision making:A systematic review. Acta Inform Med,24(4),286-292.
7. Guillot, C. (2021). 6 reasons telehealth is now more important than ever. Retrieved from https://healthtechmagazine-net.cdn.ampproject.org/v/s/healthtechmagazine.net/article/2020/05/6-reasons-telehealth-now-more-important-ever?amp_js_v=a6&gclid=Cj0KQCQjwweyFBhDvARIsAA67M71nkjIe6QguwJIHVrW04RqtCSZbIcH7web5z2lnabFizebZ7PA&gclid=Cj0KQCQjwweyFBhDvARIsAA67M71nkjIe6QguwJIHVrW04RqtCSZbIcH7web5z2lnabFizebZ7PA&referr=from%2020%251%24s&share=https%3A%2F%2Fhealthtechmagazine.net%2Farticle%2F2020%2F05%2F6-reasons-telehealth-now-more-important-ever
8. Teladoc.Health. (2021). Every use case.One software platform. Retrieved from <https://intouchhealth.com/virtual-care-platform/solo/?gclid=Cj0KQCQjwweyFBhDvARIsAA67M71nkjIe6QguwJIHVrW04RqtCSZbIcH7web5z2lnabFizebZ7PA&gclid=Cj0KQCQjwweyFBhDvARIsAA67M71nkjIe6QguwJIHVrW04RqtCSZbIcH7web5z2lnabFizebZ7PA&referr=from%2020%251%24s&share=https%3A%2F%2Fhealthtechmagazine.net%2Farticle%2F2020%2F05%2F6-reasons-telehealth-now-more-important-ever>
9. Kent,J. (2021). Artificial intelligence enhances preventive care,telehealth. Retrieved from <https://healthitanalytics.com/news/artificial-intelligence-enhances-preventive-care-telehealth>
10. Aithority. (2020). AI in telemedicine: Augmenting healthcare services in 2020. Retrieved from <https://aithority.com/ai-featured-posts/ai-in-telemedicine/>
11. Dyrda,L. (2020). The role of ai in telemedicine. Retrieved from <https://www.beckershospitalreview.com/telehealth/the-role-of-ai-in-telemedicine.html>
12. Vsee. (2020). What does the rise of artificial intelligence mean for the future of telehealth? Retrieved from <https://vsee.com/blog/artificial-intelligence-future-telehealth/>
13. Miklashonok, O. (2020). How is artificial intelligence transforming telemedicine? Retrieved from https://litslink-com.cdn.ampproject.org/v/s/litslink.com/blog/how-is-artificial-intelligence-changing-telemedicine.amp?amp_js_v=a6&gclid=Cj0KQCQjwweyFBhDvARIsAA67M71nkjIe6QguwJIHVrW04RqtCSZbIcH7web5z2lnabFizebZ7PA&gclid=Cj0KQCQjwweyFBhDvARIsAA67M71nkjIe6QguwJIHVrW04RqtCSZbIcH7web5z2lnabFizebZ7PA&referr=from%2020%251%24s&share=https%3A%2F%2Flitslink.com%2Fblog%2Fhow-is-artificial-intelligence-changing-telemedicine
14. Capterra. (2021). Telemedicine software. Retrieved from <https://www.capterra.com/telemedicine-software/>
15. Evisit.(2021). Telemedicine software and devices. Transforming healthcare delivery. Retrieved from <https://evisit.com/resources/telemedicine-software/>
16. Mocdoc. (2020). Complete integrated hospital management system. Retrieved from <https://mocdoc.com/>
17. MIT Harvard Medical School. (2021). Healthcare innovation bootcamp. Retrieved from https://learn-bootcamp.mit.edu/healthcare-innovation?utm_medium=sem&utm_source=google&utm_campaign=obhh&utm_term=telehealth&utm_content=aw-c&utm_term=telehealth&utm_campaign=Online+Healthcare+Innovation+Bootcamp+-C/India&utm_source=adwords&utm_medium=ppc&hscam=10387455597&hsa_grp=104583673

