Telepsychiatry and Outpatient Department Services

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ABSTRACT

The utilization of telemedicine and telepsychiatry (TP) services in the outpatient department (OPD) has been increasing in recent years. The information about the technological, administrative, and clinical challenges is being addressed by the telemedicine and TP guidelines published by several individual nations. TP aims to address the treatment gaps, barriers for utilization, accessibility, diagnostic validity, financial implications, and individual client preferences. Utilization of TP in the OPD varies from country to country depending upon their healthcare delivery systems. It also varies in populations utilizing the TP services—urban, rural, child and adolescent, geriatric, and differently abled. TP services in the OPDs are being incorporated differentially by government organizations, insurance recognized psychiatric healthcare organizations, private psychiatric group practice deliverers, and individual, standalone psychiatric healthcare deliverers. TP may not replace the traditional in-person consultations completely. Covid-19 pandemic has hastened its utilization across several healthcare delivery systems. Healthcare organizations, clinicians, other healthcare deliverers, and end users are in the process of adapting to the new scenario. Incorporation of the big data, machine learning, artificial intelligence, virtual reality, and other technological advances in the psychiatric healthcare delivery systems into TP services in the OPDs would significantly contribute to the overall quality and efficacy of the psychiatric healthcare delivery systems in the future.

Keywords: Telemedicine, telepsychiatry, outpatient services, Covid 19

Telemedicine was coined to define the medical care practice using interactive audio, visual, and communications systems.[1] Telepsychiatry uses the information and communication technologies to provide psychiatric healthcare services. Technologies including closed circuit television, two-way television,[2,3] and use of telephone[4] have been in use in psychiatric healthcare for more than 50 years. Technological advances over the past 20 or more years have ushered a new era into psychiatric healthcare delivery systems. These advanced technologies are enabling the psychiatric healthcare professionals to render their expert services to rural, remote, neglected areas, and underserved population groups too. In India, the Schizophrenia Research Foundation (SCARF), Chennai, pioneered telepsychiatry services during the 2004 Tsunami by reaching out to the distant and rural areas.[5] National Institute of Mental health and Neurosciences (NIMHANS), India has initiated telepsychiatry services with a hub and a spoke model to fulfill the psychiatric healthcare service requirements of the distant and rural population in Karnataka State, India.[6]

Telemedicine and Telepsychiatry Practice and Operational Guidelines

The regulatory, technological, administrative, legal, and clinical challenges are being addressed by the telemedicine guidelines published over the past several years by several individual nations including UK,[7,8] Australia & New Zealand,[9] and USA.[10] In India, Ministry of Health and Family Welfare (MoHFW), has released Telemedicine Guidelines on March 25, 2020.[11] Indian Psychiatric Society and Telemedicine Society of India in collaboration with NIMHANS has published Telepsychiatry Operational Guidelines in May 2020.[12] The guidelines ensure the psychiatry healthcare delivery organizations and psychiatric professionals to provide telepsychiatry outpatient department (OPD) services the equivalent standard of care as in-person care.

Treatment Gap

According to the World Health Organization (WHO),[13] nearly 25% of the world population will be affected by mental or neurological disorders at some point in their lives. Around 450 million people currently suffer from such conditions, placing psychiatric disorders among the leading causes of ill health and disability worldwide. Though the treatments are available, nearly 66% of those with known psychiatric disorders rarely seek the required treatment from a psychiatric professional.[13]

The impact and cost of psychiatric illnesses on personal, family, social, societal, individual finances, and overall economy of the nation are enormous, yet there is a significant gap in the delivery of psychiatric healthcare services. The global average treatment gap 31.1% for schizophrenia and related disorders, 53.9% for major depressive disorders, 48.9% for bipolar disorders, and 76.2% for alcohol dependence and abuse disorders.[14] In India, there was a 85% treatment gap for common mental disorders, 73.6% for severe mental disorders, 90% for substance use disorders, 80% for suicidal risk behavior, and 83% for the overall treatment gap, according to National Mental Health Survey 2015-2016.[15] Apart from the huge treatment gap, India has also abysmally low psychiatric healthcare professionals per 100,000 population who are more concentrated in urban areas.[16] This skewed distribution of psychiatric healthcare services adds to this treatment gap, making it imperative to incorporate novel approaches to the delivery of psychiatric healthcare services. Technological advancements, ease of accessibility, cost-effectiveness, and overall equivalent efficacy would enable the telepsychiatry services in the OPD to address the enormous treatment gap and be a

permanent component of the psychiatric healthcare delivery systems.

