

Establishing Performance Indicators of Telemedicine-Based “On-Consultation Training” of Primary Care Doctors: An Innovation to Integrate Psychiatry at Primary Care

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Abstract

Background: A “functional treatment gap” exists in primary care of India despite the higher prevalence of psychiatric disorders at primary care. Traditional classroom training for primary care doctors (PCDs) fails to translate into adequate clinical skills to provide basic psychiatric treatment. An innovative telepsychiatric on-consultation training (Tele-OCT) is designed exclusively for practicing PCDs where a telepsychiatrist trains PCDs in live video streaming of their own real-time general consultations of primary health centres. The aim of this study is to establish performance indicators of Tele-OCT for its effective implementation. **Methodology:** The data collected using a file review method from a naturalistic design of the implementation of Tele-OCT for 73 PCDs from August-2016 to October-2018 across Mandya district, Karnataka, India. **Results:** Flexibility in the scheduling of Tele-OCT sessions is key to success. Personal smartphones of PCDs with available videoconference applications are the popular choice. Four consecutive Tele-OCT sessions are planned for each PCD with a gap of 2–4 weeks over two months. The first three sessions are considered the “optimum Tele-OCT training package” for each PCD, followed by the fourth one as a ‘Tele-OCT impact evaluation session’ in a live, real-time general consultation. Each Tele-OCT is conducted in an average ten general patients in about two hours per session, totalling about 30 patients in 6 hours of Tele-OCT training package per PCD. Patient’s profiles especially common mental disorders are reflective of a true picture of Indian primary care. **Conclusions:** Performance indicators of Tele-OCT for future implementation are established. Tele-OCT appears to be a path-breaking training model for PCDs to integrate psychiatric care in their general practice.

Keywords: On-consultation training, primary care doctors, primary health centres, psychiatry, telemedicine

INTRODUCTION

Noncommunicable diseases (NCDs) are an important cause of burden in developing countries, of which the neuropsychiatric disorders contribute most.^[1] According to the Global Burden of Disease Study-2013, five psychiatric disorders appeared in the top 20 causes of years lived with disability.^[1] Psychiatric disorders have a worldwide prevalence of 10% in the adult population.^[2] Resources to manage these disorders are insufficient and inadequately utilized. According to the World Health Organization–Mental Health Gap Action Programme-2018, the treatment gap for mental disorders is estimated to be more than 75%.^[3] This is been called as “apparent treatment gap” at the general population in the community. Available manpower is also much worse. According to the Global Mental Health Atlas

2017,^[4] globally, the median number of mental health workers is 9/100,000, or less, which is far from satisfactory as compared to developed nations.

At the same time, it is realized that the district mental health program cannot be specialist-driven given the shortage of

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How to cite this article: Manjunatha N, Sadh K, Shashidhara HN, Manjunatha BR, Shashank HP, Ashwatha KP, *et al.* Establishing performance indicators of telemedicine-based “On-Consultation Training” of primary care doctors: An innovation to integrate psychiatry at primary care. *Indian J Community Med* 2021;46:75-9.

Received: 10-04-20, **Accepted:** 30-11-20, **Published:** 01-03-21

Access this article online

Quick Response Code:



Website:
www.ijcm.org.in

DOI:
10.4103/ijcm.IJCM_223_20

psychiatrists. Hence, multi-sectoral collaboration is the need of the hours.^[5] The concept of task shifting encompasses the shifting task from specialists to primary care doctors.^[6]

Common mental disorders (CMDs) are present in nearly 10% and 50% of the general patients in primary care settings.^[7-9] A peculiar treatment gap exists at primary care with respect to psychiatric disorders (termed as “functional treatment gap”).^[10] Primary care doctors (PCDs) treat patients with psychiatric disorders (often present to them with physical symptoms) symptomatically at their clinic, leading to chronicity and community burden. The main reason for this is they have not been adequately trained in psychiatry during undergraduate medical education.^[9,10] Under the National Mental Health Program and Manochaitanya program, these in-service PCDs undergo classroom training (CRT) in psychiatry, which is heavily loaded with the curriculum of tertiary care psychiatry delivered by psychiatrists who are not aware of the ground reality of primary care.^[10-12] This CRT is criticized as “trying to do something” attitude of administrators for an administrative purpose^[13] and has doubtful translational quotient (doubtful translation into clinical skills).^[10]

