


Human Journals

Review Article

September 2020 Vol.:16, Issue:3

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Telemedicine in an Era of Pandemic: A Review



IJSRM
INTERNATIONAL JOURNAL OF SCIENCE AND RESEARCH METHODOLOGY
An Official Publication of Human Journals



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Submission: 24 August 2020
Accepted: 31 August 2020
Published: 30 September 2020



HUMAN JOURNALS

www.ijsrm.humanjournals.com

Keywords: COVID -19, Telemedicine, Telehealth, WHO

ABSTRACT

World Health Organization (WHO) declared Coronavirus as a pandemic on March 11, 2020. In the midst of this barrage a ray of hope in the name of 'Telemedicine' has given a chance to survive through this situation. The increased usage of telemedicine will minimize the burden on hospitals which are dealing to fight against COVID-19. The outbreak of the virus was so sudden that the implementation of Telemedicine was a difficult task to be put forth for healthcare providers as well as patients. The aim of the study is to uncover how telemedicine is helping fight COVID-19, discover the advantages of increasing usage of telehealth and the barriers that would come across, and also ways to overcome those obstacles. It's a descriptive study with secondary data collection from various websites, articles and journals. The study concludes that Telemedicine is a great tool for managing COVID-19. It can reduce the spread of virus if used as an effective tool. It will increase the productivity and scope of healthcare providers in treating large number of patients, lower the risk of healthcare providers getting infected by the virus as least contact would be made with patients. Philips with the help of some UN agencies have worked together to deliver healthcare to people who cannot reach out, through Telemedicine in some parts of Africa, many start-up companies have developed new technologies in relation to Telemedicine to dull the effect of the virus. Post this pandemic, healthcare workers should keep the usage of Telemedicine at an increasing rate. It can reduce the problems related to the shortage of resources, issues posed by elderly age group and related to accessibility, aggressively deploys large number of healthcare providers to give triage so that front-line clinicians are not under pressure by new cases.

INTRODUCTION:

Earlier telephonic consultations were used, but today Telemedicine, with each advancement and involvement of complexed telecommunications and computer technologies it has become accessible, affordable and easier to provide healthcare services even at the most remote areas of the world.[1]

Telemedicine links the convenience, low cost and 24/7 accessibility of health-related information and communication using the network and technologies. [1]

Telemedicine can be in various forms like Online consultations, Telemonitoring/screening, Sensor, Chatbots etc. [1]

The study conveys how Telemedicine is helping to handle COVID-19 and the benefits of implementing it. In such chaotic situation, Telehealth can bring a change in spreading of the virus. Telemedicine has the power to connect patients to doctors while sitting at home, which turns out to be safer for both patients and doctors. The constraints faced by implementation of Telemedicine, how to overcome those for better results.

A catastrophe hit the world in a form of a virus, COVID-19 which created a sense of destruction around people. As per the information, World Health Organization (WHO) declared COVID-19 as a pandemic on March 11, 2020.[2] With a great effect of the virus, governments of various countries have made their plans on how to deal with this kind of pandemic and prepare themselves for the worst as well. In the midst of this barrage a ray of hope in the name of 'Telemedicine', it has given a chance to survive through this spread of virus. Telemedicine could play a vital role in surviving through this pandemic. [3]

Not only coping up with COVID-19, but health workers were in a puzzle as how they were going to handle patients with trauma, and other acute or chronic diseases, that's where Telemedicine stepped in. As social distancing is the only key method to stop the spreading of the virus, health workers are opting to provide care to their patients while making them to stay at their place. This will not only maintain the social distance which is required to be adhered as to keep the virus at a harm's way but to provide patient care as well as its their utmost priority.

