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Evolution of Community Telepsychiatry in India Showcasing the SCARF Model

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ABSTRACT

This review chronicles the origin of telepsychiatry services started by the Schizophrenia Research Foundation (SCARF) in the community and traces the birth of the Scarf Telepsychiatry in Pudukkottai (STEP) program at Pudukkottai in Tamil Nadu. This paper also examines the trajectory of STEP and highlights other relevant models existing in the country in the last decade.

Keywords: Community involvement and partnerships, rehabilitation, review, schizophrenia

The Indian National Mental Health Survey of 2015–2016 has identified that the treatment gap for mental illnesses ranges between 70% and 92%.[1] Telepsychiatry can bridge this gap in low-resource settings. In 2010, the Schizophrenia Research Foundation (SCARF) introduced the first and only mobile telepsychiatry in the country using technology to leverage this gap in the community. This review will focus on the experience of the SCARF model for telepsychiatry in Tamil Nadu. It will also highlight other telepsychiatry services from different parts of the country.

SCARF Community Model— the Beginning

SCARF is a nongovernmental organization providing quality care and rehabilitation services in the field of mental health since 1984. SCARF started its first community telepsychiatry initiative by starting community clinics in two coastal districts, Cuddalore and Nagapattinam in Tamil Nadu, soon after the Tsunami disaster in 2004.[2] Funded by the Oxfam trust, Bengaluru, and the South Asian Total Health Initiative (SATHI), the objective was to offer disaster management through counseling and psychosocial support for the victims and their families. Technical assistance came from the Indian Space Research Organisation (ISRO), which offered a partnership where connectivity and hardware were free of cost, and SCARF had to provide the equipment to deploy the service. SCARF started the first tele-initiative in the community for tsunami victims by taking the cue from ISRO and adopting Integrated Services Digital Network lines. At the local NGO's location at Cuddalore and Nagapattinam, seven peripheral units were identified and connected to the central hub at SCARF, Chennai. The psychiatrists at SCARF would periodically visit these units to review and offer face-to-face consultation. Psychotherapy was difficult online because of lack of privacy, rapport building, and time constraints. This pilot project demonstrated that telepsychiatry services were widely accepted and endorsed by the rural population in the remote villages that were in dire need of mental health services.

SCARF Telepsychiatry in Pudukottai (STEP)

The Birth

Inspired by the success of the Tsunami telepsychiatry project, SCARF decided to expand its teleservices. Thus, the first and only mobile telepsychiatry bus in the country was launched in 2010.[3] The bus also contained a pharmacy from which the clinic facilitator dispensed medicines.

The Tata Education Trust, Mumbai, sponsored this project. The district Pudukkottai was chosen for providing services. This district had the least doctor:patient ratio in Tamil Nadu and the district mental health program (DMHP) was not available there in 2010. The available mental health services in the district were restricted to one psychiatrist in the government hospital and two in the private sector. Hence, many patients remained untreated or irregularly treated. The support offered from a local NGO and the presence of uninterrupted power supply in the district helped in implementing the project. Four administrative divisions or taluks in the district were covered in the

first phase of the program. The two taluks encompassing 156 villages, with a population of about 300,000, were covered by the mobile telepsychiatry unit (bus). A fixed line connected the other two taluks. About 2,000–3,000 people were expected to avail of this service over the program period of three years. STEP, which stood for SCARF telepsychiatry in Pudukkottai was exclusive for serving patients with serious mental illness (SMI) such as schizophrenia and related disorders, bipolar disorder, and severe depression.

The local NGO played a significant role in this community intervention. The local NGO's staff knew the people, language, geography of the land, and were an essential link between the SCARF team and the community. Community-level workers (CLW) with education background ranging from 10th grade to undergraduation were recruited from the program area. The selection of the CLW was based on attitude and community work experience. The CLW was trained for two weeks initially with continued supervision and booster sessions by the team at SCARF. These field staff worked relentlessly in doing a door-to-door survey in the initial stages to identify and screen for mental illness. The total families surveyed were 35,138, and the number of persons screened 154,270 (**Figure 1**). After screening, the CLW would refer the identified individuals to the research staff at the clinic. The role of the CLW throughout was to create awareness, conduct home visits, ensure compliance to treatment and follow-up visits, supplement information for diagnosis, and management. The role of the CLW throughout was to create awareness, conduct home visits, ensure compliance to treatment and follow-up visits, supplement information for diagnosis & management, psychoeducation of family members and leveraging with the local NGO's resources for employment, referrals and facilitate access to benefits (disability benefits, National Rural Employment Guarantee Act [NREGA]). Telementoring of the CLW and research staff was done by the program coordinator at SCARF using the videoconferencing regularly.