[433&hsa_ad=521460367900&hsa_src=g&hsa_tgt=kwd-13152760&hsa_kw=telehealth&hsa_mt=b&hsa_net=adwords&hsa_ver=3&gclid=Cj0KCOjwwewFBhDvARIsAA67M73pYS7OvuEbMDIEnMIXgkjc5MlclL6xuiqWEG66pDPevUnk5TvYmTa0aAuI2EALw_wcB](https://www.techradar.com/cdn.ampproject.org/v/s/www.techradar.com/amp/best/best-telemedicine-software?amp_js_v=a6&_gsa=1&usqp=mq331AQHKAFAQrABIA%3D%3D#aoh=16229557551144&referrer=https%3A%2F%2Fwww.google.com&_tf=From%20%251%24s&share=https%3A%2F%2Fwww.techradar.com%2Fbest%2Fbest-telemedicine-software)

18. Turner,B., & DeMuro,J.P.(2021). Best telemedicine software of 2021. Retrieved from https://www.techradar.com/cdn.ampproject.org/v/s/www.techradar.com/amp/best/best-telemedicine-software?amp_js_v=a6&_gsa=1&usqp=mq331AQHKAFAQrABIA%3D%3D#aoh=16229557551144&referrer=https%3A%2F%2Fwww.google.com&_tf=From%20%251%24s&share=https%3A%2F%2Fwww.techradar.com%2Fbest%2Fbest-telemedicine-software
19. Riopel,L.(2020). What is telepsychology and what software to use? Retrieved from <https://PositivePsychology.com/>
20. IBCCES.(2020). Top 5 hipaa compliant teletherapy platforms. Retrieved from <https://ibcces.org/blog/2020/04/15/top-hipaa-teletherapy-platforms/>
21. Onlinetherapy. (2021). Web conferencing platforms. Retrieved from <https://www.onlinetherapy.com/provider-resources/telecounseling-software/>
22. Maheu M.,Pulier,M.L. McMenamin,J.P.,Posen,L. (2012). Future of telepsychology,telehealth and various technologies in psychological research and practice. Professional Psychology, Research and Practice, 43(6), 613.
23. Ahmad,R.W.,Salah,K.,Jayaraman,R.,Yaqoob,I.,Ellaham,S.,& Omar,M.(2021). The role of blockchain technology in telehealth and telemedicine. International Journal of Medical Informatics, 148.
24. Kabir,S.M. (2012). Ethics in Psychological Practice. Retrieved from https://www.researchgate.net/publication/325499941_Ethics_in_Psychological_Practice
25. George, C. , & Duquenoy, P. (2008). Online Medical Consultations: Legal, Ethical and Social Perspectives. Ethical, Legal and Social Issues in Medical Informatics. 10.4018/978-1-59904-780-5.ch001.
26. Shaw, S., Wherton, J., Vijayaraghavan, S.,Morris, J., Bhattacharya, S., Hanson, P., Campbell-Richards, D., Ramoutar, S.,Collard, A.,Hodkinson, I., & Greenhalgh, T. (2018). Advantages and limitations of virtual online consultations in a NHS acute trust: the VOCAL mixed-methods study. Health Services and Delivery Research. 6. 1-136. 10.3310/hsdr06210.
27. Lin, J. C., Mclaughlin, D., Zurawski, D., Kennedy, N., & Kabbani, L. (2020). Comparison of virtual visit versus traditional clinic for management of varicose veins. Journal of telemedicine and telecare, 26(1-2), 100–104. <https://doi.org/10.1177/1357633X18797181>
28. Titov, T., Dear,B., Nielssen, O., Staples, L., Hadjistavropoulos, H., Nugent, M., Adlam, K., Nordgreen,T., Bruvik, K.H., Hovland, A., Repål, A., Mathiasen,K., Kraepelien, M., Blom, K., Svanborg, C., Lindefors, N., Kaldo,V. (2018). ICBT in routine care: A descriptive analysis of successful clinics in five countries.Internet Interventions,13,108-115. Retrieved from <https://doi.org/10.1016/j.invent.2018.07.006>.
29. Sussman,R. (2004). Counseling over the internet:Benefits and challenges in the use of new technologies. Medicine. Retrieved from <https://www.semanticscholar.org/paper/Counseling-over-the-Internet%3A-Benefits-and-in-the-Sussman/c414f7c0b2a277655da3ed98debd6c25d1f498ba#citing-papers>
30. Frankland,A.G.(2010). The little psychotherapy book. New York: Oxford University Press.
31. Chamberlain,L.L.(2021). Practicing Psychotherapy: Lessons on helping patients and growing as a professional. New York: Routledge.
32. McLeod,J. (2013). An introduction to research in counselling and psychotherapy. Los Angeles : Sage.
33. Zeavin,H. (2021). The distance cure: A history of teletherapy. USA: MIT Press.
34. Scharff,J.S.(2013). Psychoanalysis online:Mental health, teletherapy and training. London: Karnac Books Ltd.
35. Cruz-Cunha,M.M.,Tavares,A.J.,Simoes,R. (2010). Handbook of research on developments in e-health and telemedicine: Technological and social perspectives. New York: Medical Information Science Reference.
36. National Research Council, Institute of Medicine, Division on Behavioral and Social Sciences and Education, Board on Health Sciences Policy, Forum on Aging, Disability, and Independence. (2015).The future of home health care: Workshop summary. NW: The National Academies Press.
37. Jude,H.D., & Balas,V.E. (2019). Telemedicine technologies:Big data, deep learning, robotics,mobile and remote applications for global healthcare. London: Academic Press.
38. anandabazar.com.(2021). Keeping on wifi Router in home is it really safe? Retrieve from https://www-anandabazar-com.cdn.ampproject.org/v/s/www.anandabazar.com/amp/lifestyle/keeping-on-wifi-router-in-home-is-it-really-safe-dglt/cid/1284655?amp_js_v=a6&_gsa=1#referrer=https%3A%2F%2Fwww.google.com&_tf=From%20%251%24s

