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A service provider's experience providing telehealth services during the COVID-19 pandemic in a community-based opioid substitution clinic in Bangladesh

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Abstract

Introduction The COVID-19 pandemic incurred numerous impediments on day-to-day emergency medical services including Opioid Substitution Therapy (OST) for People Who Inject Drugs (PWID). To prevent treatment cessation and lost to follow-up, we tried to implement an alternate mitigating intervention like telehealth.

Methodology This research was conducted on a cohort of OST clients during the COVID-19 pandemic (from 1st April 2020 to 31st March 2021) in Narayanganj, a port city adjacent to the capital Dhaka and one of the most COVID-affected districts, with a high PWID and HIV burden. The participants were male, female and transgender women who were all ex-PWID and were under OST services. A telehealth intervention model was designed and implemented in the OST clinic at Narayangonj. Quantitative data were collected during pre and post-intervention of telehealth services.

Results A total of 297 OST clients of Narayangonj were provided with telehealth services from April 2020 to March 2021. The participants were predominantly male (98.7%), 37.7% were between 30–39 years of age. 39.4% of the telephone calls were related to COVID-19-related symptoms followed by 21.7% for opioid withdrawal, 12.5% for COVID-19 & vaccine-related information, 11.3% for chronic diseases like diabetes, hypertension and asthma, 9.3% for Skin and Soft Tissue Infection (SSTI), and 5.8% for methadone-related effects. There was an improvement in treatment retention (14.4% to 87%), loss to follow-up (20% to 8%), and overdose-related death (1.3% to 0%) from pre to post intervention of telehealth services.

Conclusion From our experience, we found that the telehealth intervention is beneficial for the OST clients and thus ensures treatment continuity and retention, both of which serve as crucial success indicators of the OST programme. Using simply the mobile phone, this intervention can reduce structural and logistical needs like clinic spaces and fewer human resources, ensuring cost-effectiveness and value for money.

Keywords Telehealth, Mobile phones, COVID-19, Opioid substitution therapy, People who inject drugs, Methadone

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Background

The COVID-19 pandemic has universally inflicted challenges in healthcare service delivery and uptake, yet some population groups were disproportionately affected. This particularly includes key populations at risk of HIV such as people who inject drugs (PWID) who are enrolled in the Opioid Substitution Therapy (OST) program. To adhere to COVID-19 mitigation measures, e.g. physical distancing, avoiding overcrowding, stay-at-home orders, and countrywide lockdown, OST clinics worldwide have reduced their service delivery hours and curtailed other treatment support services [1]. Consequently, this could contribute to methadone overdose, withdrawal, discontinuation and dropout from daily methadone dosing, and general health problems [2, 3]. Moreover, personal life circumstances inflicted by the pandemic such as loss of employment, food security and housing could potentially contribute to relapse into opioid drug use [4, 5] thus elevating their vulnerability to human immunodeficiency virus (HIV) and Hepatitis C virus.

In this context, COVID-19 led us to seek alternative patient-centred approaches such as telehealth services to facilitate access to healthcare for these vulnerable, marginalized populations. Telehealth provides an effective and secure approach for consulting healthcare professionals to gauge a deeper understanding of the symptoms of diseases, prevention and treatment measures, psychological problems, and other related issues [6]. However, while implemented in other countries, this emergency service delivery modality experienced some challenges in facilitating healthcare access [7, 8]. As OST requires daily attendance in clinics with limited provisions for take-home doses to a selected group of clients, the COVID-19 situation considerably threatened the continuity of the treatment for those receiving daily treatment. To minimize these barriers within the local context, the Department of Narcotics Control (DNC), under the Ministry of Home Affairs (MoHFW), Government of Bangladesh (GoB) considerably relaxed the guidelines to expand take-home doses of methadone from OST clinics, allowed telehealth services for the delivery of healthcare and education, and allowed clinicians to provide prescriptions remotely.