Benefits of Telepsychiatry

1. **Reliability:** There are numerous accumulated literature to indicate the reliability of videoconferencing-based telepsychiatry diagnostic assessments and comparability of clinical outcomes of telepsychiatry interventions to in-person care among varied client populations,[17,18] ages,[19–21] and diagnostic groups on a variety of measures.[22] Reliability of child assessments,[23] neuropsychological assessments,[24–27] severity of depressive disorder,[28,29] alcohol use severity,[30] diagnostic accuracy,[31,32] competency to stand trial,[33] psychosis,[34] and adult autism.[35]

2. **Cost-effectiveness:** Telepsychiatry was found to be more cost-effective than in-person services in the management of pain and depression[36] and underserved rural populations.[37] In a study in India, the telepsychiatry services delivered from a tertiary psychiatric center to a distant primary healthcare center has shown to be very cost-effective than conventional in-person care.[38]

3. **Provider and client satisfaction:** High level of client satisfaction was found in adults with depressive illness[39] and children with depressive illness.[40] There is increased satisfaction with videoconferencing across cultural differences.[41] The videoconferencing services were appreciated and acceptable in the family members of those with child and adolescents who have psychiatric illnesses.[42]

4. **Outcomes**

   a. **Telepsychiatry in various psychiatric illnesses:** Telepsychiatry consultation and treatment has been shown to be effective in clients with anorexia nervosa[43] and bulimia nervosa.[44] Telepsychiatry-based Cognitive Behavior Therapy (CBT) is found effective for panic disorder,[45] social anxiety disorder,[46] depressive disorders,[47] PTSD[48] and substance abuse disorders,[49,50] schizophrenia[51–53], suicide assessments,[54] suicide prevention,[55] and obsessive compulsive disorder.[56]

   b. **Telepsychiatry in underserved population:** Telepsychiatry studies in persons with intellectual disability have shown some evidence of cost-effectiveness, improvement in client–carer satisfaction, and convenience.[57] Videoconferencing services in children and adolescents are equivalent to in-person services in diagnosis, satisfaction, clinical outcomes, time and cost savings, and overall improvement in quality of care.[58] Videoconferencing is effective in imparting training skills to parents of children with attention deficit hyperkinetic disorder.[59]

   c. **Telepsychiatry in restricted access population:** Videoconferencing services increase the access of psychiatric health services in prison inmates, leading to high satisfaction among them, and saving costs for providers.[60–63] Telepsychiatry is acceptable, effective, feasible, and above all reliable across cultures like American-Indian veterans and hispanic communities.[64–68] Videoconferencing-based assessments of mental state and cognitive function have shown to be as reliable as face-to-face interviews in elderly clients, even in those with cognitive Impairment.[69–71]

   d. **Telepsychiatry in underserved areas:** Telepsychiatry was primarily devised to bridge the unmet psychiatric healthcare needs of users in remote,[72,73] rural and difficult to access locations.[74–76] The telepsychiatry services extended to urban areas too with increasing traffic, commuting distances, costs of travel, saving time, etc. and thereby decreasing healthcare costs and accessibility to high-quality care.[77]

Barriers to Implementation of Telepsychiatry

The scope of telepsychiatry is enormous, and its potential appears to be underexplored and underutilized. Hence, it has not been implemented to its full potential and extent. Though the clients and providers have shown satisfaction with telepsychiatry, concerns such as establishing rapport, privacy, safety, technology limitations, infrastructure, financial, regulatory, legal, license, credentialing, educational, and learning issues have created barriers.[78]

Challenges from provider's perspective:

1. **Institutional**: Large and complex psychiatric care institutions may not provide appropriate technology, technical support, timely evidence-based information, and adequate medical records to the providers leading to time constraints when integrating this information into clinical practice.[79,80] Studies have found that after controlling for other barriers, reimbursement, regulatory issues, negative attitudes of practitioners, and implementing institutions are the most prominent barriers influencing the use of telepsychiatry services.[81]

2. **Licensure**: Licensure issues arising from cross border and across states can be addressed by a national licensing system within a country with appropriate permissions and laws.

