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Medicolegal And Clinical Governance Challenges in Tele-Orthopedics: A Systematic Review Amidst the Covid-19 Pandemic

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ABSTRACT

The integration of technology in healthcare holds significant promise for lowering the expenses of medical services by enabling informed decisions that ensure timely patient treatment. The advancement of telemedicine brings forth various clinical and legal considerations. Nevertheless, only a limited number of studies have addressed telemedicine within the field of orthopedics. This review examines the ethical and legal challenges associated with tele-orthopedics. The principal legal and clinical governance aspects of tele-orthopedics. The majority of the studies emerged during the COVID-19 pandemic, highlighting the acceleration the pandemic provided to the adoption of telemedicine in orthopedic care. The key topics covered in the existing literature—mostly originating from Western regions—include care quality, patient satisfaction, and safety. The influence of telemedicine in orthopedics remains incompletely assessed, especially regarding potential legal implications. Most research employed qualitative methodologies with limited robustness. Issues such as regulatory approvals, safeguarding patient privacy, and professional accountability are expected to become prominent in the near future.

Key words: Telemedicine, Orthopedics, Medicolegal issues, Patient safety, Clinical governance

INTRODUCTION

In the 1970s, the term telemedicine was invented to describe care given to people without being in the same room [1]. Gradually, there has been a better explanation of telemedicine as the method of using ICT to benefit patients by broadening health options and medical advice. In 1997, the World Health Organization (WHO) said telemedicine was the practice of health professionals using technology to communicate important information about the diagnosis, treatment and prevention of diseases and injuries, as well as research and training, to help both individuals and communities [2]. Understanding telemedicine at present is guided by this definition and means that healthcare providers and patients can interact from different areas, making it easier to offer care and avoid problems created by distance [3]. Telemedicine is available through a variety of major forms or services. Specialized telemedicine offers remote healthcare in a certain medical discipline to assist with various traditional aspects of examinations [4]. These services include televisits with distant patient saw and discussed with a physician; teleconsultations which offer diagnostic and therapeutic recommendations over video without the patient being physically there; and help in healthcare, where one medical person guides another using similar technology [5]. The second type is called telehealth care, using ICT to give healthcare at a distance and help patients monitor their health [8]. The last group is teleassistance, meant to support people at home by using alarms, emergency services or phone calls from a service center [9,10]. The fast growth of telemedicine is leading to new legal problems, mainly about professional liability. So far, few regions have put forward special rules concerning these matters and not many scholars have studied them. Telemedicine is often used in orthopedics and has become part of professional responsibility disputes in courts [11,12]. So, we can expect that tele-orthopedics being used more often will lead to an increase in legal claims. Just like other branches of telemedicine, tele-orthopedics offers consultation appointments, follow-up appointments over the internet (televisit and teleconsultation), collaboration among experts (telecooperation) and remote surgical Operations (telesurgery). However, no reviews have considered all the legal questions that relate to tele-orthopedics so far. This lack of research inspired the present review which is intended to assess the main medicolegal problems in tele-orthopedics.

MATERIALS AND METHODS

Each title and abstract was examined independently by two reviewers to check if the research fit the set criteria. The research team worked together to make and test a data extraction form prior to any data being collected. A total of three reviewers did the data extraction by themselves and when discrepancies needed resolving, the third reviewer took care of that during both screening and extraction. The main outcome metric was to compare tele-orthopedics with traditional face-to-face orthopedics. Any research that described tele-orthopedics as a good more-than-replacement for conventional care was given a "positive" outcome. We chose ten main medicolegal topics for qualitative synthesis: quality, satisfaction with medical care, safety, risk, privacy, happiness of healthcare workers, ethics, failure to diagnose a condition, giving informed consent and professional liability. Authors picked these issues by open discussion and personal estimates through an estimate-talk-estimate Delphi process. The authors reported the rate of each problem in the studies by calculating the proportion. The distributions of positive and negative outcomes were compared using chi-square test strategies for each medical intervention (diagnostics, therapy, follow-up, unspecified). Results were only considered significant when the p-value was less than 0.05.

RESULTS

Table 1: The main outcomes of the different medical fields of intervention among the 37 records that compared tele-orthopedics and face-to-face orthopedics

Main Outcome	**The Medical Field of Intervention**				
		Diagnostics	Therapy	Follow-Up	Undefined
Positive		7	5	12	8
Negative		2	1	3	0

Table 2: Medicolegal and risk management problems among the 72 selected records.