Lack of computer or eHealth literacy was cited as the most pressing obstacle to rendering telehealth. The insufficiency of high-speed bandwidth, application design issues, and basic interoperability remain as challenges in delivering telehealth services. The lack of appropriate equipment was cited as another challenge [9]. Due to a lack of exposure and training in the new technology, limitations emerge in providing telehealth services efficiently. Another major obstacle was resistance to change and being familiarized with newer modalities, which were exacerbated by the expensive technology [9].

However, telehealth services for OST may widen already-existing inequity gaps among PWID with restricted access to technology, lack of digital literacy, financial constraints, and other social difficulties that limit their capacity to seek healthcare online. Despite the promise of innovative therapies and delivery methods to reach populations facing healthcare access barriers, privileged patients with the necessary resources benefit from telehealth services [10].

The existing evidence in the literature regarding telehealth services among marginalized, vulnerable population such as ex-PWID under OST and other key populations remains scattered and currently lacks synthesis. No such literature has been found in the Bangladeshi context focused on the key population, specifically PWID enrolled in OST programmes. Therefore, this article aims to describe the current status of telehealth services in OST clinics in Bangladesh, as well as its challenges and future prospects. It is hoped that these insights, if incorporated into the telehealth service delivery modality, can help leverage the benefits of telehealth.

OST programme in Bangladesh

Opioid Substitution Therapy (OST) has been pioneered by the International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b) in Bangladesh. At present, icddr,b, and Save the Children Bangladesh render services to a total of 3200 PWID under the OST programme. OST is recommended by WHO and UNAIDS to contain the transmission of HIV among PWID [11]. The idea behind this process is to substitute the injectable opioid with an oral opioid alternative, which frees PWID from the risk of injection sharing [12], thus preventing HIV and AIDS transmission. According to a report published in 2016, there are a total of 14 countries in Asia and 87 OST programs around the world [13].

icddr,b operates three stand-alone OST clinics, two in the capital city of Dhaka (at Tejgaon and Doyagonj) and one in Narayngonj district adjacent to Dhaka, providing OST services to a total of 600 PWID. While Tejgaon is an ancillary part of a government-operated drug treatment centre, the other clinics are part of community-based harm reduction service centers for PWID.

Existing services at OST clinic

OST clinics are primarily aimed at providing methadone to PWID in a medically supervised condition where doctors, nurses, counsellors and consultant psychiatrists are available. In addition to methadone provision, the clinics provided free general medical services with lab investigations and medicines, urine testing for illicit substance

use (opioids, sedatives, methamphetamine), individual, group or family counselling sessions, complicated case referrals to hospitals, NGOs, etc.

General medical treatment is provided by a registered physician along with free over-the-counter medications. Also, HIV testing services (HTS) are available, and there is a system in place to refer people to care and support who are diagnosed as HIV positive, i.e. at government ART centers. Counselling officers also provide individual counselling sessions and operate weekly group discussion meetings as part of a behavior change communication strategy.

COVID-19 scenario in Bangladesh

Bangladesh reported its first case on 8th March 2020 from Narayanganj, where one of our OST clinics is situated. The first COVID-related death occurred on 18th March 2020. The cumulative caseload on 31st March 2021 was 611,295 [14]. Since then, the Government of Bangladesh declared a partial lockdown of the cities, particularly Dhaka, by shutting down public transport, marketplace, public and private schools, and offices on 26th March 2020. Only the emergency services like hospitals, pharmacies, fire brigades, food stores, etc. were exempted from the lockdown.

Challenges imposed by COVID-19 on OST and its pathway to telehealth

The ongoing lockdown constituted a major threat for OST clients who depend on daily doses of methadone, an opioid substance that induces physical and psychological dependence. The odds of treatment interruption, drop-out, concurrent drug use, and overdose-related mortality among OST clients were all made more likely by the lockdown circumstances and it was necessary to use a different type of intervention strategy. The routine programme data revealed high rates of treatment retention indicator of 98% (147/149) before intervention but it came down 29% (43/149) during the initial stages of the pandemic. The retention was calculated and defined as those who have continued their daily dosage of methadone for 6 consecutive months apart from occasional absence due to illness or traveling. OST clients missing their daily doses for 90 consecutive days were considered as drop out. Therefore, there was a consensus between the government and programme implementers to relax the stringent guidelines of the methadone take-home dose, thus allowing flexibility in the services to ensure treatment retention. But in addition to giving out take-home doses, doctor consultations were also required to address subsequent dose adjustments, withdrawal management, and unexpected clinical situations like missed or vomited doses in order to fine-tune the methadone dosages.