3. **Infrastructure**: Telepsychiatry involves investment associated with infrastructure development, maintenance, upgradation of technology and devices, technical challenges, regular on rolls nonmedical personnel, and skills training. In larger institutes, these can be a challenge with bureaucracy and timely implementation.

4. **Client privacy and security**: Privacy issues related specifically to telepsychiatry include the possibility of access of medical information to the nonmedical staff. Videoconferencing over public networks creates the potential for unauthorized access to protected medical information. Regular upgradation of technological solutions such as encryption and virtual private networks, precautions in data storage, and retrieval are challenges that need to be addressed adequately. There are several medicolegal and ethical issues related to maintaining client privacy, confidentiality, and security of the health data.[81]

Challenges from end user and patients' perspective:

1. **Age and disability-related challenges**: Telepsychiatry is a challenge in children and elderly patients and in those who have decreased mobility,

complex social requirements, hearing and vision difficulties, and cognitive impairment. Learning disabilities and level of education in patients also pose a challenge. Assistance from a third person raises further issues in use of the systems.

2. **Internet quality issues**: Decreased speed of net connectivity will result in poor video and audio quality during consultation. Poor signal from the wireless and 3G networks that can be affected by the home interior and the weather conditions.

3. **New technology issues**: Difficulty navigating or installing the system on their computer or smartphones, lack of knowledge, unfamiliarity with communication systems, and some unperceived fears could lead to the reluctance to use the technology. Incompatibility of newer technology on old operating systems would be a concern too.

4. **Training and familiarity**: Insufficient and lack of training and knowledge about the technology and familiarity to ever changing technology would be a barrier too.

5. **Privacy and confidentiality**: If the telepsychiatry platforms are not Health Insurance Portability and Accountability Act (HIPAA) compliant, they would definitely be a matter of concern for the patients' privacy and confidentiality. Online consultation from homes can be irksome and matter of distress to those clients who have not disclosed their health condition to their family and if the information is overheard by their family members at home.

6. **Location issues**: Lack of an assigned room for online consultation, overall home layout, distractions from the neighboring home environment, disturbance by other family members who could be doing other home tasks, such as washing, cleaning, cooking, watching television, answering doorbells, and general conversations among family members can affect the quality of telepsychiatry consultations.[82]

7. **Socioeconomic status and gender:** Inability to afford smartphones and other communication devices may be an issue with some clients and the ease of their use may vary with gender.[83]

Modes of Telepsychiatry

Two modes of delivering telepsychiatry have been described.[84]

Synchronous Telemedicine "provides live, two-way interactive transmission between client and provider at distant locations via telephone, online live chats and videoconferencing."

Asynchronous Telemedicine "involves transmitting the medical records and clinical information in the form of data, audio, video clips, or recordings via E-mail or Web applications for review by a specialist."[85]

In synchronous telepsychiatry, data are sent without any gaps in transmission and its use is advantageous for instantaneous and live accessibility of experts for all areas where telecommunications have been serviced with latest technology including 4G and 5G in future with adequate bandwidth and speed.[86] It is expensive to establish the latest technology in telecommunications especially in bigger governmental institutes, large private organizations, rural, remote, and inaccessible areas.[87]

In asynchronous telepsychiatry, since medical records, clinical information, and laboratory reports are sent as attachments, not much change is required in the existing infrastructure and technology. Compared to synchronous, asynchronous costs are less.[88,89]

