

Orthopaedic Outpatient Clinic Versus Teleconsultation during COVID-19; The Good, the Bad and the Ugly Aspects: A Perspective from a Developing Country

Abstract

The orthopaedic clinics and departments during the COVID pandemic have endured a phase of uncertainty. The healthcare provider and recipient have been affected alike. Surgeons have faced innumerable challenges in providing adequate support and guidance to recipient for an effective orthopaedic management.

The traditional orthopaedic outpatient clinics are a lively entity. The patient presents with varied degrees of debilitation associated with either an injury or a pathological disease entity. The outpatient presentation includes disablement aggravated due to old age, degenerative disease process or an unresolved painful joint pathology. Routinely, clinics have high occupancy and are crowded with distressed disabled patients. The recipients have profound need for assistance in clinics due to either the temporary disablement or permanent disability during their outpatient management and care.

Teleconsultation has emerged as a safer and viable option for maintaining doctor-patient communication and providing solutions to their medical problems. The positive impact on the health care functioning has been undeniable. The good has been associated with bad and ugly aspects related to teleconsultation or telemedicine for both the healthcare provider and the recipient. The positive impact of an easy availability for a healthcare guidance is over-shadowed by the negative aspect involving the legal issues in its usage with additional vulnerability for abuse and misuse of available data during a teleconsultation. They are important factors for advocating telehealth in future.

The surgeon's need to follow the established guidelines for both the regular and virtual outpatient clinic. The orthopaedic surgeon's awareness of the nuances of teleconsultation will empower them to practice safe and effective management. The focus should remain to provide the patient-centric services for the well-being of the recipient.

Keywords:

Coronavirus; Covid-19; Fracture clinic; OPD; Orthopaedics; Outpatient practice; Surgical clinic; Teleconsultation; Telemedicine; Virtual OPD;

INTRODUCTION:

The dynamics of healthcare in India are skewed as in most of the developing countries. There has been a paucity of allopathic doctors (1:10926 population) against the recommended World Health Organization's minimum criteria for allopathic doctors of 1:1000 population [1,2]. There has been tremendous pressure on the already deficit health care system in India and it could be felt even more during the COVID-19 pandemic with limited resources and infrastructure [1,3].

Ever since the pandemic affected the normal social interactions of the society, the healthcare has been adapting and innovating to find the effective ways to remain connected to the patient to provide them with relevant guidance and management strategies. Telemedicine (TM) was in a nascent stage in the pre-COVID-19 era and it was under critical evaluation as a means for providing the clinical care [4]. TM in Covid-19 era has emerged as an alternate viable option, presently adopted for regular visits, follow-up visits or in the management of non-emergency orthopaedic cases [5,6].

The orthopaedic outpatient clinic (OPD) has evolved from a regular clinic to a COVID-appropriate or a virtual OPD. We present a brief about the different OPD's functional aspects. TM has emerged as an integral part of the regular daily OPD practice in the the COVID-19 era. We reviewed the literature and present our perspective on the positive impact, the negative outcomes and the unwarranted ugly issues involved with a virtual orthopaedic OPD. We also assess its impact on the healthcare provider (HCP) and the recipient.

Regular Orthopaedic OPD:

In the pre-COVID period, there were myriad ways of conducting a regular traditional orthopaedic OPD in developing countries. In general, the government, corporate, or private institutions orthopaedic OPD's are managed by multiple orthopaedic specialists in addition to super specialists, paramedics and trained staff along with the general duty assistants. The essential requirements have been multiple OPD chambers involving either a hall setting or multiple smaller cubicles along with a waiting area and a registration area. Additionally, OPD's are associated with a plaster room, dresser area and physiotherapy room with assistants, subordinates and support staff to assist in the management of the outdoor orthopaedic patient.

The regular OPD's allowed for the doctor-patient physical interaction with an advantage for the clinician to conduct the physical assessment and evaluation. The OPD's are generally crowded, since an orthopaedic patient generally needs to be assisted. The patient may have an associated temporary handicap or a permanent disability, furthermore requiring mobility support devices and personnel for managing one's routine daily activities. The OPD in corporate or private institutions may be better spaced-out based on the available infrastructure. An additional advantage in the corporate institutions has been to keep the flow of patients better organised and streamlined with an appointment-based consultation.