The Primary Care Psychiatry Program team at Tele Medicine Centre, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, designed an innovative telepsychiatric on-consultation training (Tele-OCT) where a tele-psychiatrist trains PCDs in their live video streaming of real-time general consultations from outpatient clinic of working at primary health centres (PHCs). It has been implemented in PHCs of Mandya district of Karnataka in collaboration with District Mental Health Program, Mandya district and National Health Mission, Government of Karnataka. The origin of on-consultation training and its telemedicine variant, i.e., Tele-OCT, are already discussed elsewhere.^[10] Tele-OCT has dual outcomes: training PCDs and at the same time, it provides a collaborative consultation to patients.

The aim of this study to establish various performance indicators of the Tele-OCT method to understand its administrative and technical feasibility, to generate optimum parameters of Tele-OCT sessions for each PCD, and to understand whether Tele-OCT is conducted in a pragmatic clinical scenario of Indian primary care for effective implementation.

METHODOLOGY

It is a retrospective study conducted at the Tele-Medicine Centre, Department of Psychiatry, NIMHANS, Bengaluru, India. The data collected using a file review method from a naturalistic design of the implementation of Tele-OCT for 73 PCDs of 26 months (August-2016 to October-2018) across Mandya district, Karnataka, India. The ethical committee of NIMHANS, Bengaluru, had approved this study.

Telepsychiatric on-consultation training

The Tele-OCT has integrated the following principles: principles

of adult learning, prescription-based integration (replacing symptomatic prescription to standard psychiatric prescription), pragmatic rapid 5-minute consultation of PCDs with E2E (entry-to-exit) consultation approach (means tele-psychiatrist train PCDs in real-time consultations for acquiring all skills required from entry-to-exit of patients), the principle of direct skill transfer in the session itself, and practice-based learning.

Hub and spoke model of telemedicine was used for Tele-OCT sessions, where the Hub at Tele Medicine Centre at NIMHANS, Bengaluru, and the spokes participated in a live video streaming from the outpatient consultation room of general hospitals of talukas and PHCs from Mandya district. Each PCD was planned/undergone four consecutive Tele-OCT sessions consists of the first three are training sessions (introductory, training proper, consolidation session) followed by an evaluation session.^[11]

Mandya district has 7 taluka hospitals and 115 PHCs. As a pilot, Tele-OCT began at Mandya district, Karnataka, in monthly once session from August 28, 2016 at general outpatient clinics of talukas general hospital, Maddur Taluk, Mandya district, Karnataka, and later at the remaining six taluks. Later, weekly sessions were conducted from March 7, 2017. Later, the first Tele-OCT session began at outpatients of a PHC on January 23, 2018. About 175 h of 116 Tele-OCT sessions were conducted for 73 PCDs till 30.10.2018. During these Tele-OCT sessions, 73 PCDs were trained in 844 general patients at their own live, real-time general primary care consultations. To integrate Tele-OCT in DMHP, an informal “training of trainer” module for local DMHP psychiatrist who is also a coauthor (HPS) began on March 5, 2018.

Curriculum of primary care psychiatry

The primary care psychiatry team of NIMHANS, Bengaluru, designed a point-of-care, adopted psychiatry curriculum for clinical use of the PCDs called as “Clinical Schedule for Primary Care Psychiatry” (CSP) for rapid screening, early diagnosis, and first-line treatment for the outpatients of primary care settings for high-prevalent six psychiatric disorders.^[14] CSP was validated at primary care with relatively high sensitivity and reasonably high specificity across high-prevalent psychiatric disorders.^[14] It was used exclusively as a training manual during Tele-OCT sessions of PCDs.