Another major challenge faced by the OST programme during the COVID-19 pandemic was the disruption of the regular clinic activities, particularly the general medical treatment provided by the clinic physician. The OST clients, who were all ex-PWID, generally had a prolonged history of substance use, practised risky injecting and sexual behaviour and had various medical issues warranting medical attention due to their volatile lifestyle. Along with syndemic infections like HIV, HCV, HBV, and TB; general medical conditions emerged such as diarrhoea, anorexia, nausea, vomiting, generalized fatigue, weight loss, common cold, cough, etc. Severe clinical conditions were also reported such as COPD, leg ulcers, Deep Vein Thrombosis (DVT), etc. that requires specialized treatment, appropriate referrals and follow-up. Programmatic experiences indicated the constant demand for medical advice by the OST clients, even for simpler complaints. If their demands are unmet, there is chance of treatment discontinuation or dropout. To alleviate this issue, icddr,b OST clinics started to provide medical advice, basic health education, COVID-19-related information and medical prescriptions to the OST clients, adopting the concept of telehealth.

Telehealth

"The term telehealth denotes the delivery of healthcare services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of valid information for the diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interest of advancing the health of individuals and their communities" [15].

Methodology

Designing telehealth intervention model for OST clients

We designed a telehealth intervention model and implemented in the OST clinic at Narayanganj city, one of the highest COVID affected district mainly to understand whether the telehealth intervention has an impact on OST programme during the pandemic. Due to the unprecedented impact of the COVID-19 pandemic on the healthcare delivery system and essential medical care, it was obligatory to find out an innovative mitigation measures to alleviate impending health challenges. Consequentially, we started to consult and exchange communication with the experts in harm reduction programmes and its relevant field to contemplate a rapid, practicable as well as innovative intervention for the current challenges. We held five of these seminars and consultative meetings with the pertinent GoB and non-government stakeholders. In order to address similar challenges

imposed by COVID-19 on harm reduction programs like OST and many other important healthcare delivery systems, we have also reviewed current global evidence and practices to develop our intervention strategy. We held more than 30 online consultations with the OST clients, community members, service providers, and government counterparts to perceive their opinions and recommendations. Then finally we conducted an intervention design workshop to discuss all the measures and options to devise specific activities/intervention package which were not practised earlier. Following several consultations and thorough discussions, we designed the telehealth interventions to be implemented in the OST clinic at Narayangonj.

Implementation of telehealth intervention in Narayangonj OST Clinic

We adopted the newly formulated model and initiated implementation of telehealth services in OST clinic located at Narayangonj when the nationwide lockdown started in April 2020. Over the one-year period from 1st April 2020 to 31st March 2021, a cohort of 297 OST clients received our telehealth services. We then compared the treatment retention, dropout and overdose related death indicators at two different time points (pre and post intervention) to evaluate the impact of the newly different intervention.

Narayangonj is one of the oldest districts and a major port city located near the capital city of Dhaka. The last mapping study of the HIV key populations estimated a total of 977 PWID (upper value) in Narayangonj city [16]. Recent programmatic data have also shown an increasing number of HIV-positive cases among PWID in Narayangonj. Capital Dhaka has the highest concentration of PWID in the country and shares contextual similarities with bordering Narayangonj. In particular, Narayangonj has street-based PWID who congregate in drug-taking spots similar to Dhaka. Anti-drug drive by law enforcement agencies often forces PWID to flee the city, thus causing drug prices to escalate. This results in internal migration and thus increases the risk of HIV transmission.