Generally, the regular OPDs are disadvantaged as the orthopaedic patient requirements remain similar to government set up, in terms of supportive manpower and mobility devices. The usual operating protocol in the pre-COVID OPD's followed a close contact between the HCP and the recipient. Also, the HCP has multiple interactions with the recipient as one may have to address multiple issues involving physical evaluation, radiological assessment, wound dressing, plaster application, or rehabilitation training in the OPD.

COVID-19 Era Physical Orthopaedic OPD:

In the COVID-19 era, the orthopaedic clinics in the hospitals have adopted the necessary COVID-19-appropriate behaviour. The need of the hour was to reduce the unnecessary healthcare visits and explore alternatives for face-to-face triage and OPD visits. Use of One patient- One attendant norm with social distancing for a regular physical OPD was advocated [7]. In our personal experience during the COVID-19 era, the "Six S" needed for an effective OPD included (1) Space segregation, (2) Screening of patient, attendant & staff, (3) Seating with social distancing measures, (4) Sanitization & disinfection, (5) Safety gears and (6) Staff management.

The routine protocol for OPD management starts with the registration of a patient [7]. The "e-registration" can be promoted, practiced, and implemented amongst the educated class with a

provision for telephonic or spot registration for the uneducated class. The purpose was to minimize physical appointments and do a planned scheduling of OPD visits [7]. The help desk should be instructed for thermal screening of the patients and attendants. The protocol to inquire CCCATTT-Contact, Containment, Cough, Appointment booking, Temperature, Travel, Trouble can be followed [7]. The OPD staff should be reduced in numbers with regular rotation system and re-allotment so as to maintain their health and mental status. **A quarantine facility** and frequent breaks in duty should be provided to the staff.

The infrastructure can be modified with installation of sanitized transparent barriers, sheets, or ceilings to separate the doctor sitting area from the patient sitting and examination area. The waiting area in an OPD should have spaced-out seating arrangements [7]. OPD hall should have ventilation of more than six air changes per hour and minimum hourly averaged ventilation rates of more than forty liters per sec per patient with an adequate number of windows and exhaust fans [7]. Rooms should be disinfected after every patient with one percent hypochlorite solution; especially the furniture like patient seat and examination couch which comes in direct patient contact. The use of face masks, cover gowns, and hand **sanitizer** as routine protection have been identified and implemented in routine OPD practice [3]. Couches should be covered with waterproof sheets which can be disinfected easily [7].

The OPD chamber requirements **are extended** for a separate assessment and procedure room. **An additional** separate follow-up OPD chamber for dressing, suture removal, and plaster application should be developed [3]. The use of a plaster cast cutting oscillating saw is not considered an aerosol-generating device if used safely [7]. Removable splints, plaster **slabs**, and braces are preferred to avoid plaster cutting saw usage. **The guidance** states that for both the COVID positive and COVID unknown, the plaster technician should **wear a mask** which are fluid resistant type, single-use apron, gloves **and** protective eyewear. Cover OPD computer with transparent plastic sheets preferably to allow easy disinfection [7]. Shift image intensifier to OPD to avoid visits to radiology department.

Use of e-prescription/ digital investigation reports/digital payments should be preferred to reduce visits. Give **one-stop treatment**, minimal follow-up visits, and avoid inter-departmental referrals, if possible. Minimize investigations and follow-up radiographs. They may be advised only when one expects that it may have a drastic impact on patient's management. Use videos or online rehabilitation tools for patient training and management.

Teleconsultation or Virtual OPD:

The pandemic had affected the world with its unprecedented and unique challenges. Virtual OPD has been an innovative method of communication during the pandemic. TC provides with its very own "the Good, the Bad and the Ugly" aspects for the HCP and the recipient.