The Teething Days

The unique selling point of this program is that the mobile telepsychiatry unit is mounted inside a custom made bus. It

FIGURE 1.
The Survey Results
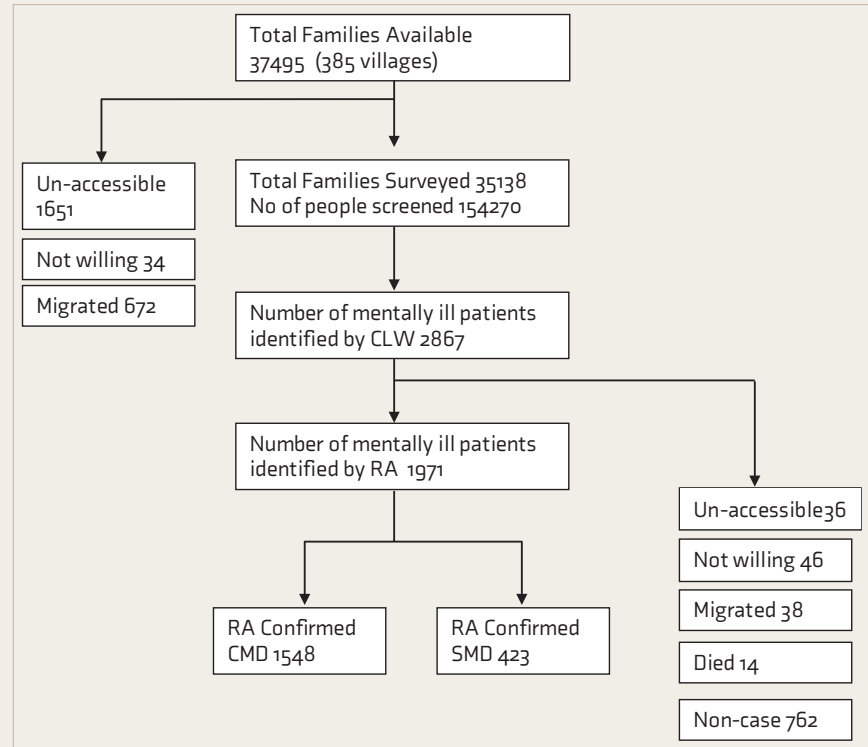
Abbreviations. SMD: severe mental disorders, CMD: common mental disorders.
Source . Initial survey done by community level workers (CLW), research assistant (RA) at Pudukkottai in 2010.

contained a private consultation chamber equipped with videoconferencing equipment that is connected through wireless broadband to the central hub at Chennai. The rural population appreciated that they had a one-point spot in the community, referred to as a tele-bus that provided both assessment and treatment combined in a single sitting. The bus contained a public address system and a large flat-screen television panel through which movies and short films on mental health were screened when the bus was parked in the evenings in places like the bus terminus. Theatre and street plays were additionally conducted in the target villages. The NGOs, social workers, and police officers were sensitized to refer patients to these services because in the rural population, explanatory models of mental illness were predominantly magicoreligious, leading them to access centers which "cured" these maladies. Additionally, self-help groups were also initiated among patients and their families in liaison with the local NGOs. The financial gains from this effort have prompted families to network with com-

patible service providers and ensure continued participation in the program.

The STEP Compliance with Cellphone

The bus was the star attraction of the STEP program (**Table 1** and **Figure 2**). However, considering that several peo-

TABLE 1.
Goals of Step Program

To provide mental health care in remote areas of TN
Starting a mobile telepsychiatry clinic
To liaise with local NGOs to provide this service.
Train NGO/SHG to identify, initiate early treatment, and refer persons with mental health problems
Strengthen the referral system
Create public awareness
Empower families and users
Psychosocial rehabilitation
To create a standardized reporting format to enable periodic analyses

Abbreviations. NGO: nongovernmental organizations, SHG: self-help groups.

FIGURE 2.

