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Telemedicine and COVID-19: Pandemic

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Abstract

To decrease the chance of spread of highly infectious coronavirus disease, the complete lockdown has been taking place in India as well as many other countries of the world. At this difficult time, telehealth can play a major role as it is ideal for the treatment and management of infectious diseases, thus fulfilling the purpose of 'social distancing'. Telehealth can be beneficial to those who are at higher risk of getting infected and also to the health care providers by decreasing the exposure as well as the workload of health care providers. Telehealth uses computer technology to convey clinical data for diagnosis, treatment as well as management of the disease. Tele-dentistry is telemedicine in dental practice which can also be helpful in the current national emergency. Within the dental practice, teledentistry is widely used in disciplines like preventive dentistry, orthodontics, endodontics, oral surgery, periodontal conditions, early dental caries detection, and education. Patients, oral medication and diagnosis. Some of the main modes and methods used in teledentistry are electronic health records, electronic referral systems, image scanning, teleconvention and telediagnosis. All applications used in teledentistry aim to improve efficiency, provide access to an ineligible population, improve quality of care, and reduce the burden of oral disease. This article provides a review of the use of telemedicine and teledentistry in the time of coronavirus disease.

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INTRODUCTION

The World Health Organization (WHO) has announced coronavirus disease 2019 (COVID-19) as a pandemic on 11 March 2020 as COVID-19 cases are quickly multiplying (Smith *et al.*, 2020). Proven occurrences of COVID-19 have crossed the number of 50,000,000 and worldwide deaths have crossed 12,000,00 people (Moazzami *et al.*, 2020). Thus, governments are getting ready for the most exceedingly awful to discharge the impact that COVID-19 has on well health administrations and the worldwide economy. Among the sudden arrival of COVID-19, there are recognizable proofs that telehealth potentially will assume the fundamental job in the overall reaction (Smith *et al.*, 2020). Telehealth is the use of information and communication technologies to transfer healthcare information for the delivery of clinical, administrative and educational services. Similarly, telemedicine utilizes information and telecommunication technologies to transfer medical information for diagnosis, therapy and education (Coiera, 2002). Telemedicine is used in practice even before the emergence of

COVID-19 as palliative care for the patients who are bedridden or seriously ill (Calton *et al.*, 2020). Treatment and control of infectious disorder can be done successfully with the help of telehealth. The important element in decreasing the spread of the infectious disease is 'social distancing' which means decreasing or avoiding direct personal contact. The patients of COVID-19 or those with a higher risk of getting infected, telemedicine can help with distant evaluation and treatment. Telemedicine can provide routine care to the geriatric population, people with previous medical history by reducing chances of getting exposed in crowded hospitals or in hospital waiting rooms (Smith *et al.*, 2020).

The foundation of every well-operating health care system is the well-being of health care workers. Health professionals are facing increased work pressure, higher risk of getting infected and increased total health disbursement due to the outbreak of pandemic COVID-19. More than 3300 health care providers in China had been affected, and 22 have died (Moazzami *et al.*, 2020). Thus, telemedicine can help people to approach their health professional without an in-person meeting, by lessening the burden of the healthcare provider also reducing the chance of getting infected. It also helps to save precious personal protective equipment (PPE) (Calton *et al.*, 2020). The University of California, San Francisco (UCSF) has trained to utilize telehealth at whatever point conceivable. Likewise, other medicinal services offices are presently offering more help by telemedicine. Severe limitation on guests in medical clinics has implied palliative consideration; counsel programs are performing family gatherings and counsels online. To complete such alterations, telehealth administrative rules are being loose. The United State Department of Health and Human Services changed the Health Insurance Portability and Accountability Act (HIPAA) of 1996 consistency rules for the coronavirus disease-2019. Moreover, in the United States during the current month, a patient can get telemedicine and Medicare will recompense for telehealth appointments as well as the medication authorization organization will permit the prescription of controlled drugs by telehealth with no requirement of an earlier personal assessment (Calton *et al.*, 2020).