Covid-19 Pandemic and the Current Scenario

As of second week of August 2020, there are 23 million cases of Covid-19 worldwide and USA, Brazil, and India account for 50% of the cases.[90] During the past several months, the Covid-19 pandemic has brought widespread changes in psychiatric healthcare delivery, especially the transition to telepsychiatry services.[91] Globally, healthcare systems, psychiatric organizations, and individual practitioners are rapidly virtualizing their telepsychiatry operations. These activities have included the extensive use of videoconferencing, either expanding or initiating direct practitioner-home to client-home services, and partially or fully virtualizing administrative operations too. Implementation has occurred at a pace never experienced in telepsychiatry, with many large organizations fully virtualizing in a matter of days. Rapid virtualization has shown that practitioners, clients, organizations, and systems can rapidly adapt to telepsychiatry, although not without challenges. Technical and administrative innovations have motivated the practitioners and organizations to configure telepsychiatry to current clinical needs and environments.[92] Telepsychiatry services are being implemented across various psychiatric healthcare organizations in private, government, insurance, urban, rural, academic, and educational and research sectors in a varied way.

In India too, restriction of the movement during lockdowns and the fear of infection of Covid-19 have led to the initiation and expansion of the telecommunication (telemedicine/telepsychiatry) services, in about one-fourth of the government and private medical institutes. Absence of routine OPD services, avoidance of in-person contact, the convenience of use, and recent telemedicine guidelines from the Government of India has fueled its growth. Furthermore, these services are also being used for providing psychiatric services to the people in quarantine and those with Covid-19 infection. Expansion of these services has possibly brought some respite to the needy clients and their family members.[93]

According to the Telecom regulatory authority of India press release report 2020, as of April 30, 2020, there are 1169.44 million telephone subscribers and 676.14 broadband users in India.[94] There is a huge potential to cover the entire population, and telepsychiatry services are grossly underutilized.

In the past 3 years, at NIMHANS, India, the Telepsychiatry After Care Clinics provided 780 teleconsultations for 232 clients with various psychiatric disorders.[95] During the Covid-19 pandemic, these services are being reorganized, upgraded, and enhanced for greater reach. Many governmental organizations have to cross the decision-making processes in bureaucracy, infrastructural, and organizational hurdles in order to implement

and realize the full potential of telepsychiatry quickly despite the advent of Covid-19 pandemic.

In the private sector, large corporate hospitals were quick in incorporating telepsychiatry models as a part of their whole telemedicine initiative. Availability of resources and quick decision-making process have enabled these private organizations to incorporate all modalities of telemedicine and telepsychiatry into their already existing telemedicine software.

Private group practice and stand-alone practitioners lagged behind in implementing telepsychiatry due to issues related to regulations, change of technology, payment gateway, upgradation of existing facilities, communication devices, and scheduling of appointments. Once these hurdles were resolved to a greater extent, most of them have adopted telepsychiatry into their OPDs.

Many start-ups and private firms have joined the bandwagon of providing efficient platforms for telepsychiatry both asynchronous and synchronous—audio and videoconferencing with clients in OPDs. These start-ups are already providing Telemedicine services of about more than 100 million consultations per year in India.[96] The clients pay their consultation virtually and have a real-time consultation. The business opportunities of the telemedicine industry would create more than $5.4 billion by 2025.[96] The practitioners or the healthcare organizations subscribe to these platforms on monthly or yearly basis.

The release of Telemedicine Practice Guidelines by MoHFW, Government of India[97] on March 25, 2020 came at the right time when the Covid-19 pandemic was on the rise and OPD practices were closed due to lockdowns, and there were restrictions of travel and movement. Some of the highlights of the guidelines pertaining to the OPD practice are as follows:

1. The choice of consulting through telemedicine depends on the willingness, consent, appropriateness, and adequacy on part of both the clinician and the client.
2. The physician can prescribe medicines through telemedicine with appropriate diagnosis/provisional diagnosis as a part of the professional conduct.
3. The practice guidelines enlist medications for common conditions that can be prescribed for first consultation by any mode (list O). List A includes relatively safe medications with less potential for abuse, such as antipsychotics, mood stabilizers, antidepressants, phenobarbitone, clobazam, and clonazepam that can be prescribed after the first video consultation. List B includes drugs such as benzodiazepines that can be prescribed in the first video teleconsultation after in-person consultation in the past 6 months or follow-up video consultation. Prohibited medications listed in the Narcotic Drugs and Psychotropic Substances, Act, 1985 and Schedule X of Drug and Cosmetic Act, 1940 cannot be prescribed through telemedicine.[98,99]
4. Practitioners using the telemedicine are required to maintain the similar professional and ethical norms as applicable to in-person care including care of privacy, confidentiality, and data protection.[99]