STEP Program—Mobile Bus and Consultation (Right) Connected to the Psychiatrist at SCARF (Left)
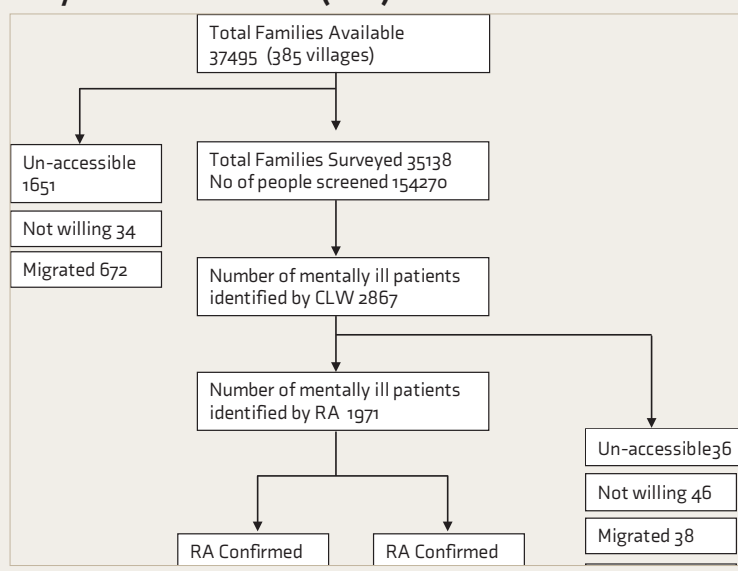
ple owned a mobile phone, notwithstanding the urban–rural divide, STEP decided to capitalize on the increasing teledensity in the Pudukkottai district. So a plan was devised to monitor patients' treatment adherence via SMS and other phone applications. The frequency of patient visits was monthly or fortnightly. Monitoring of scheduled appointments or change in clinic schedule were updated to families via SMS since more than 80% of the patients/families in the STEP program had access to a cell phone.[4] Using mobile phone message alerts considerably reduced patient attrition rates at the clinic. Additionally, alarm applications on the phone were used as a reminder about follow-up visits or medication intake. Occasionally, when patients failed to arrive at the clinic, a field staff would make a home visit with their laptops and use the available wireless 3G services to connect with the psychiatrist at the central hub in Chennai. Parallelly, the families could contact the psychiatrist in case of any emergency arising due to adverse side effects or relapse. The availability of mobile phones with most families helped in monitoring treatment compliance.

The Functioning of the STEP Clinic

The STEP program covered a population of 500,000 across six taluks and has pro-

vided care to about 2500 patients in three years.[5] Women accounted for 55.34%; the diagnosis was schizophrenia and related psychosis (47%) and bipolar disorder (9%). The SCARF psychiatrists in liaison with the peripheral team at Pudukkottai decided on specific days for teleconsultation. Depending on the number of patients at the center, the number of required consultation days was fixed. We started with registered patients review and gradually expanded to include new patients as well. The interview and assessment involved both patient and their families. The numbers varied from 2 to15 patients per day, and it took 10–40 min, and new patients were assessed in 30 min to an hour. Based on their clinical status and improvement, patients were either reviewed weekly or fortnightly or once a month. The peripheral units were instructed to contact the dedicated psychiatrist or the duty psychiatrist for immediate teleconsultation in case of an emergency.

Data Management and Security

SCARF was committed to maintain the highest ethical standards and sustain the optimum quality of care in the delivery of its mental health care services through the telemedicine system. Each patient was assigned a unique identification number and was registered both at the

peripheral and the central unit. A patient record carried all relevant sociodemographic, clinical, and treatment details. The paper records were signed and dated after each visit and maintained at the central unit. The internal audit committee of SCARF did audits of the records and the conduct of the program, and the data has been archived and digitally stored at SCARF.

The End

The first phase of the STEP program (2010–2013) had demonstrated the feasibility of conducting a community mental health program using telepsychiatry. During Phase II (2015–2017), we scaled-up the program by increasing the geographical reach of the services to two more taluks and enhanced the psychosocial components of the program. Three hundred patients who were severely disabled were certified and will receive disability pension/benefits in contrast to not a single patient being certified or receiving disability-related benefits before the start of the program. Additionally, we undertook the task of shifting patients systematically to the local resources and integrating them with the public health care system. A No-cost extension (NCE) phase from January to December 2018 was designed to close the gaps and made the services equable and accessible. In 2019, during the second phase of NCE, the following objectives were executed such as (a) Integration of the STEP clinic patients into the public health system, (b) Continuation and expansion of the current psychosocial rehabilitation (PSR) program in all six taluks, (c) Psychosocial rehabilitation/intervention for Gaja Cyclone survivors, (d) Continuation of working with the district administration, DMHP, disability commissioner, etc., to link disabled patients with the available government schemes, and (e) Establishment of mental health and suicide prevention committees in the villages.