Telehealth set-up

1. Different type of specialized video tools, for example, Apple Facetime, Facebook Messenger video chat, Google Hangouts video and Skype can be used which are free or minimal cost. For explicit institutional rules, meeting with nearby initiative ought to be finished.
2. Patients ought to approach a cell phone, tablet, or a PC having a camera and sound just as data connection or web association.
3. Patients need to get related to one key contact who can fill in as the 'technical contact' for the user, especially for those who have not used it before.
4. Appoint palliative consideration regulatory staff to connect with the 'technical contact couple of days preceding the telehealth appointment for the arrangement of set up guidelines and play out a trial.
5. Make sure that 'technical contact' is present at the time of telemedicine appointment at the same time right innovative imperfections present.
6. A "dot phrase" constitutes of directives for the patients and their kin that guides them with the procedure for downloading the platform of telemedicine which eventually helps them to be prepared for the visit. This is a part of programs having a patient portal as a section of the e-medical information.

Patient Consideration

1. Instruct patients about telemedicine communication mannerism, particularly when there are many people participating in the visit. Ensure that the others are silent who are by no means participating while the appointment is going on.
2. The health professional may come late at some point as in personal clinical arrangements. Thus, make patient, to expect that it can happen.
3. Despite efforts, patients will be unable to join by telemedicine because of the absence of access to innovation, lacking social help, or network issues upon the arrival of the visit. In such cases, the phone might be a substitute, but not without the security plans to pay the phone appointments.
4. Assess requirements for which patient should be examined personally.

Clinician Consideration

Making a helpful telemedicine condition

1. Select a space which is having a decent light, calm condition and which is private if conceivable pick a spot having a proficient and organized foundation.

2. Use a personal computer or workplace at whatever point conceivably. Abstain from utilizing a handheld cell phone.
3. Look at the camera to guarantee eye to eye connection and encourage rapport and trust.
4. Pay more attention to subtle comments or statements made by patients or caregivers and their body language.
5. Do not avoid asking delicate and emotional discussion by video.
6. Health professionals must register payment of telehealth appointments similar to the personal appointments.
7. Finally, calmness is of most extreme significance as intermittent technical troubles may not be avoidable as well as the patient's technological comprehension may shift. The fast tips given above will help to guarantee a compelling beginning stage. Even though it requires extra help and inventive strategies to dispose of boundaries and energize fast authority (Calton *et al.*, 2019).

Tele-dentistry

This term was first introduced in 1989 in Baltimore at the conference (Alabdullah and Daniel, 2018). Tele-dentistry can be defined as using information and communication technology. It has been in use in large scale in the practice of preventive dentistry, orthodontics, endodontics, periodontics and oral surgery (Khan and Omar, 2013). It involves different ways of teleconsultation- first is "Real-time Consultation" which involves direct video-consultation through different types video communication tools in which patient and clinician are at different locations; the second is Store-and-Forward method in which swapping of medical data and digital photographs (clinical as well as radiographs) collected, stored and it is then forwarded for a special consultation. This type of teleconsultation is between clinicians and patient may or may not be present. "Remote Monitoring Method" is the third type of teleconsultation in which patients are examined at a distance. In this, patients are mostly hospitalized-based or home-based (Costa *et al.*, 2020).

Requirements for employing teledentistry

A standard system of Store and Forward teledentistry system comprises- an intra-oral video camera, digital camera to capture pictures, a desktop computer with considerable hard drive memory, sufficient RAM, high-speed processor, scanner and a printer may also be needed.

Grossly, there are three types of dental emergencies cited by a study done in French maritime Telemedicine assistance at sea, which are dental abscess, dental fracture and tooth decay. Such emergencies are generally managed by prescribing drugs, mostly a combination of amoxicillin/ clavulanic acid is prescribed (Binaisse *et al.*, 2020).

Tele-dentistry can be used to monitor post-surgical patients for regular follow up, and this can help to record their pain score and assessment of functional recovery.

In this difficult time of COVID, teledentistry can be benefited to those having precancerous lesions. As any clinical modification of the lesion should be evaluated to assess the chance of malignant transformation.

Without making precise telediagnosis, teledentistry can help to differentiate potentially malignant and malignant lesions and thus appropriate immediate measure can be taken (Giudice *et al.*, 2020).