Process of Adoption of Telepsychiatry in the OPD

At first all patients who have appointments in the near future need to be informed over phone or sms by the staff of the availability of telepsychiatry services. Appointments need to be rescheduled as per the choice of the clients. Adequate time need to be divided between in-person and telepsychiatry services. Confirmed appointment timings have to be communicated appropriately on to the provider as well as the clients. Confirmed virtual visits must be noted in the patient's electronic medical record (EMR), such that the clinicians could appropriately schedule their time. Telepsychiatry training videos and reading materials must be made available to all staff. A qualified technical point person must be assigned to provide software, hardware, and IT support. During the process of change, interruptions, missed or late appointments, timings miscalculations, and even cancelled appointments could be experienced. For patients without access to a smartphone, computer, laptop or tablet or webcam, and regular phone calls could be substituted for videoconferencing. Clients and providers may encounter difficulties in using telepsychiatry software on personal computers, laptops, or tablets. All telepsychiatry software programs must be HIPAA compliant. Converting to telepsychiatry may appear difficult or challenging initially, but is feasible and can be executed without disrupting the regular patient care. In fact, UC, Davis Psychiatry Clinic has rapidly converted its regular services into Virtual Clinic within a week in the month of March 2020.[100]

Telepsychiatry for clients can significantly reduce absenteeism from work, traveling time, costs, queues, and exhaustive waiting times for in-person consultations as it enables the clients to consult their practitioners with a prior appointment.[101,102] It can also decrease costs of establishment, staffing, traveling time, and overall healthcare delivery costs to the providers and organizations too.[103] Short-term follow-up studies have been encouraging towards implementation of telepsychiatry in OPD in better management of the illnesses and better quality of life. Long-term follow-up findings of research are still awaited. With the advent of smartphones, the psychiatric healthcare providers became even more accessible to the potential clients. From the privacy of their homes, telepsychiatry is overcoming stigma and noncompliance. Telepsychiatry provides choice for the clients to seek consultation across borders and expert second opinions too.[104]

Future of Telepsychiatry

Apart from greater utilization of telepsychiatry services across varied population and regions, technological advancements in the health sector may play a great role in delivering quality psychiatric care to the clients. Virtual Reality Machine Learning (VRML) describes 3-D images and scenery on the Web. VRML would be the key technology shaping the future of the telepsychiatry.[105] Virtual Reality adaptable devices and technology are already making inroads as supplementary treatment modalities in various psychiatric disorder like phobias, anxiety disorders, depressive disorders, ADHD, and even autistic spectrum disorders.[106] These technologies

would be integrated into telepsychiatry for enhanced psychiatric care delivery.

Artificial intelligence and machine learning utilize the big data collected from various modalities including medical records, wearables, and monitoring devices from the clients and analyze the data using algorithms. This information could revolutionize telepsychiatry in providing precise and personalized psychiatric care to the clients.[107]

Conclusion

Telepsychiatry in the OPD is now a mandatory modality as one of the services provided by the psychiatric health providers across the spectrum. The utilization of telepsychiatry in the out patients varies from zero in some parts of the world to nearly 95% across different regions of the world with the advent of the Covid-19 pandemic. Overall most of the evidence points to the beneficial aspects of telepsychiatry across various disorders, populations, and regions. Telepsychiatry provides greater end user satisfaction, ease of accessibility, costs, reliability, and validity on par with face-to-face consultations. Sometimes, telepsychiatry may be the only available modality of psychiatric care especially in rural, remote, and inaccessible areas of a country. Telepsychiatry services in the OPDs would significantly contribute to the overall quality and efficacy of the psychiatric healthcare delivery systems in the future too.

Declaration of Conflicting Interests

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