Learnings and Challenges

The SCARF community mobile telepsychiatry model (STEP) has touched the lives of persons with severe mental illness (SMI) who would have remained untreated for decades. This program revealed that a patient-centered, public-private partner-

ship model acting as the pulley and technology as the lever could bridge the gap of mental health care delivery in the community. The reasons for STEP's success have been a technology-driven initiative, training lay people, and networking and partnership with local NGOs. The cost of a consult and providing medicines for a month has been calculated as 700 INR approximately.[5] In summary, the intervention was effective and well-accepted based on the number of registrations and feedback collected by the research assistants on a six-monthly basis from both the patient and their families. However issues faced were related to connectivity disturbances or failure causing electronic medical records to crash. Management of crisis situation especially patients with a number of physical co-morbidities or lack of a reliable NGO in some locations and lack of adequate funding to make the program sustainable over time were the common challenges.

Review of Telepsychiatry Models in the Country

Hub and Spokes Model

National Institute of Mental health and Neurosciences (NIMHANS) started this model of telepsychiatry calling it the "hub" and their outreach services were named spokes.[6] The districts, taluks, prisons, and relief and rehabilitation centers are their outreach services.[7] The first contact was made to the mental health professional at the spokes and discussed with the hub psychiatrist. The consultation with the hub psychiatrist is scheduled based on the clinical details and demographics sent by the mental health worker from the spoke. The average duration of the consultation was 10–15 minutes. The cost of the consultation was cited as 134 INR.[7,8] Low price in the NIMHANS model was possible because the model was executed using an already existing infrastructures at the outreach centers. Similarly, the state of Maharashtra also established a "hub and spoke model" with 6 specialist centers (hubs) connected to 27 districts and 4 subdistrict hospitals (spokes).[9] The program utilized dedicated lease lines of fiber optic cables and used "store and forward (asynchronous) consultation"

for psychiatry due to the nonavailability of synchronous timeframes between the primary care physician (in the spokes) and psychiatrist. An EHR (electronic health record) and e-mail were used to get the psychiatrist's opinion based on the information sent by the primary care physician. This study reports that asynchronous telepsychiatry is feasible and can offer an alternative way of conducting telepsychiatry.[9]

Extension for Community Health Care Outcomes (ECHO) Model for Deaddiction

NIMHANS expanded its hubs and spokes model to the community in the field of deaddiction. A videoconferencing app was used for telementoring to connect multiple community health care teams (spokes) in Chhattisgarh with deaddiction experts (hubs) at NIMHANS.[6] Counsellors working at 12 ECHO clinics from 11 rural districts were periodically connected to NIMHANS for 6 months in 2019.[6] In this model, hub specialists would conduct group-based discussions and patient-centered learning for the counselors. In 6 months last year, NIMHANS did 28 weekly tele-ECHO addiction clinics and found high prevalence rates of alcohol (lifetime 80% and current 71%) and tobacco (lifetime 60% and current 56%.).[6] The patient population at the spokes presented to the community health providers earlier than that of the specialist treatment center. This finding shows that the ECHO model can be replicated in remote areas where there is a shortage of trained workforce. The community workers also endorsed the telementoring model of NIMHANS ECHO and gave positive feedback about capacity building. They felt that the interaction with specialists at the hub, group discussion of case summaries, and the attempt to mitigate professional isolation through discussions were promising steps toward improvement in mental health and addiction for remote and rural areas.

Clinical Decision-Based Support System (CDSS)

Developed by Malhotra and colleagues, CDSS is an online digital platform for

providing telepsychiatry service to three remote sites (Himachal Pradesh, Jammu and Kashmir [JK], and Uttarkhand) in North India.[10,11] This model was coined as a "psychiatrist on the web" and had an EMR interface. The CDSS was unique and had both synchronous (videoconferencing) and asynchronous (store and forward) solutions. This digital platform has 18 modules for diagnosis (adult and child versions), management, and follow-up, usable by nonprofessionals after brief training.[12] The modules suggest both pharmacological and psychological management. Reports show the CDSS as feasible, reliable, and with high levels of patient satisfaction. After the launch of the project, the nodal site (Chandigarh) reported that 2594 patients were assessed with varied diagnoses at the three remote sites.[12]