The good issues of TC **with positive impact** have been an easy availability and better reach of clinical care with economic viability and high recipient satisfaction rate [4,8]. TC avoids any direct contact or exposure during COVID-19 for HCP and recipient [7]. TC has been rewarding in providing medical consultations to inaccessible remote areas with poor transport facilities and vulnerable physically challenged patient **groups** [9]. Over-crowding of the regular OPD **have been minimized** with TC [10]. TC can provide important information on selfcare for an orthopaedic patient and can also channelize the medical management of orthopaedic issues which can be resolved without physical assessment [10]. TC has been effective in virtual follow-up for low risk surgical category procedures [6]. TC allows follow-up evaluation of operated cases, providing the inputs on physiotherapy or home-based exercises **programs** and guidance for the need to consult for physical examination [9]. TC has been effective for the pre-operative assessment with relatively similar outcomes as with an in-person consultation. Though for the paediatric age group, preference **has been** for an in-person consultation for a reasonable assessment [6]. TC allows scheduling of OPD consults as per the provider's own personal choice in relation to timing and duration from the safe confines of either home or clinic cubicle. TM has also been contemplated as a useful tool for the assessment, follow-up, and management of orthopaedic joint replacement patient groups with the help and use of web-based assessment tools to a reasonably accurate guidance [6].

The bad issues of TC **with a negative impact** have been the poor adoption of TM in developing countries **with a wide** difference in rural and urban settings of the community at large [11]. In

developing countries, there are areas with significant lack of awareness and high implementation costs denying the rapid infrastructure development for a virtual OPD [6,11]. The prerequisite for an effective TC has been a robust administrative team with a bankable infrastructure which is mostly lacking due to financial constraints [6]. There are issues of good audio or video quality with an inadequate lightning compounding the effectiveness of a TC due to poor network or broadband speed [11]. The virtual interaction lacks physical examination, **has the poor** perceived benefit of virtual care and financial viability may be a hindrance [4]. The financially challenged groups cannot afford quality smartphones and internet connectivity so as to maintain adequate communication [11]. Poor educational and technological literacy rates in developing countries are other compounding factors for the rapid development of TC [11]. The access to multiple channels of communication for an effective TC can be a hindrance [6]. The sharing of personal information, and the medical records during a **TC** **has** susceptibility for misuse and hence, HCP and recipient needs protective laws and administrative guidelines to keep the TC ethical and maintain data confidentiality and privacy to curb the menace linked to social interactions. Privacy issues and trust factors are the other issues of serious concern [9]. The financial implication for a virtual OPD as compared to a regular OPD has been an area of debate, dissent and discord. Hence, the virtual OPD in developing countries **is** generally considered as an obligation by the HCP to the recipients to guide them regarding the treatment and follow-up.

The ugly issues of TC have been the medicolegal liability and implied restrictions based on a set pattern of rules and regulations [4,6]. There has been a fickle line of demarcation between a consultation being deemed appropriate according to medical ethics and inappropriateness on part of the HCP or the patient. There have been reports of unusual incidences related to abuse either verbal or sexual misconduct during a virtual consult where the HCP **of the opposite** gender **has** been targeted by the recipient [12]. There remains an undefined level of vulnerability for harassment of HCP by an unscrupulous and unauthenticated recipient. The HCP may be subject to social media trolling which may garner negative feedbacks from the consumers and lead to mental distress. **The stalking** of HCP on social media is a genuine threat. TC has unanswered and unprotected issues related to recipient consent taking, proper clinical record keeping, data hacking, and cybersecurity vulnerability with compromised privacy of the personal medical records [6]. Fraud and inappropriate insurance amount pay-outs for TC are issues gaining importance. The lack of concrete legal background presently to safeguard the HCP and recipients have hampered the progressive use and growth of TC [13]. The TC was granted a legal framework as an “emergency provision” during the COVID-19 pandemic [13]. The authenticity and the admissibility during times of normalcy remain an enigma for HCP.

DISCUSSION:

There has been an apprehension amongst the HCP and recipient regarding **the transmissibility of the viral infection** in the COVID-19 era pandemic, posing unique challenges in the conduction of the regular orthopaedic OPD. To mitigate the concerns, there has been a shift in focus from a regular orthopaedic OPD to a TC OPD to avoid overcrowding in OPD's [9]. The feasibility of maintaining the follow-up and achieving high satisfaction rates amongst the respondents has been reported extensively [9].