Following the intervention design, the OST clients used their mobile phones to directly call counsellors or doctors whenever they needed any physical and/or mental health-related consultation. Along with receiving their desired service and consultation, this approach also reduced their outward movement and clinic visit, thus averting the risk of contracting COVID-19 infection. Additionally, telehealth helped bridge their access to services in spite of movement restrictions and ensured the continuity of essential health services.

While the clinic remained closed during the lockdown, the OST clients were informed and counselled about receiving services through telehealth approaches. In particular, the Narayangonj OST clinic provided leaflets containing emergency contact numbers and health awareness messages to their clients.

As shown in Fig. 1, the doctors of the OST clinics were mainly responsible for (but not limited to) addressing OST client's general health problems, opioid withdrawals and overdose. HIV counselling officer was responsible for counselling on coping mechanism of opioid withdrawals, if any, and referral to the doctors, if necessary; addressing client's psychosexual problems and conducting individual and family counselling. The peer outreach worker were responsible for field activity and follow up of client, especially ensuring regular intake of methadone home doses.

Besides calling directly, telehealth services were administered through the Internet via app-based calling systems including WhatsApp, Viber and Messenger. Small incentives were also paid to the clients upon request to buy internet packages. There was an attempt to arrange a toll free number for the clients to call for free, but it was not possible due to the COVID lockdown. Three official numbers were used for the telehealth service which were used by the doctor, counsellor and peer outreach worker of the OST clinic to contact/response to the OST clients. Clients who were not having smart phones, not familiar or having difficulties operating the app-based calling systems were contacted through text messages or through direct phone calls. Initiatives were taken to involve and contact client's family members and friends living together with the clients to provide aid and support to the continuation of OST. The OST clients were free to call anytime of the day and were requested to call at night only if there is an emergency.

Findings/results

Socio-demographic characteristics

The below Table 1 is showing a total of 297 OST clients of Narayangonj were provided with OST services from April 2020 to March 2021 where 293 (98.7%) were male, two (0.7%) were female and two (0.7%) were transgender women. Among them, 112 (37.7%) were between 30–39 years of age. 84 (28.3%) OST clients were involved in businesses or thrived on family support, while 87 (29.3%) were unemployed.

Reasons for availing telehealth services

During the consultation sessions, OST staff were inquired about various clinical symptoms, complaints and health-related information. Among them, understandably, the most common inquiry was regarding multiple physical ailments associated with COVID-19 symptoms such as