Wireless Network and Videoconferencing

A retrospective review of case files of patients (N = 139) who have received collaborative telepsychiatric consultations from January 2013 to June 2017 through videoconferencing at a district hospital in Karnataka has been published recently.[13] In total, 25.9% of the patients had schizophrenia and other psychotic disorders, 14.4% had mental retardation, 13.7% had a mood disorder, and 14.4% had a substance use disorder. Regarding the interventions provided, 67.6% received pharmacotherapy, 7.9% received rehabilitation along with pharmacotherapy, while the rest were referred for further evaluation and in-patient care. The challenges cited were: connectivity disturbances/failure, lack of workforce to allocate telepsychiatry responsibility, cost-effectiveness, maintaining confidentiality, and data security.[14]

Comparing Telepsychiatry Models

It has been a decade since the launch of the SCARF model. All the other models, in comparison to the STEP, have focused on leveraging technology in the most innovative ways to deliver mental health services. The launch of 4G and 5G has increased internet speed and bandwidth, and is helping telepsychia-

try models to be more sophisticated, less complicated, and have better connectivity in remote areas of the country. The telepsychiatry equipment in the form of one's smartphone or a tablet has been tested and proven to be effective in the hubs and spokes model of NIMHANS. In contrast, the traditional desktop and a TV monitor in the fixed clinic or the mobile bus were the highlights of the STEP program, considering that the patients did not have any access to mental health services for a long time. The EMR-based diagnostic system for telepsychiatry consultations developed by the Chandigarh group generates diagnoses across age groups automatically. It has a user-friendly operating system for data entry, ensuring effective data management and security. In contrast, the electronic records and data sheets at SCARF were designed to capture patient data and the diagnosis. The last decade has seen exponential growth in the way EMR has evolved from the SCARF model to the Chandigarh electronic health record. There is a clear trajectory in the growth of leveraging technology, capacity building, and mentoring, as seen in the ECHO model of NIMHANS. To conclude, the STEP program has completed a decade of service to the SMI persons in the villages of Pudukkottai and continues to focus on PSR and suicide prevention in these taluks.

Conclusion and Future Directions

The community telepsychiatry experience during the Tsunami and the STEP program are significant milestones, and innovations in the community-based services of SCARF, a legacy for the future. STEP telepsychiatry program has been the first and longest program to cater to the needs of the rural community in the country. These digitally-driven community models executed by NIMHANS, Maharashtra, and Chandigarh have all been well received. Telepsychiatry service in all districts under the DMHP is feasible by utilizing the increased mobile phone usage even in the rural population. Training and capacity building of lay CLW as foot soldiers to execute this plan can be the way forward. A joint effort to discuss the efficacy of telepsychiatry in the rural community between psychiatrists, NGOs, CLW, policymakers, and consumers of these services is the need of the hour. The success of these mobile- or tablet-based apps or online platforms with tailor-made EMR should make all the stakeholders understand the relevance of leveraging technology and mental health delivery and reduce the mental health gap in the future. The "telemedicine guideline" released in March 2020 will streamline the practice of telemedicine in India[15] and may lead to the introduction of telepsychiatry in the National Mental Health Program. High-quality technology-based interventions coupled with the availability of high-speed internet connectivity even in the rural areas can tremendously increase access to mental health care through the digital means.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