Dentist's perspective to teledentistry

A survey was conducted to evaluate the perception of Australian dentists towards teledentistry by E Kruger et al., which shows that dentists expressed optimism with respect to the usefulness of teledentistry for patients than its usefulness in dental practice. Maximum assenters felt that telemedicine in dentistry would be useful in enhancing dental practice and patient management (Estai *et al.*, 2016). Lack of direct contact and inability to carry out a complete investigation may lead to uncertainty about the accuracy of the diagnosis, indefinite guidelines regarding payment, the cost of set-up, time, security, increased chance of privacy violation and medicolegal issues are some of the initial barriers cited by dentists with respect to teledentistry (Palmer *et al.*, 2006).

Patient's perspective to teledentistry

Roland Petcu conducted a study to assess the patient's notion of teleconsultation, in which he assessed positive and negative affect variables. Negative variables include scare, nervousness, and agitation and hostile; on the other hand, attentiveness, enthusiasm, interest were the positive variables. 43 per cent of patients did not get scared, while psychotic patients showed more tendencies towards getting scared as compared to non-psychotic. Women and psychotic patients showed more tendency towards getting agitated as compared to men and non-psychotic patients, respectively. 86 per cent patient did not get hostile. 30 per cent of patients showed decreased attentiveness or non-attentiveness; 51 per cent of patients evaluated

showed non-enthusiasm, and 50 per cent of patients did not show interest in teleconsultation. Additionally, we should guarantee that all patients have impartial access to this significant asset. We should contact people with poor social networks, poor technological understanding, and who lacks access to technology. There are no defined measures or protocols for telemedicine; this may expand the odds of the supplier to be accused of protests of malpractice. The policymakers ought to give proceeding with clinical instruction that meets the changing needs of patients. We should exploit at this unordinary time in which telemedicine will become an important part of medicinal services conveyance to study procedures and results through programmatic assessment and research to direct best practices in the future (Khatib *et al.*, 2018).

Fear, anxiety and nervousness are mainly associated with the lack of knowledge of technology, technology anxiety as well as fear of receiving dental treatment (Baliga, 2018). Thus, it can be concluded that fear of technology, dental phobia and fear of the camera plays an important role in patient's teledentistry experience. Tele-dentistry has proved that it has the ability to recognize the population at higher risk, to provide referrals to dental consultants and thus avoiding unnecessary travel and reducing waiting lists. At the time of highly infectious COVID-19, teledentistry can be considered as ideal for the treatment and management of dental problems (Petcu *et al.*, 2017).

Advantages of telehealth in COVID-19

1. These are proven systems for providing palliative care and management to the people in need (Calton *et al.*, 2020)
2. These can increase emergency response in biological (such as COVID-19) and environmental hazards (Smith *et al.*, 2020)
3. These enable remote triaging of care and provision of information (Smith *et al.*, 2020)
4. These can help in providing speedy access to specialists who are not immediately available personally. (Gaidhane *et al.*, 2018)
5. These reduce the out-patient and thus decreasing the burden of clinicians in-turn minimize the risk of exposure of physicians, dentists as well as patients (Lurie and Carr, 2018)

Barriers or limitations of telehealth

1. Healthcare providers should be trained with appropriate education regarding the provision of telehealth (Smith *et al.*, 2020)
2. Some physical examinations (such as listening to sounds of hearts, lungs, or other organs) and diagnosing measures (imaging, cultures) are not possible to perform distantly (Smith *et al.*, 2020)
3. Clinicians unwillingness to adopt telehealth (Smith *et al.*, 2020)
4. Low level of motivation as well as lack of compliance of patients (Behere *et al.*, 2017)
5. Lack of funding leads to slow adoption of telehealth in practice.
6. It requires policies, operational telehealth network and technology infrastructure (Smith *et al.*, 2020)
7. Poor technical awareness and lack of access to technology are the most significant barriers of telehealth (Calton *et al.*, 2020)

CONCLUSION

In spite of the fact that we may not ready to anticipate the event and the timing of the cataclysmic event and irresistible pandemics, we can be certain that they will happen again later on. The COVID-19 isn't the first and won't be the last experience. Electronic media has been accounted for as an important part of everyday life for all. The adequacy of broad communications drives in changing conduct and improving human services conveyance rehearses in youngsters have been assessed already in surveys of the writing. Telemedicine has a critical role in emergency responses. It is significant that clinician's training mentions confinements of telemedicine and illuminates regarding elective strategies for data assembling that can be utilized in such circumstances.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

REFERENCES

Alabdullah, J. H., Daniel, S. J. 2018. A Systematic Review on the Validity of Teledentistry. *Telemedicine and e-Health*, 24(8):639–648.