Since Coronavirus is a respiratory virus, inflammation of lungs, fever, hypogeusia-loss of sensation of taste and cough are some of the symptoms which are mostly seen in a patient with this virus, so people who are more prone to get infected by this virus are those who have compromised immunity, asthma, chronic or acute respiratory disease.[1] Some of the people may confuse their symptoms of normal allergic rhinitis with Coronavirus, so it's primarily important to educate all the people about it so that people at low risk stay at home and not get infected by chronically ill patients and due to already shortage of resources, appropriate treatment can be provided to infected and needed patients. [3]

Telemedicine has the ability to help by permitting moderately ill patients by giving them primary care they require and also reducing their vulnerability to other extremely ill patients. The increased usage of telemedicine will minimize the burden on hospitals which are dealing to fight against COVID-19. Telemedicine is the consummate way for managing communicable diseases. The most indispensable component of reducing the transmission of virus is maintaining 'social distancing', for patients who might be infected with the virus, can be given the right help through telemedicine with remote assessment (Triage) and care can be provided to them through various channels. Patients who are not infected by the virus but their chances are higher of getting infected by the virus, especially with immunocompromised diseases, older patients, telemedicine can dispense appropriate access to routine care without making them put through the probability of exposure in an overflowing hospital.

Few constraints faced during the implementation of Telemedicine in such outbreak can be overwhelming. Firstly, people are used to a certain way they have been dealing with their health, a sudden change can create problem to adapt.[2] Most of the patients are already dependent on a provider through Telemedicine, so they might not be complacent with other provider as they have a certain level of rapport with their previous provider. There are a lot of people who have no idea about Telemedicine yet, how it works, how it can help them, how to access it. [2]In addition to all the obstacles mentioned above, certain barriers are present due to healthcare providers. Majorly, it deals with their compliance and acknowledgement towards. Telemedicine, an outbreak like COVID-19 requires them to be proficient and competent to change their mode of delivery of services at the time of such crisis. [2] Healthcare providers are usually unwilling to take upon Telemedicine as they are under the impression that it's compounded and disorderly

and it would require a large amount of time for them to learn new channels to deliver their services to the patients. Since there is a finite amount of training being provided about Telemedicine in various medical, nursing and other healthcare programs, some healthcare providers have no expertise and experience about Telemedicine. [2] Remuneration is another factor for slow growth of Telemedicine. Adequate funding is required to deal with a pandemic like COVID-19.

These barriers can be overthrown by taking certain steps, first and foremost by providing adequate training to the healthcare professionals, making them understand that it's a beneficial tool against fighting a pandemic like COVID-19. Then educating people about how accessible Telemedicine is and how it is an effective and safer way under the given circumstances. [2] For handling the complacency of patients with new healthcare providers, Social and Behaviour Change Communication can be used as a strategy, where it promotes positive behaviour which are according to their environment using certain communication theories and modules, which brings out the desirable behaviour in patients and healthcare provider relationship. Providing adequate network for remuneration coverage for physicians using Telemedicine as a tool for giving care to patients. [2] Maintaining the reduction in the cost of usage of Telemedicine.

In US many healthcare givers for example, Spectrum Health and Mcleod Health has started offering free Telemedicine services for COVID-19. Soon after initial consultation is finished, patients are then evaluated further if necessary. [5] Countries who have ample staffing and resources can help countries with limited resources through an agreed and established framework of Telemedicine. [6] Integration of Telemedicine into healthcare system can maximize the efficacy and efficiency of quality medical-care services provided to patients during COVID-19. [7]

Research Questions:

1. Is telemedicine helping in any way to cope up with COVID-19?
2. What are the benefits and barriers of using telemedicine as a tool to fight against COVID-19?
3. What are the new innovations made in telemedicine during COVID-19?
4. How can the barriers can be moved away in such pandemic?

Rationale: The aim of this study is to check on the use and efficacy of Telemedicine in COVID-19 if any.

Methodology:

A literature review based descriptive study was done by collecting secondary data from various websites, articles and journals with an aim to conclude whether Telemedicine is a desirable way to alleviate the effect of the virus. Thorough review of 12 articles were done which were taken from Researchgate, Sciencedirect journal, Sagepub journal, Publons etc. The keywords used for retrieval of articles were *Telemedicine, Telehealth* in combination with *Coronavirus, COVID-19, Pandemic*. Only those articles were included which had relationship between COVID-19 and TELEMEDICINE for this study the rest were excluded.