<https://www.anandabazar.com/lifestyle/keeping-on-wifi-router-in-home-is-it-really-safe-dgtl%2Fcid%2F1284655>

39. Stamm,B.H., & Perednia,D.A. (2000). Evaluating psychosocial aspects of telemedicine and telehealth systems. *Professional Psychology: Research and Practice*, 31(2),184-189.
40. Board of Governors: In supersession of the Medical Council of India (2020). Telemedicine practice guidelines: Enabling registered medical practitioners to provide healthcare using telemedicine.
41. World Health Organization. (2010). Telemedicine: opportunities and developments in member states. Report on the second global survey on ehealth. *Global Observatory for eHealth Series*,2.
42. 47th National Annual Conference of Indian Association of Clinical Psychologists.(2021). Souvenir: Digital interventions, challenges, and perspectives: Newer frontiers in clinical psychology.
43. 47th National Annual Conference of Indian Association of Clinical Psychologists.(2021). Compendium of abstracts: Digital interventions, challenges, and perspectives: Newer frontiers in clinical psychology.
44. American Psychological Association. (2013). Guidelines for the practice of telepsychology. *American Psychologists*, 68(9), 791-800.
45. Australian Psychological Society. (xx). Telehealth measures to improve access to psychological services for rural and remote patients under the Better Access initiative:CONSIDERATIONS FOR PROVIDERS.
46. Bennett,B. (xx). Using Telehealth as a Model for Blockchain HIT Adoption. Retrieved from <https://doi.org/10.30953/tmt.v2.25>
47. Xx. (xx). A code of ethics for psychology. Xx.
48. American Psychological Association. (2017). Ethical principles of psychologists and code of conduct.
49. Department of Clinical Psychology, NIMHANS. (2020). Guidelines for tele-psychotherapy services.
50. Weitz,P. (2015). e-Beratung: Online Counselling and Psychotherapy –the challenge for the next ten years, let’s dare together. *e-beratungsjournal.net*,11(3).

51. Pieperhoff,M.(2018). The Explanatory Power of Reciprocal Behavior for the Inter-Organizational Exchange Context. *Sustainability*,10(1850).