RESULTS

Total sessions fixed/conducted/cancellation

A total of 146 Tele-OCT sessions were fixed during the study period, but 116 (79.5%) sessions were successfully conducted. Thirty sessions were canceled; the reasons are abrupt deputation of PCDs for urgent duty (n-19), due to public strike (n-6), no patients at outpatients (n-2), and poor internet connectivity especially on rainy days (n-3).

Location of primary care doctors

Out of 116 sessions, it was observed that 74 (64%) and 42 (36%) sessions were conducted at outpatients of taluk hospitals and PHCs.

Preferred device and videoconference application of primary care doctors

All available various videoconference applications are used in these Tele-OCT sessions ranging from zoom (64.5%), K-SWAN (9%), Zoom + Skype (6%), Skype (3%), to Hangout (1%). Even though the study did not collect exact data about the preferred device of PCDs to participate in Tele-OCT, it was observed that smart mobile phone (inbuilt internet and mostly android based) is the popular choice of the device among PCDs. The trainer tele-psychiatrist guided PCDs to fix the position of smart phones with a help of other fixed objects or attached mobile stand in few of them.

Telepsychiatric on-consultation training parameters

On the day of file review, Tele-OCT covered 73 PCDs (10, 16, 15, and 32 PCDs trained in 1st, 2nd, 3rd, and 4th Tele-OCT sessions, respectively). This means that not all 73 PCDs are finished all four Tele-OCT sessions. It was an ongoing program where 73 PCDs had undergone variable number of Tele-OCT sessions at the time of data analysis: First, 2nd, 3rd, and 4th Tele-OCT sessions completed by 10, 16, 15, and 32 PCDs, respectively.

The average gap between the first and second sessions was 81.12 ± 77.81 days, between the second and third sessions was 69.36 ± 58.3 days, and between the third and fourth sessions was 108.75 ± 67.20 days.

Each Tele-OCT session was conducted for about 7–10 patients. The average time duration for each session was 142 (± 51.9) minutes. Among 844 patients, “consultation time per patient” data were available for 781 patients, where it was found to be 8.5 min.

Clinical profiles of 832 consulted/trained adult patients in telepsychiatric on-consultation training sessions

Among 832 patients, 440 (52.8%) are not having psychiatric disorders. The remaining 47% of patients are having psychiatric disorders. With respect to prevalence of clusters, 292 (35%), 75 (9%), and 21 (2.5%) are CMDs, substance use disorders, and severe mental disorders, respectively. Somatization (14%) is the most common psychiatric disorder in the trained/consulted patient population followed by depressive disorder and anxiety disorder [Table 1]. Sixty percent and 36% of patients with psychiatric disorders are received tricyclic antidepressant (amitriptyline) and selective serotonin reuptake inhibitors (fluoxetine, escitalopram, and sertraline).

DISCUSSION

Feasibility of telepsychiatric on-consultation training sessions

A total 146 Tele-OCT sessions were fixed in the first 26 months. Almost 80% of Tele-OCT sessions are successfully conducted, denoting a higher level of feasibility. The remaining 20.5% of Tele-OCT sessions were canceled. A sudden deputation of PCDs for urgent duty is one of the main reasons for cancellation; this calls for greater flexibility in scheduling of Tele-OCT sessions.

Table 1: Clinical profiles and treatment provided for 832 consulted/trained patients

Profiles	Details, n (%)
Mean age (years)	47.36 \pm 14.87
Gender	
Male	375 (45)
Female	457 (55)
Clinical diagnosis	
Nil psychiatry	440 (52.8)
Common mental disorders	292 (35)
Depression	102 (12.3)
Generalized anxiety disorder	41 (4.9)
Somatization	117 (14)
Adjustment disorder*	11 (1.3)
Dysthymia*	9 (1)
Mixed CMDs	10 (1.2)
Panic disorder	2 (0.2)
Severe mental disorders	21 (2.5)
Substance use disorders	75 (9)
Alcohol harmful use	7 (0.8)
Alcohol dependence	21 (2.5)
Nicotine dependence	47 (5.6)
Intellectual development disorder	4 (0.48)
Total	832 (100)
Psychiatric treatment (n=309)**	
SSRI	111 (35.9)
TCA	185 (59.9)
Antipsychotic	5 (1.6)
Psychosocial	2 (0.6)
Nicotine gum	6 (1.9)
Total	309 (100)