Baliga, S. M. 2018. Indian pediatric dentistry blueprint for 2020. *Journal of Indian Society of Pedodontics and Preventive Dentistry*, 36(4):327–327.

Behere, P., Mansharamani, H., Kumar, K. 2017. Telepsychiatry: Reaching the unreached. *Indian Journal of Medical Research*, 146(2):150–152.

Binaisse, P., Dehours, E., Bodéré, C., Chevalier, V., Bonnabesse, A. L. F. 2020. Dental emergencies at sea: A study in the French maritime TeleMedical Assistance Service. *Journal of Telemedicine and Telecare*, 26(5):285–293.

Calton, B., Abedini, N., Fratkin, M. 2020. Telemedicine in the Time of Coronavirus. *Journal of Pain and Symptom Management*, 60(1):e12–e14.

Calton, B. A., Rabow, M. W., Branagan, L., Dionne-Odom, J. N., Oliver, D. P., Bakitas, M. A., Fratkin, M. D., Lustbader, D., Jones, C. A., Ritchie, C. S. 2019. Top Ten Tips Palliative Care Clinicians Should Know About Telepalliative Care. *Journal of Palliative Medicine*, 22(8):981–985.

Coiera, E. 2002. Essentials of Telemedicine and Telecare. *BMJ*, 324(7345):1104–1104.

Costa, C. B. D., da Silva Peralta, F., de Mello, A. L. S. F. 2020. How Has Teledentistry Been Applied in Public Dental Health Services? An Integrative Review. *Telemedicine and e-Health*, 26(7):945–954.

Estai, M., Kruger, E., Tennant, M. 2016. Perceptions of Australian dental practitioners about using telemedicine in dental practice. *British Dental Journal*, 220(1):25–29.

Gaidhane, A., Sinha, A., *et al.* 2018. A systematic review on effect of electronic media on diet, exercise, and sexual activity among adolescents. *Indian Journal of Community Medicine*, 43(5):56–65.

Giudice, A., Barone, S., Muraca, D., Averta, F., Diodati, F., Antonelli, A., Fortunato, L. 2020. Can Teledentistry Improve the Monitoring of Patients during the Covid-19 Dissemination? A Descriptive Pilot Study. *International Journal of Environmental Research and Public Health*, 17(10):3399–3399.

Khan, S. A., Omar, H. 2013. Teledentistry in Practice: Literature Review. *Telemedicine and e-Health*, 19(7):565–567.

Khatib, M., Sinha, A., *et al.* 2018. A systematic review on effect of electronic media among children and adolescents on substance abuse. *Indian Journal of Community Medicine*, 43(5):66–72.

Lurie, N., Carr, B. G. 2018. The Role of Telehealth in the Medical Response to Disasters. *Jama Internal Medicine*, 178(6):745–746.

Moazzami, B., Razavi-Khorasani, N., Moghadam, A. D., Farokhi, E., Rezaei, N. 2020. COVID-19 and telemedicine: Immediate action required for maintaining healthcare providers well-being. *Journal of Clinical Virology*, 126:104345–104345.

Palmer, N. G., Yacyshyn, J. R., Northcott, H. C., Nebbe, B., Major, P. W., Flores-Mir, C. 2006. Perceptions and attitudes of Canadian orthodontists regarding digital and electronic technology. *Journal (Canadian Dental Association)*, 72(3):243.

Petcu, R., Kimble, C., Ologeanu-Taddei, R., Bourdon, I., Giraudeau, N. 2017. Assessing the Patient's Perception of Oral Teleconsultation. *International Journal of Technology Assessment in Health Care*, 33(2):147–154.

Smith, A. C., Thomas, E., Snoswell, C. L., Haydon, H., Mehrotra, A., Clemensen, J., Caffery, L. J. 2020. Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19). *Journal of Telemedicine and Telecare*, 26(5):309–313.