Issues	**Considered (%)**	**Not Considered (%)**
Quality	Fifty (69.4)	22 (30.6)
Patient Satisfaction	48 (66.7)	24 (33.3)
Safety	42 (58.3)	30 (41.7)
Risk	35 (48.6)	37 (51.4)
Privacy	30 (41.7)	42 (58.3)
Practitioner Satisfaction	25 (34.7)	47 (65.3)
Ethics	20 (27.8)	52 (72.2)
Misdiagnosis	18 (25.0)	54 (75.0)
Informed Consent	14 (19.4)	58 (80.6)
Medical Liability	12 (16.7)	60 (83.3)

When 37 studies comparing tele-orthopedics to traditional methods were examined, the outcomes differed between different medical areas. Tele-orthopedics mainly yielded beneficial results in diagnostics, therapy, follow-up and intervention not defined as any particular type (see Table 1). Diagnostic testing was successful in 7 studies, therapy studies produced positive results in 5, follow-up studies found success in 12 and 8 studies examined interventions of unknown type. Only a small number of negative results were found, with most occurring during diagnostics (2 studies), therapy (1 study) and follow-up (3 studies) and no reports in the undefined section. This research indicates that using tele-orthopedics is usually considered effective for follow-ups and examinations carried out virtually, instead of in the hospital. The 72 selected documents outlined in Table 2 include comments about medicolegal and risk management concerns. The biggest topics addressed by the researchers were quality of care (69.4%) and patient satisfaction (66.7%), pointing to the need for strong focus on both standards and what is best for patients in tele-orthopedics. Most studies mentioned safety and risk management, each making up over half of the studies. While privacy and practitioner satisfaction were on the agenda less frequently, they remain important, so data security and provider happiness should not be overlooked. Lesser discussed topics dealt with ethics (27.8%), misdiagnosis (25%), consent (19.4%) and liability (16.7%), indicating that there are gaps in the literature about important ethical and legal rules required for tele-orthopedic practice. Addressing these issues helps Orthopedics move towards wider use and safer implementation of telemedicine.

Figure 1: Tele-orthopedics vs Face-to-Face Orthopedics Main Outcomes by Medical Field of Intervention (37 records)

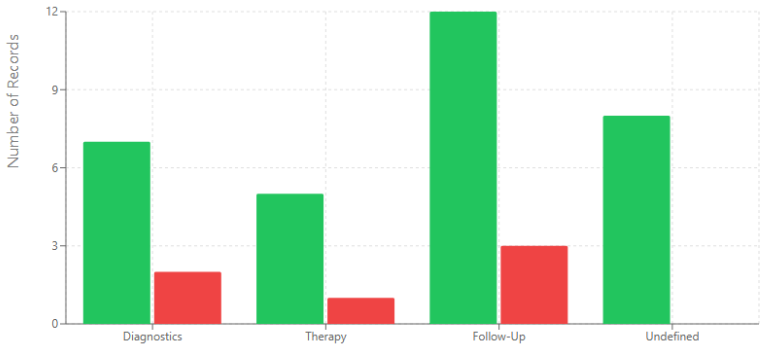
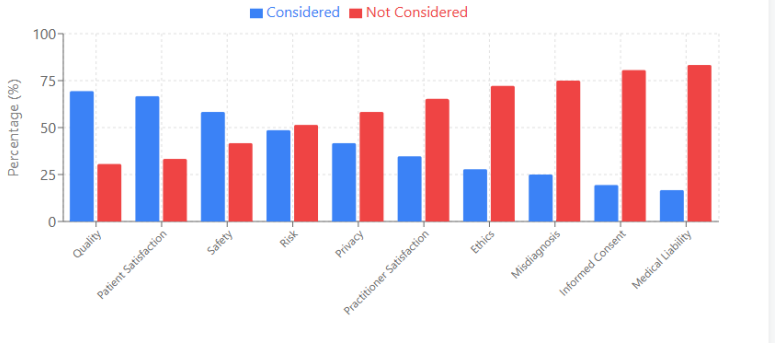


Figure 2: Medicolegal and Risk Management Problems Analysis of 72 Selected Records