52. Xx.(xx). Reciprocity of liking. Xx.

53. Statista Research Department. (2021). Smartphone users in india 2015-2025. Retrieved from <https://www.statista.com/statistics/467163/forecast-of-smartphone-users-in-india/#:~:text=The%20number%20of%20smartphone%20users,3.8%20billion%20users%20in%202021.&text=The%20number%20of%20smartphone%20users%20worldwide%20is%20projected%20to,nearly%202.7%20billion%20by%202019>.
54. O'Neill,A. (2021). Total population of india 2026. Retrieved from <https://www.statista.com/statistics/263766/total-population-of-india/>
55. Tamm M. E. (1993). Models of health and disease. *The British journal of medical psychology*, 66 (Pt 3), 213–228. <https://doi.org/10.1111/j.2044-8341.1993.tb01745.x>
56. Retrieved from <https://www.i-scoop.eu/blockchain-distributed-ledger-technology/>
57. Rahman,M.A.(2020). Retrieved from. <https://medium.com/born-to-lead/five-core-technologies-of-artificial-intelligence-5cea219f49ed>
58. <https://www.salesforce.com/products/platform/best-practices/cloud-computing/>
59. <https://www.iotforall.com/what-is-internet-of-things>

60. Ganapathy,K.(2006). Telemedicine in india. *APBN*,10(19).

61. Chellaiyan, V., Nirupama,A.Y., & Taneja, N. (2019). Telemedicine in India: Where do we stand?. *Journal of Family Medicine and Primary Care*. 8. 1872. 10.4103/jfmpc.jfmpc_264_19

62. Kustwar,R.K., & Ray,S. (2020). E health and telemedicine in india: An overview on health care need of the people. Journal of Multidisciplinary Research in Healthcare,6(2).
63. Brindha, G.. (2013). Emerging Trends of Telemedicine in India. Indian Journal of Science and Technology. 6. 4572-4578. 10.17485/ijst/2013/v6isp5.16.
64. Evisit(2021). History of telemedicine. Retrieved from <https://evisit.com/resources/history-of-telemedicine/>
65. Shirzadfar,H., & Lotfi,F.(2017). The evolution and transformation of telemedicine. International Journal of Biosensors and Bioelectronics, 3(4).
66. Garg,S. (). Healthcare policy in India: Challenges and remedies
67. Dahiya,H. (2018). National health policy of india. 9. 27842-27844. 10.24327/ijrsr.2018.0907.2343.
68. Ghosh, D., & Dinda, S. (2017). Health Infrastructure and Economic Development in India. 10.4018/978-1-5225-3168-5.ch005
69. Pandey, A., & Roy, N., Bhawsar, R.,& Mishra, R. (2010). Health Information System in India: Issues of Data Availability and Quality 1. Demography India. 39. 111-128.
70. Retrieved from <https://www.thehindu.com/sci-tech/technology/317-lakhs-cybercrimes-in-india-in-just-18-months-says-govt/article34027225.ece>
71. Eastwick, P. W., Finkel, E. J., Mochon, D., & Ariely, D. (2007). Selective versus unselective romantic desire: Not all reciprocity is created equal. Psychological Science, 18, 317–319.
72. Kenny, D. A. (1994). Interpersonal perception: A social relations analysis. New York: Guilford Press.
73. Strebko, J., & Romanovs, A. (2018). The Advantages and Disadvantages of the Blockchain Technology. 1-6. 10.1109/AIEEE.2018.8592253
74. Ambika,V.M., & Rao,D.S. (2019). Limitations of block chain technology with its application. International Journal of Recent Technology and Engineering, 8(2S11),3646-3652.
75. Chowdhury, M., & Sadek, A. (2012). Advantages and Limitations of Artificial Intelligence.
76. Knop, M., Mueller, M., Freude, H., Reßing, C., & Niehaves, B. (2020). Perceived Limitations of Telemedicine from a Phenomenological Perspective. 10.18690/978-961-286-362-3.9.