CONCLUSION:

The study concludes that Telemedicine is a great tool for managing a pandemic like COVID-19. Though there are some barriers but keeping in mind the benefits of increasing the usage of Telehealth, it can change the face of health altogether. Telemedicine can surely reduce the growth of transmission of virus. It can be used as an effective tool in fighting with Coronavirus. Increased usage of Telehealth will minimise the risk of people getting infected by the virus by keeping them out of waiting rooms and healthcare facilities which can be a source of spreading the virus.[2] Constant care can be provided to those patients as well who are not infected by COVID-19 but are prone to it most likely, elderly people and immunocompromised.[3] Telehealth will increase the productivity and scope of healthcare providers in treating large number of patients. It will lower the risk of healthcare providers getting infected by the virus as least contact would be made from the patients. Moderately ill and suspicious cases can be treated at home and observed remotely which will directly save time and resources which are already in shortage and can be used for severely ill patients. [3]

Telemedicine can change the face of providing care to remote areas where resources and infrastructure is finite. Countries like Indonesia and Africa have started benefitting from Telehealth. Healthcare givers have thought of a way to help people who cannot reach out, through Telemedicine with the help of Philips and UN Agencies in some part of Africa.

There have been many start-ups and companies which are developing new technologies in relation to Telemedicine to alleviate the effect of the virus.

Table No. 1: Start-Up Companies for COVID-19 [4]

Name of the Company	Launched by	Characteristics	Benefits
CURATESS - REMOTE CARE PLATFORM	United States of America	Bluetooth devices which are approved by FDA which allows clinicians to listen respiratory and cardiac sounds with the help of a stethoscope. Their management platform includes Electronic Health Records (EHR) which does not require any hardware for it.	Enables remotely patients visit physicians through high definition audio and video calls which is created by HIPPA-compliant remote care management platform.
Eko REMOTE AUSCULTATION AND CARDIAC SCREENING	United States of America	Built a DUO approved by FDA which is a combination of an electronic stethoscope and handheld ECG.	Provides high-reliability lung auscultation to identify sounds which are linked with pneumonia or acute respiratory distress syndrome (ARDS) which is one of the utmost persistent complications of COVID-19. DUO allows actual time transmission of sounds from the lungs, heart and ECG.
WELLDONING-VIRTUAL	United Kingdom	Started giving a therapist session for	To deal with these problems by creating

THERAPIST		in-person and online therapy. Here therapist deals with patients having stress, anxiety, depression, relationship problems and grief.	a virtual therapist platform where people can connect and discuss their mental issues.
e VISIT- VIRTUAL MEDICAL CONSULTATION	United States of America	Virtual ED, which is specifically designed for Coronavirus workflow configuration of their platform.	It enables clinicians to perform virtual meetings for COVID-19, in addition to this they provide treatment to non-emergent patients as well at their home.
VIVIFY HEALTH-REMOTE MONITORING PLATFORM	United States of America	Built a new pathway where they enable patients to self-screen themselves for symptoms related to COVID-19 by answering significant questions.	Provide information on how to move ahead. All the information is saved, if any clinician wants to reach out for a particular patient can do so.

Since COVID-19 wasn't the first one and definitely will not be the last one, but one can be ready to face a pandemic like this in future. Telemedicine plays a vital role in managing such situations, it aggressively deploys large number of healthcare providers to give triage so that front-line clinicians are not under pressure by new cases. It also decreases the transmission of communicable diseases like COVID-19.

There are few things which are to be kept in mind for future purposes. Post pandemic, healthcare workers should keep the usage of Telemedicine at an increasing rate. It can reduce the problems related to the shortage of resources, issues posed by elderly age group and related to accessibility. The flaws in relation to implementation of Telemedicine should be considered for

improvement. Healthcare workers have to ensure a better workflow towards Telemedicine in the future.

It is important to strategize the growth of Telemedicine nationally and globally for such emergent situations like COVID-19. To ensure appropriate integration of Telemedicine not just during this pandemic but also routinely, few steps can be done regularly:

- Training should be provided related to Telemedicine to all healthcare providers.
- Awareness and education to be provided to the people regarding the benefits of using Telemedicine as an alternative for future in such pandemic.
- Adequate funding is required for a better delivery of care.
- Continuous urge to do better and develop new ways to provide care to people through Telemedicine.[2]

The use of Telemedicine has been implemented out of obligation to maintain the perpetuity of healthcare for needy. Thus, there is a need to provide guidelines, education and training for both patients and healthcare providers for best usage of Telemedicine. [7]

Acknowledgement:

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I would like to thank Dr. Pankaj Talreja, Assistant Professor, IIHMR, New Delhi for the support and his guidance.