DISCUSSION

It was shown during this review that tele-orthopedics is mainly researched for its legal and clinical risk implications. Because the selected studies were qualitative, a meta-analysis could not be done. A total of 72 papers were included and most of them, 60, appeared in 2020 (22) and 2021 (38), showing that the pandemic greatly increased interest in tele-orthopedics. Telemedicine was used by orthopedic professionals more rapidly because of the pandemic [13]. Telemedicine, according to Moisan et al., could improve productivity and give more orthopedic care to patients [14]. A large majority of the studies used in this review were conducted at facilities in North America, Europe, Asia and South America. Claims that telemedicine can conquer geographical limits in healthcare do not fully apply to tele-orthopedics since most studies take place in a small number of areas. Telemedicine is not yet commonly used, according to Krus et al., because of several obstacles holding back its broader use, even in tele-orthopedics [15]. Technology access isn't equal and how easy people find it, if it is helpful to them and if they trust their privacy matters. It shows that both telemedicine providers and users should notice cultural differences and could support standardized approaches for larger uptake of telemedicine [16–22]. Although concerns were mentioned as early as 2002 [23] that telemedicine needed new guidelines and standards, the selected studies did not address the problem. Out of all the papers we reviewed, 44 were original research, 20 were reviews and 8 were different types. Of the initial studies, 37 examined tele-orthopedics against traditional personal visits. The authors considered an outcome to be positive when tele-orthopedics was a good option. Out of all the studies, only 3 (8.1%) encountered negative results that did not vary by clinical activity. Almost all studies found that tele-orthopedics provides similar results to in-person care with respect to medicolegal and risk issues. Even so, solid conclusions have not been reached because the evidence is limited and qualitative. It is possible that mostly positive findings were discovered because of publication bias [24]. Most issues faced concerned care quality (83.3%), patient satisfaction (77.8%) and safety (51.4%), revealing that clinical risk management matters are now central when ICT adopts. This points to a greater focus on the relationship between health professionals and patients and a movement to avoid blaming in healthcare [25,26]. For this reason, many authors believe that using clinical risk management is important for better care in tele-orthopedics. Meanwhile, though medicolegal problems are important, they get less attention than they should. Ethical matters affected 30.6% of the studies, while papers only considered misdiagnosis, informed consent and medical liability in 23.6%, 15.3% and 13.9% of cases. This reveals that considerable critical medicolegal issues are ignored in tele-orthopedics. Yet, telemedicine tools can assist patients in understanding necessary information before making decisions [27,28]. Professionally speaking, telemedicine services are seen as equivalent to routine diagnosis and treatment because they typically support rather than take the place of usual care. As a result, ICT-driven healthcare is commonly judged by the same standards as routine care [29,30]. Even

though a strong doctor-patient relationship matters greatly in orthopedics, matters such as malpractice and how to pay providers remain unresolved in tele-orthopedics [30]. Besides, issues in telemedicine and tele-orthopedics may occur from equipment difficulties, system errors, poor equipment care, incorrect handling of tasks and misunderstanding of data. Such difficulties can place physicians at risk of liability claims which is why it is important for them to be physically or virtually involved in certain services [27]. For this reason, there is a need for special attention to professional liability in the field of tele-orthopedics. Telemedicine also helps deliver healthcare to patients in other countries which leads to additional problems due to rules on professional discipline that are not the same everywhere. Misdiagnosis appeared in only 26.3% of the reviewed studies which is worrying given the rise in teleconsultations [22]. Despite how much healthcare is moving online, concerns about privacy were less included. New studies are recommending several tools and structures that can make health data more secure and these may be used more commonly down the road [30]. Summarizing my findings, tele-orthopedics, when appropriately managed from a medicolegal standpoint, can support healthcare systems by encouraging doctors to make decisions about treatment, raising treatment quality and security and reducing the number of malpractice claims. Thanks to telemonitoring (teleconsultation and telemetry), telesurgery and wireless networks, telemedicine is now capable of providing orthopedic care to people living far from medical centers [30]. Instead, much of the research so far has looked at orthopedic follow-up, mainly focusing on teleconsultation while rehabilitating after surgery.

CONCLUSION

The growing number of studies on tele-orthopedics over the last two years was due in large part to the impact of the COVID-19 pandemic. Since more care was provided remotely because of the crisis, it became necessary to review important ethical and legal issues and set guidelines for what doctors and nurses should do during emergencies. Telemedicine has expanded access to care for patients, treatment for caregivers and a means to keep these parties in touch. With more use of telemedicine and digitization, issues around errors by professionals, patient privacy, care quality and how pleased people are with the services offered are bringing attention. You should lay down a firm plan for telemedicine and try it out using serious studies.

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