References

1. Gururaj G, Varghese M, Benegal V, et al. 2016. *National Mental Health Survey of India, 2015–16: Summary*. Bengaluru: National Institute of Mental Health and Neurosciences, Publication No. 128, 2016.
2. Vijaykumar L, Thara R, John S, et al. Psychosocial interventions after tsunami in Tamil Nadu, India. Int Rev Psychiatry 2006; 18(3): 225–231.
3. Thara R, John S, and Rao K. Telepsychiatry in Chennai, India: the SCARF experience. Behav Sci law 2008; 26(3): 315–322.
4. Thara R and John S. Mobile telepsychiatry in India. J World Psychiatry 2013; 12(1): 84–85.
5. Thara R, John S, and Chatterjee S. Comprehensive care for patients in the developing world. Int J Ment Health 2013; 42(1): 77–90
6. Mehrotra K, Chand P, Bandawar M, et al. Effectiveness of NIMHANS ECHO blended telementoring model on integrated mental health and addiction for counsellors in rural and underserved districts of Chhattisgarh, India. Asian J Psychiatry 2018; 36: 123–127.
7. Manjunatha N, Kumar CN, Math SB, et al. Designing and implementing an innovative digitally driven primary care psychiatry program in India. Indian J Psychiatry 2018; 60(02): 236–244.
8. Naskar S, Victor R, Das H, et al. Telepsychiatry in India: where do we stand? A comparative review between global and Indian telepsychiatry programs. Indian J Psychol Med 2017; 39: 223–242.
9. Balasinorwala VP, Shah NB, Chatterjee SD, et al. Asynchronous telepsychiatry in Maharashtra, India: study of feasibility and referral pattern. Indian J Psychol Med 2014; 36: 299–301.
10. Malhotra S, Chakrabarti S, Shah R, et al. A novel screening and diagnostic tool for child and adolescent psychiatric disorders for telepsychiatry. Indian J Psychol Med 2015; 37: 288–298.
11. Malhotra S, Chakrabarty S, and Shah R. Telepsychiatry: promise, potential and challenges. Indian J Psychiatry 2013; 55(1): 3–11.
12. Malhotra S, Chakrabarti S, and Shah R. A model for digital mental health care: its usefulness and potential for service delivery in low- and middle-income countries. Indian J Psychiatry 2019; 61: 27–36.
13. Gowda GS, Kulkarni K, Bagewadi V, et al. A study on collaborative telepsychiatric consultations to outpatients of district hospitals of Karnataka, India. Asian J Psychiatry 2018; 37: 161–166.
14. Moirangthem S, Rao S, Kumar CN, et al. Telepsychiatry as an economically better model for reaching the unreached: a retrospective report from South India. Indian J Psychol Med 2017; 39: 271–275.
15. Board of Governors in supersession of the Medical Council of India. *Telemedicine practice guidelines*, https://www.mohfw.gov.in/pdf/Telemedicine.pdf (2020, accessed July 15, 2020).

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Telepsychiatry and Telepsychotherapy: Critical Issues Faced by Indian Patients and Psychiatrists

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ABSTRACT

Telepsychiatry and telepsychotherapy are new treatment modalities that have been used more than ever during the COVID-19 pandemic. There are many challenges that are faced with the use of this modality for both patients and psychiatrists alike. There are critical issues faced with regard to the development of rapport, managing the entire teleconsultation set up, privacy and issues related to fees, issues related to prescribing and monitoring, and issues while handling emergencies. The challenges faced are discussed and some solutions if possible are laid out. </Abs>

Keywords: Telepsychiatry, telepsychotherapy, patients, psychiatrists

Telepsychiatry and telepsychotherapy are by no means new treatment modalities as even from the 1960s consultations and therapy by using the telephone have happened.[1]

Even as these modalities came into more common use in other parts of the world, in India; however, it became more widespread in the last few years only. With the onset of the coronavirus disease (COVID-19) pandemic, there has been a surge in telepsychiatry services, online and telepsychotherapy services with patients and psychiatrists alike being compelled to resort to these media of services due to the restrictions imposed.[2]

There have also been the development of clear guidelines for telepsychiatry[3] and telepsychotherapy[4] from an Indian perspective. While these guidelines are truly comprehensive, some lacunae and gray areas remain in clinical practice that need to be addressed. The current article is based on the clinical experience of the authors and discusses the advantages and key issues faced by patients and psychiatrists in the rendering of these services in a private practice single standalone clinic scenario from an outpatient standpoint.

Challenge 1: The Acceptability of Telepsychiatry and Telepsychotherapy as a Mode of Treatment

Many Indian patients have always been used to physically seeing their doctor, and in Indian society, with a patriarchal pedestal given to doctors, the concept of having visited the doctor and being examined by the doctor is vital to patient satisfaction.[5] Many patients may not accept telepsychiatry and telepsychotherapy as does not substitute the real experience of a clinic and a consultation. Patients often are not adept at using digital media and may not be able to connect well on a video call. They would want to see their doctor clearly, and the feeling of remoteness exists and has been expressed by many patients when a teleconsult happens. It is also important to mention that doctors are also new to telepsychiatry and telepsychotherapy as a treatment modality and would need time to adapt to the same. They also need to start using these modalities regularly to understand what it entails and offer better services to their patients. There is a need for psychiatrists to be trained in telepsychiatry while, more importantly, patients need to be trained in using the right media and right devices to get the most of the telepsychiatry consultation and more so because they are actually paying for the service. More awareness in the general public needs to be created with regard to telepsychiatry as a modality to enable more users to accept and utilize it as a treatment method.[6] There is a need for the establishment of full-time telepsychiatry units in the current scenario in various medical colleges and hospitals to cater to the needs of varied populations.

Challenge 2: Prescription of Various Drugs via Telepsychiatry

One of the major challenges for psychiatrists is the prudent and judicious pre-