*Two clinical diagnoses of tele-psychiatrists, i.e., dysthymia and adjustment disorder are included in category of CSP diagnosis of CMDs itself. It is an important finding which need to be considered for the next version of CSP. **Treatment details are available for 309 cases among 392 patients with psychiatric disorders. The mean age of the 832 adult patients was 47.36 ± 14.87 years. Among 832 patients, 45% were male and 54% were female. CMD: Common mental disorders, SSRI: Selective serotonin reuptake inhibitor, TCA: Tricyclic antidepressants

It was important to understand the location of spokes where PCDs were trained. Initially, tele-OCT was conducted at the general outpatient consultation room of taluk general hospital and later shifted to respective PHCs of PCDs. In this way, Tele-OCT has penetrated rural PHCs representing the integration of psychiatric care in real general patients of PHCs itself.

Since Tele-OCT sessions are conducted in a live video streaming of general consultation from PHCs, it is essential to understand about devices and videoconference applications used by PCDs. All popular videoconference applications are used by PCDs in their personal smart phones, thus making the sessions feasible and more acceptable to PCDs. It also provides user convenience and difficulty of shift exclusive computers and its accessories inside their consultation room.

Various parameters of telepsychiatric on-consultation training sessions

During the initial 26 months, Tele-OCT started for 73 PCDs. Informal discussion with each PCDs provided insight that consecutive three Tele-OCT sessions should be sufficient for each PCD, making it as an optimum number of Tele-OCT sessions required to learn clinical skills of primary care psychiatry at their general practice. In this way, 47 PCDs (15 and 32 PCDs are their 3rd and 4th Tele-OCT sessions) completed the full package of three consecutive Tele-OCT sessions.

Since three consecutive Tele-OCT sessions were found to be optimum for each PCD, it is also important to find the optimum time gap of each consecutive Tele-OCT sessions to understand the feasibility and effectiveness for implementation. It was found that the time gap between 1st to 2nd and 2nd to 3rd sessions was about 80 and 70 days, respectively. Since it was a naturalistic design, time gap was found to be lengthier from a logistic point of view (sessions were fixed on mutually convenient time rather than any scientific basis and there was no dedicated tele-psychiatrist). The authors suggest that minimum time for memory consolidation of acquired skills should be given to make Tele-OCT more productive and effective. Memory consolidation refers to the process of transferring new learning from initially fragile short- to long-term memory storage, where learned messages become permanently stored.^[15] It is said to be around weeks.^[16] Considering this logic, the authors recommend for at least 2–4 weeks gap between each Tele-OCT session.

Since Tele-OCT needs to be conducted in real-time consultations, it was essential to understand whether Tele-OCT is conducted in a realistic clinical scenario of primary care such as consultation/training time/patient, total consultation/training time, and number of patients/session. A study reported that the average consultation time of PCDs in India is between 1.5 and 2.3 min vs. <5 min in many countries.^[17] The consultation/training time/patient in this study was about 8.5 min [Table 2]. For successful integration, the curriculum should seriously consider this duration of consultation time of PCDs. The author contention is that with gaining of experience by the training team, it is possible to reduce further consultation/training time/patient. This study report that on an average, eight patients are trained/consulted in each tele-OCT session and 140 min were spent for each Tele-OCT session [Table 2].

It is derived from the discussion that the 'optimum Tele-OCT training package per PCD' shall have three consecutive sessions within two months, with a 2-4 weeks gap between each session. Each Tele-OCT shall aim to train among an average of ten general patients in 2 hours' time. In this way, each PCD shall be trained in an average of 30 patients in 6 hours of training time.