REFERENCES:

1. Vidal-Alaball, J., Acosta-Roja, R., Pastor Hernández, N., Sanchez Luque, U., Morrison, D., Narejos Pérez, S., Perez-Llano, J., Salvador Vèrges, A., & López Seguí, F. (2020). Telemedicine in the face of the COVID-19 pandemic. *Atencion Primaria*, 52(6), 418–422. <https://doi.org/10.1016/j.aprim.2020.04.003>
2. Smith, A., Thomas, E., Snoswell, C., Haydon, H., Mehrotra, A., Clemensen, J., & Caffery, L. (2020). Telehealth for global emergencies: Implications for coronavirus disease 2019 (COVID-19). *Journal of Telemedicine and Telecare*, 1357633X2091656. <https://doi.org/10.1177/1357633X20916567>
3. Shahpori, R., Hebert, M., Kushniruk, A., & Zuege, D. (2011). Telemedicine in the intensive care unit environment—A survey of the attitudes and perspectives of critical care clinicians. *Journal of Critical Care*, 26(3), 328.e9-15. <https://doi.org/10.1016/j.jcrc.2010.07.013>
4. *5 Top Emerging Telehealth Solutions Tackling The Coronavirus Pandemic*. (2020, April 3). StartUs Insights. <https://www.startus-insights.com/innovators-guide/5-top-telehealth-solutions-impacting-remote-healthcare-during-the-coronavirus-pandemic/>
5. Novel coronavirus (COVID-19): Leveraging telemedicine to optimize care while minimizing exposures and viral transmission Chauhan V, Galwankar S, Arquilla B, Garg M, Somma SD, El-Menyar A, Krishnan V, Gerber J,

- Holland R, Stawicki SP - J Emerg Trauma Shock. (n.d.). Retrieved September 13, 2020, from <http://www.onlinejets.org/article.asp?issn=0974-2700;year=2020;volume=13;issue=1;spage=20;epage=24;aulast=Chauhan>
6. Bokolo Anthony Jnr. (2020). Use of Telemedicine and Virtual Care for Remote Treatment in Response to COVID-19 Pandemic. *Journal of Medical Systems*, 44(7), 132. <https://doi.org/10.1007/s10916-020-01596-5>
7. *Telemedicine takes centre stage during COVID-19 pandemic*. (n.d.). Retrieved September 13, 2020, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7316111/>
8. *Telehealth in the time of COVID-19*. (2020, March 31). Mobi Health News. <https://www.mobihealthnews.com/news/europe/telehealth-time-covid-19>
9. Bashshur, R., Doarn, C. R., Frenk, J. M., Kvedar, J. C., & Woolliscroft, J. O. (2020). Telemedicine and the COVID-19 Pandemic, Lessons for the Future. *Telemedicine and E-Health*, 26(5), 571–573. <https://doi.org/10.1089/tmj.2020.29040.rb>
10. Portnoy, J., Waller, M., & Elliott, T. (2020). Telemedicine in the Era of COVID-19. *The Journal of Allergy and Clinical Immunology. in Practice*. <https://doi.org/10.1016/j.jaip.2020.03.008>
11. MacNeill, V., Sanders, C., Fitzpatrick, R., Hendy, J., Barlow, J., Knapp, M., Rogers, A., Bardsley, M., & Newman, S. P. (2014). Experiences of front-line health professionals in the delivery of telehealth: A qualitative study. *The British Journal of General Practice*, 64(624), e401–e407. <https://doi.org/10.3399/bjgp14X680485>
12. Price, S. (2020, April 17). Telehealth and coronavirus: Reducing the impact of the pandemic. *Health Europa*. <https://www.healtheuropa.eu/telehealth-and-coronavirus-reducing-the-impact-of-the-pandemic/99433/>