COVID-19 pandemic has debunked the myths related to TM. **The need of the hour during COVID-19 pandemic was to establish a link between the HCP and the recipient to remain connected and approachable.** The governments have allowed the use of TM within the legal ambit and defined protocols. There has been **an increasingly** widespread usage of TC in the developing countries too. Many newer avenues have been embarked upon for the future use of TM for both the HCP and the recipient [6]. **TM has emerged as an “evil necessity” beyond its present utility during the COVID-19 pandemic.**

The improved audio-visual communication technology has revolutionised the ways of inter-personal connectivity and interactions in the COVID-19 era. The need for continuous upgradation of the systems and technology, refinement of TM regulations and widespread utility adoption of TC for patients and HCP's have become a necessity [4]. The medical records need to be computerized and made digitally available for easy access to the records for a near-future scenario of applicable health-care management. **The evolving models of virtual OPD should therefore be discussed.**

The financial implications on orthopaedic practice during the pandemic have been immense. The OPD practice has been affected in COVID-19 era and the practice modules have been modified to include virtual OPD as a routine inclusion. The study on Indian orthopaedic surgeons' OPD practice during the COVID-19 first wave indicated a 90% reduction in OPD patient flow for half of the practicing orthopaedic surgeons and about **a 75%** reduction in their earnings [10]. The study based on

Nepalese orthopaedic surgeons' in a hospital-based OPD practice showed about an 80% reduction in OPD numbers and suggested a significant reduction in numbers on the operative procedures in the initial lockdown period restrictions [14]. The survey conducted amongst Polish orthopaedic surgeons estimated a 20-60% reduction in orthopaedic practice and was associated with high mental stress levels amongst the respondents during the COVID-19 era. The study indicated that only one out of every five practicing surgeons were willing to continue with TC in the future [15]. The financial loss can be partially compensated by TC for a clinician. However, a disparity regarding the remuneration for a TC remains an area of discord between the HCP and the recipient [13]. Any disparity discourages the progressive use of TC by HCP. The orthopaedic surgeons' awareness of both the progression and the limitations of TC will allow for a safe clinic management. Presently, there are numerous regulatory challenges, legal tele-health issues with lack of policies to protect from a malpractice accusation for the HCP [13]. The surgeon therefore, needs to carefully weigh the positive and negative impact of TC on the recipient. In addition, one will need to follow the established guidelines for an effective meaningful TC. The development of standard laws by governments with well-defined reimbursement policies and organized research methodology will benefit the HCP to overcome the negative impacts of TC [13]. We should educate and train the future generation of HCP's for TC. A shared partnership between HCP and health care institutions will empower the orthopaedic surgeons to utilize TC as an effective risk-free tool to enhance their OPD practice.

In our opinion, the orthopaedic surgeon will need to:

- a) Conduct the regular OPD and the TC concurrently.
- b) Establish a link with the recipient to remain connected and approachable.
- c) Adopt TM as an "evil necessity" beyond its present utility during the COVID-19 pandemic.
- d) Upgrade the models of virtual OPD with advances in technology.
- e) Regulate the disparity in financial remuneration associated with the regular and TC OPD.
- f) Understand the limitations and legal implications of conducting a safe TC.
- g) Educate and train the future generations for TC.

CONCLUSION:

The doctor-patient relationship has evolved and the new technology driven systems have given the virtual OPD setting with its good, bad and ugly effects on the providers and patient alike.

The orthopaedic surgeon awareness of the nuances of TC will further empower them to practice a safe and effective OPD. The surgeon needs to follow the established guidelines and norms for both the regular and TC OPD. The focus should remain to provide the patient-centric services for the well-being of the patient.

CONSENT FOR PUBLICATION:

The study did not involve any human or animal and no informed consent was taken.

ETHICS APPROVAL:

Not applied for as the study was a perspective with no personal data being presented or disclosed.