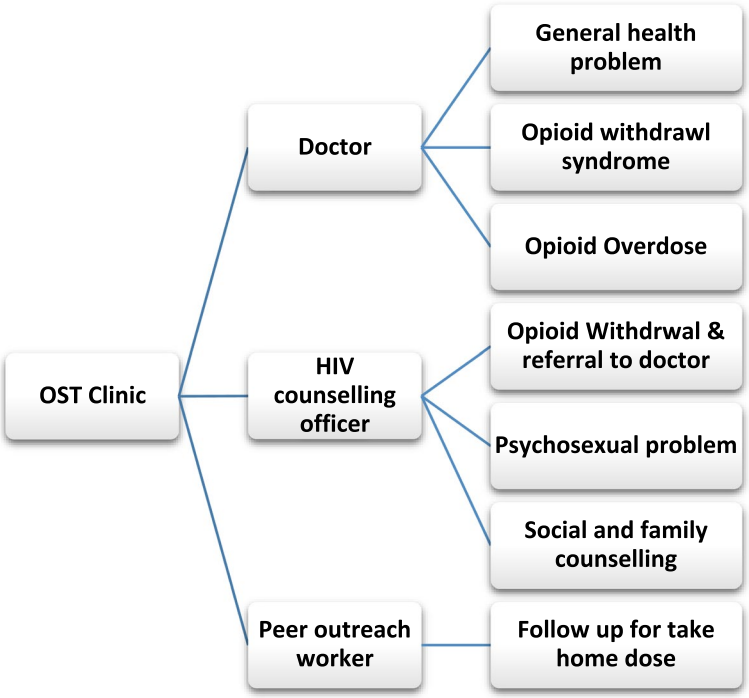

Fig. 1 Telehealth service delivery structure in Narayangonj OST clinic

Table 1 Socio-demographic characteristics of enrolled clients

Characteristics	*Frequency (n)*	*Percentage (%)*
Sex	*N* = 297	100%
Male	293	98.7
Female	2	0.7
Trans gender	2	0.7
Age		
18–29	23	7.7
30–39	112	37.7
40–49	112	37.7
≥ 50	50	16.8
Occupation		
Business / Family support	84	28.3
Transportation	54	18.2
Service	65	21.9
Garbage collector	7	2.4
Unemployed	87	29.3

fever, runny nose, headache, and sore throat. The second most common inquiry was about opioid withdrawal symptoms like Insomnia, aches and pain, fatigue, and mood swings, followed by COVID-19 infection and vaccination-related information, particularly the diagnosis, treatment, availability and location of the vaccine centres. Methadone-related effects such as nausea, constipation, and sexual dysfunction were also reported, where health education was given and general medication was advised. The OST clients suffering from acute or chronic skin and soft tissue infection (SSTI) like leg ulcers, leg swelling, and injection-related injuries (IRI) also contacted the doctors and received their advice/referrals on their cases. Several other chronic conditions like uncontrolled diabetes, hypertension, cataract, and respiratory diseases, e.g. bronchial asthma, and COPD were also reported by the OST clients to the OST physician over phone.

According to the data shown in above Fig. 2, 39.4% of the calls were related to COVID-19 related symptoms followed by 21.7% call for opioid withdrawal, 12.5% for COVID-19 & vaccine related information, 9.3% for SSTI, and 5.8% for methadone-related effects. However, 11.3% of calls were attributed to other reasons such as diabetes, hypertension, cataract, bronchial asthma, and COPD.

Telehealth services were mostly provided by the OST physician, followed by counsellors and outreach workers as per the client's requests and inquiries over the mobile phone. OST physician carefully took the history over the phone and after making a provisional diagnosis, provided medical prescriptions via text message. The doctors even talked to the pharmacists in case of any information or confusion regarding the medicine or in the event of the unavailability of the medicine.

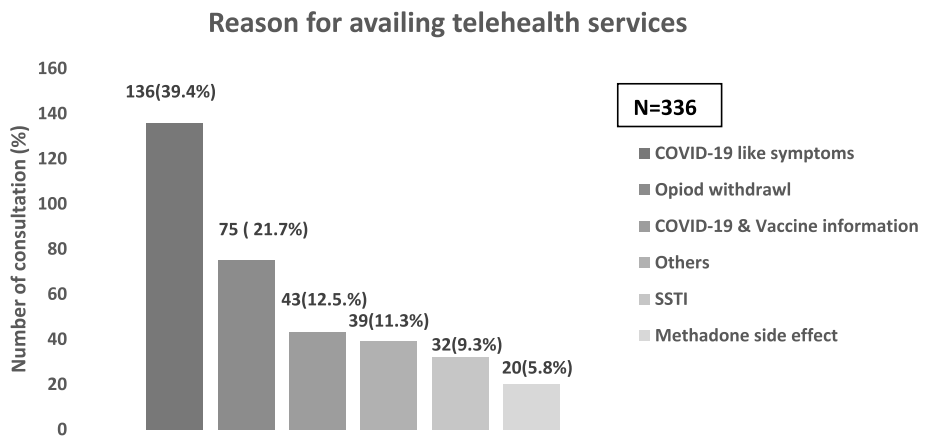

Fig. 2 Reason for availing telehealth services by the OST clients

The OST physician also talked to the clients and OST staff regarding the adjustment of methadone doses whenever the client visited the clinic for his/her take-home dose. Advice on missed doses, side effects, etc. was also provided by the doctor. General medical advice and health education information was sought and frequently requested by OST clients, which were addressed by the OST physicians. Particularly, information and education regarding COVID-19 management and prevention were regularly explained and discussed both by the doctor and counsellors of the OST clinic. Counselling on common mental health issues especially anxiety, stress, and panic related to COVID-19 infection were addressed by the trained counsellors and psychologists of the OST clinic. If the inquired question or information could not be responded to by the OST staff, referral advice to appropriate centres was provided for more complex clinical conditions.