Clinical profiles of 832 consulted/trained adult patients in telepsychiatric on-consultation training sessions

It is important to understand whether PCDs are trained in

Table 2: Various parameters of telepsychiatric on-consultation training sessions

	Number of PCDs
Session-wise coverage of PCDs	
First Tele-OCT completed PCDs	10
Second Tele-OCT completed PCDs	16
Third Tele-OCT completed PCDs	15
Fourth (evaluation) Tele-OCT completed PCDs	32
Total PCDs	73
Time gap between sessions, mean±SD (range)	
Time gap between 1 st and 2 nd session	81.1±77.8 (6-300)
Time gap between 2 nd and 3 rd session	69.3±58.3 (4-210)
Time gap between 3 rd and 4 th session	108.8±67.2 (30-300)
Time duration and number of patients per session, mean±SD	
Consultation/training time per patient (min)	8.5±4.8
Numbers of patients trained/consulted in each tele-OCT sessions	7.3±4.1
Total consultation/training time per tele-OCT session (min)	142 (±51.9)

Tele-OCT: Telepsychiatric on-consultation training, PCDs: Primary care doctors. SD: Standard deviation

patient profiles representing general patients of primary care. Since CSP contains curriculum only for adults, details of 42 paediatric patients are excluded from the analysis. In total, 844 adult patients were seen during this period and data for 12 adult patients are missing. Data from 832 adult patients are analyzed. A clinical diagnosis of tele-psychiatrists was considered for analysis. The mean age and female preponderance of the patients are representative of primary care of India.^[18]

52.8% of trainer/consulted outpatients during Tele-OCT sessions are not having any psychiatric disorder. The remaining 47.2% of patients in this study are having psychiatric disorders, which is representative of primary care of India. Trainer tele-psychiatrists utilized the opportunity of these nonpsychiatric patients to train psychiatric interview skills to PCDs using the screener section of CSP. It is one of the unique features of Tele-OCT that PCDs are trained to differentiate psychiatric and nonpsychiatric patients in their general practice. In that case, PCDs were requested to treat nonpsychiatric patients in the way they treat at their regular clinical practice. Another important feature of Tele-OCT is that tele-psychiatrists shall be exposed to reality of general practice of PCDs at their PHCs. Overall, an innovative Tele-OCT training is been conducted in the best clinical scenario of primary care.

TCA's (60%) (amitriptyline) and SSRIs (36%) (fluoxetine/escitalopram/sertraline) were the most common psychiatric medications prescribed.

The point-of-care manual CSP used as training material contains only six common psychiatric disorders. However, there is a scope update psychiatric disorders as an optional module because of the low prevalence of these illnesses at primary care. Also, there is scope to include few other psychiatric disorders such as dissociative disorder, headache,

and sleep disorders because of higher prevalence at primary care shall be considered during the next version of development of this point-of-care manual.

Limitations and future directions

It is a file review from a naturalistic design-based study. Patient profiles of each PCD are specifically not analyzed to understand whether each PCD is trained in all kind of psychiatric disorders. This needs to be taken care in the future study. In view of higher feasibility, classroom training in the National/District Mental health Program shall be replaced/augmented with this innovative Tele-OCT across India. The cost-effectiveness of Tele-OCT vs. CRT should also be considered.

CONCLUSIONS

Tele-OCT could be a pathbreaking training modality of PCDs to fill the functional treatment gap that exists at primary care. Personal smartphones are the popular choice of PCDs to participate in Tele-OCT from their live and real-time outpatient consultations. An optimum Tele-OCT package/PCD is established, which consists of three consecutive sessions within two months evaluating and treating in total 60 patients in 6 h. Tele-OCT also ensured that PCDs receive practical exposure to screen psychiatric disorders among their general patients. The cost-effectiveness of Tele-OCT vs. CRT should be evaluated.

Acknowledgments

The authors also extend thanks to Mission Director, National Health Mission, Karnataka, District health Officers, and all taluk health officers of Mandya district, Karnataka.

The authors are grateful to our real teachers of the innovative Tele-OCT, who are the PCDs of Mandya district. Their active participation and continuous feedbacks at all stages became instrumental in designing and implementation of this innovative training program and also to their supporting staff who helped in coordinating technical issues of Tele-OCT sessions at Mandya district.

The authors extend their sincere gratitude to the staff of the Tele Medicine Centre, NIMHANS, Bengaluru, for extending support for this study.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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