REFERENCES:

1. Kumar R, Pal R. India achieves WHO recommended doctor population ratio: A call for paradigm shift in public health discourse. J Fam Med Prim Care. 2018; 7(5):841–844. doi: 10.4103/jfmpc.jfmpc_218_18.
2. Press Trust of India. Only one allopathic govt doctor for 10,926 people in India: Report 2019 Nov 1. <https://www.indiatoday.in/india/story/allopathic-government-doctor-1614589-2019-11-01>
3. Neradi D, Hooda A, Shetty A, Kumar D, Salaria AK, Goni V. Management of Orthopaedic Patients During COVID-19 Pandemic in India: A Guide. Indian J Orthop. 2020; 27:54(3):402-407. doi: 10.1007/s43465-020-00122-6.
4. Makhni MC, Riew GJ, Sumathipala MG. Telemedicine in Orthopaedic Surgery: Challenges and Opportunities. J Bone Joint Surg Am. 2020; 102(13):1109-1115. doi: 10.2106/JBJS.20.00452.

5. Bagaria V, Sahu D. Orthopaedics in Times of COVID 19. *Indian J Orthop.* 2020; 27;54(3):400-401. doi: 10.1007/s43465-020-00123-5.
6. McMaster T, Wright T, Mori K, Stelmach W, To H. Current and future use of telemedicine in surgical clinics during and beyond COVID-19: A narrative review. *Ann Med Surg (Lond)* 2021; 66:102378. doi: 10.1016/j.amsu.2021.102378.
7. Lal H, Sharma DK, Patralekh MK, Jain VK, Maini L. Out Patient Department practices in orthopaedics amidst COVID-19: The evolving model. *J Clin Orthop Trauma* 2020; 11(4):700-712. doi: 10.1016/j.jcot.2020.05.009.
8. Granja C, Janssen W, Johansen MA. Factors Determining the Success and Failure of eHealth Interventions: Systematic Review of the Literature. *J Med Internet Res* 2018; 20(5):e10235. doi: 10.2196/10235.
9. Kumar S, Kumar A, Kumar M, Kumar A, Arora R, Sehrawat R. Feasibility of telemedicine in maintaining follow-up of orthopaedic patients and their satisfaction: A preliminary study. *J Clin Orthop Trauma* 2020; 11(Suppl 5):S704-S710. doi: 10.1016/j.jcot.2020.07.026.
10. Keshav K, Kumar A, Sharma P, Baghel A, Mishra P, Huda N. How Much has COVID-19 Pandemic Affected Indian Orthopaedic Practice? Results of an Online Survey. *Indian J Orthop.* 2020; 54(Suppl 2):1-10. doi: 10.1007/s43465-020-00218-z.
11. Saud A, Naveen R, Aggarwal R, Gupta L. COVID-19 and Myositis: What We Know So Far. *Curr Rheumatol Rep* 2021; 23(8):63. doi:10.1007/s11926-021-01023-9.
12. Nagrajan R. Women docs sexually harassed during e-consultations, websites try to hide it. *The Times of India* 2020 Dec 29. <https://timesofindia.indiatimes.com/india/women-docs-sexually-harassed-during-e-consultations-websites-try-to-hide-it/articleshow/80001279.cms>
13. Becker CD, Dandy K, Gaujean M, Fusaro M, Scurlock C. Legal perspectives on telemedicine part 1: Legal and regulatory issues. *Perm J* 2019; 23:18-293. doi: 10.7812/TPP/18-293.
14. Kayastha SR, Parajuli B, Basi A, Shrestha D. Orthopaedic Services during Nationwide COVID-19 Lockdown: Dhulikhel Hospital, Kathmandu University Hospital Experience. *Kathmandu Univ Med J.* 2020; 18(70):29-35. PMID: 33605235.
15. Kołodziej Ł, Ciechanowicz D, Rola H, Wołyński S, Wawrzyniak H, Rydzewska K, et al. The impact of the COVID-19 pandemic on Polish orthopedics, in particular on the level of stress among orthopedic surgeons and the education process. *PLoS ONE.* 2021; 16(9): e0257289. doi: 10.1371/journal.pone.0257289

ABBREVIATIONS:

Out-patient Department: OPD

Telemedicine: TM

Teleconsultation: TC

Health care professional: HCP