Impact of telehealth services on the OST programme

The overall impact of telehealth services on the OST programme was measured by the retention, drop out and overdose related deaths reported by the periodic programme data. The details are given in Table 2 and 3 below:

The Table 2 is showing out of the 297 clients, 43 (14.4%) were retained in OST pre-intervention and the treatment retention increased to 258 (86.9%) post-intervention.

The Table 3 is showing out of the 297 patients, 61 (20.5%) were lost to follow-up pre-intervention, which reduced to 24 (8.1%) post-intervention.

There were 2 cases of overdose related deaths prior intervention and none were reported for overdose related death after the intervention period. The key influencing factor for treatment retention was the availability of take-home doses and telehealth services. The relaxation of the eligibility criteria for take-home doses and extension of the home dose up to a maximum of 30 days benefited the clients.

The other crucial intervention component included telehealth services which ensure patient comfort and benefits. After taking the home dose, it was observed that the OST clients were regularly consulting the OST physician, counsellors, and outreach workers for various issues described earlier that were addressed through mobile phones. Without this communication, it was not

Table 2 Pre and post intervention retention in OST

Indicators	Post-intervention retention (*N* = 297)			Test Statistics
	No	Yes	Total	
Pre-intervention retention, n (%)				$p < 0.001^*$
No	36 (12.1)	218 (73.4)	254 (85.5)	
Yes	3 (1.0)	40 (13.5)	43 (14.4)	
Total	39 (13.1)	258 (86.9)	297 (100)	

* McNemar test

Table 3 Pre and post intervention lost to follow up in OST

Indicators	Post-intervention lost to follow up (*N* = 297)			Test Statistics
	No	Yes	Total	
Pre-intervention lost to follow up, n (%)				$p < 0.001^*$
No	215 (72.4)	21 (7.1)	236 (79.5)	
Yes	58 (19.5)	3 (1.0)	61 (20.5)	
Total	273 (91.9)	24 (8.1)	297 (100)	

* McNemar test

possible to leverage the benefits of take-home doses as there are various issues such as methadone-related withdrawal, dose adjustment, missed doses, as well as misuse of methadone like sharing and selling to other clients or members of the PWID community. Our OST clients were contacted regularly by doctors, counsellors, and outreach workers through mobile phones to ensure daily methadone intake and to prevent misuse. The family members of the OST clients, e.g. wife/husband, mother, and sister/brothers were also involved during the follow-up and supported the OST treatment team. A nexus of support groups involving the OST treatment team and the family members were impactful in retaining the OST clients in treatment during this emergency situation.

During the COVID-19 crisis, we observed that telehealth services were helpful, convenient, and popular among OST clients. Subsequently, given the declining COVID-19 infection, the OST clinic operations resumed. Nevertheless, due to high demands among the clients, telehealth services were not discontinued after the pilot phase. The introduction of this telehealth- service to OST clients is acknowledged as an innovative approach in the National Drug Report 2020 published by the Department of Narcotics Control (DNC), Bangladesh [17].

Challenges and lessons learned

According to our observations, implementation of the telehealth services in the OST clinic at the community level during the COVID-19 pandemic was never an easy task due to multiple dimensions of challenges. Challenges can be categorized into two thematic clusters: the challenges faced by the service recipients who are the OST clients, and the challenges faced by the service providers, who are the doctors and counsellors of the clinics.

One of the major challenges faced by service recipients was access to smartphones with video calling features. Due to their socioeconomic constraints, they could not afford a minimum-grade smartphone to support internet-based audio or video calling. Many do not have their own mobile phone, let alone a smartphone. Therefore, they needed to rely on their relatives for receiving telehealth services. Although telehealth was considered a preferable medium of access to care than physical services during the COVID-19 conditions, not all of the OST clients managed to receive it. In Narayangonj, only 16% of OST clients use smartphones, and 76% use conventional basic feature or button mobile phones while the remaining 8% of OST clients did not have any access to mobile phones. Additionally, it is often difficult to receive proper prescription as a text message in conventional basic feature /button mobile phones due to the text character limit and the unavailability of Bengali fonts. In some instances, OST clients without mobile phones availed telehealth services with the help of the outreach worker's smartphone.

Another major challenge was the OST clients' ability to purchase medications. Due to COVID-19, many of our clients suffered from economic loss. In our clinic, they are typically provided with free-of-cost medications. However, the scenario changed during the COVID-19 lockdown because they had to purchase the prescribed medicine from a pharmacy, thus placing a further dent in their economic solvency.

There were also notable challenges faced by service providers while providing telehealth services. While the doctor and counsellor of the OST clinic believed that telehealth is helpful for OST clients and minimizes the risk of COVID-19 transmission; they opined that it does not substitute a face-to-face consultation or counselling session. As there is no way to do a clinical examination, the treatment is based heavily on history taking, which could leave scope for errors. It is only applicable for primary care management and referral is needed to manage complicated cases.

From the service provider's perspective, there was no digital platform to input patient data in the absence of prescription writing software. As purchasing software for the programme was both budget and time-consuming, we manually kept the record in spreadsheets and sent prescriptions via mobile phone. However, there are numerous available prescription-writing software that is organized and time-efficient for patient record-keeping purposes.

The provision of telehealth services was reported to reduce the chance of rapport building and emotional attachment with the patient without face-to-face consultations. The doctors and counsellors cited being unable to judge the patients' expressions and body language via phone calls, thus sometimes posing challenges in providing services.

This study is principally based on routine programmatic data collected through periodic programmatic reports during pre and post intervention of telehealth services. The novel intervention could not be compared to a control site. More useful data might be obtained from a quasi-experimental study or randomized control trial.

Conclusions and recommendations

Despite the barriers and challenges, telehealth has the potential to serve as an effective service delivery model in community-based OST clinics, during and beyond emergency situations. This process has the ability to save time and money, to receive doctor's prescriptions for general medical conditions, and referral advice for more complicated clinical situations. Yet, to ensure the

proper use of telehealth, it is paramount to ensure better access to technology and increase the awareness and literacy level of the OST clients regarding the service. There are emerging information and communications technology (ICT) concepts in developed nations such as artificial intelligence (AI), robotics, and wearable technology in the context of telehealth [18]. Nevertheless, the viability and implementation of telehealth in resource-limited settings and low- and middle-income countries must be ensured in order to optimize its benefits. Providing simple training to the recipients on the use of technology and increasing promotional activity to encourage the use of telehealth services would also be beneficial. We also need to provide a toll-free dedicated number for the recipients to provide telehealth services. Allocation of funds for telehealth in harm reduction programme settings is also warranted.

From our piloting experience, it is evident that the telehealth intervention in the OST programme is beneficial for the prevention of dropouts, thus consequentially ensuring treatment continuity and retention, both of which serve as crucial success indicators of the OST programme. Using simply the mobile phone, this intervention can reduce the structural and logistical needs like clinic spaces and fewer human resources which will ensure cost-effectiveness and value for money. Lastly, telehealth intervention can be implemented in all the OST clinics in Bangladesh, with or without emergency situations, for the betterment of marginalized population groups in Bangladesh.

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Availability of data and materials
The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
All of the respondents whose responses are reported in this paper provided written, informed consent before their information was used for the manuscript (written consent forms are available upon request). A formal review waiver from the Ethical Review Committee (ERC), International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). (a letter is uploaded in the "Related Files" section). was obtained. All procedures were carried out in conformity with the Declaration of Helsinki or other pertinent standards and legislation.

Consent for publication
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