How to Cite:
Almanna, M. A., Alanazi, D. M., Alaujan, B. S., Zamzami, B. A., Almarzouq, Y. F., Ababtain, H. A., Alenizi, E. S., Alshaibani, R. S., Alowaidan, S. R., Alharbi, lbandary F., Alnuwmasiu, F. M., Alonazi, F. M., Alwahdani, M. N., & Alshammary, N. S. (2019). Legal and ethical considerations in medical records management within emergency cardiology: Roles of nursing, pharmacy, and compliance with healthcare regulations. International Journal of Health Sciences, 3(S1), 135–144. https://doi.org/10.53730/ijhs.v3nS1.15059

Legal and ethical considerations in medical records management within emergency cardiology: Roles of nursing, pharmacy, and compliance with healthcare regulations

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International Journal of Health Sciences ISSN 2550-6978 E-ISSN 2550-696X© 2019.
Manuscript submitted: 01 Jan 2019, Manuscript revised: 09 Jan 2019, Accepted for publication: 15 Jan 2019

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***Abstract*---**Background _ Telemedicine is a promising healthcare solution, particularly in underserved areas. It is cost-effective and accessible in both developed and developing countries. However, it faces challenges such as misdiagnosis, inconsistent legal regulations, and potential liability. The cost of telemedicine services is similar to in-person encounters, and pay equality is not guaranteed. Ethical and legal obstacles must be considered when implementing telemedicine programs, such as obtaining informed consent and understanding privacy risks. Aim of Work – Our aim was to emphasize the present state and identify the remaining requirements for implementing ethical and legal norms in telemedicine. Discrepancies have arisen among existing laws, lawmakers, service providers, various medical services, and, most significantly, the patient's connection with their data and the use of that data. Methods – The study conducted a comprehensive search of English literature published between 2010 and 2018 on PubMed, Scopus, and Web of Science. The search utilized specific keywords such as "Telemedicine," "Ethics," "Malpractice," "Telemedicine and Ethics," "Telemedicine and Informed consent," and "Telemedicine and Malpractice." Various types of articles, including research articles, review articles, and qualitative studies, were examined and analyzed. The abstracts were assessed based on the selection criteria, using the Newcastle-Ottawa Scale criteria. The final analysis resulted in the inclusion of 22 papers. Results – Based on the provided sample, we examined factors that might suggest the effectiveness of telemedicine within a suitable timeframe. The study took into account ethical factors such as obtaining informed permission, safeguarding data, maintaining confidentiality, addressing medical misconduct, and adhering to telemedicine legislation. Conclusion – The expertise, empathy, and dedication of nurses significantly enhance patient outcomes and overall quality of life for those suffering from coronary heart disease. Nurses serve as primary defenders in the prevention and treatment of CHD, taking on responsibilities such as evaluating, diagnosing, and advising patients on disease management.

***Keywords*---**telehealth, coronary heart disease (CHD), nursing interventions, patient care, risk factors, rehabilitation techniques.

Introduction

Telemedicine has shown particular efficacy in underserved populations characterized by a scarcity or lack of sufficient clinical care, such as in geographically isolated regions. Telemedicine and telehealth services, which have been demonstrated to be trustworthy and cost-effective, are now accessible on a large scale in both developed and developing nations. This is made possible by the strong and efficient technological infrastructure, bringing the long-awaited potential of telemedicine to fruition [1]. Instead of physically relocating the patient to the clinical specialist, it has become common to utilize technology to directly transmit the specialist's knowledge to the patient. This advancement in healthcare can have significant implications on legal, ethical, and regulatory matters, as well as influence decision-making policies of health authorities. Artificial intelligence (AI) is particularly important in improving healthcare standards [2-4]. The authors clarify that in this article, the term telehealth refers specifically to articles that concentrate on telemedicine. Telemedicine encompasses two main operational areas. The first aspect pertains to the virtual contact between the patient and doctor, as well as the therapy provided. The second aspect concerns the flow of information.

For instance, misdiagnosis may happen in both in-person and online encounters. Nevertheless, the former entails a comprehensive process that include patient complaints, investigation, and adherence to compliance requirements. The expansion of telemedicine is occurring at a fast pace and has the potential to result in future financial benefits. However, there is an increased danger of incorrect diagnosis, and the legal regulations governing this practice are not consistent or universally applicable. Service providers typically have different standards and coverage, which may result in a decline in the quality of addressing ethical and legal problems in order to stay ahead of the market. This poses potential hazards [5,6].

The cost of telemedicine services is essentially equivalent to that of those conducted via in-person encounters. Pay equality between in-person health care providers and telemedicine providers is not guaranteed. However, telemedicine will also be affected by liability and other difficulties including as negligence and malpractice [5-7].

Telemedicine offers numerous advantages, including enhanced accessibility and prompt patient involvement at a reduced expense. However, it is crucial to consider the ethical and legal obstacles when implementing telemedicine programs. For instance, certain countries have established requirements for obtaining informed consent, particularly for telemedicine, to ensure that patients understand the privacy risks and fundamental techniques associated with telemedicine. The legislation governing telemedicine training policies for patients may range from verbal policy explanations to obtaining formal agreement. Overcoming legal challenges in telemedicine can be a lengthy and complex procedure, but they are not insurmountable. In order to achieve progress, it is crucial to have a clear understanding of the existing situation [8,9].

Search methodology

The research conducted in this study analyzed scientific literature published between February 2010 and March 2018. The online databases of PubMed, Scopus, and Web of Science (WoS) were used for data collection. The databases were searched using the keywords "telemedicine," "Ethics," and "Malpractice." The search was conducted using either free-form search strings such as "telemedicine and Ethics," "Telemedicine and Informed consent," and "telemedicine and malpractice," or by combining the words together. In the second scenario, we used the "AND" Boolean operator and retrieved the following search terms in PubMed, Scopus, and WoS: "Telemedicine and medical ethics 'AND' Telemedicine is a risk factor for medical malpractice and liability."

The authors conducted an initial evaluation autonomously by reviewing the abstracts and creating a roster of the papers they deemed suitable. Next, the previously stated lists were examined for any inconsistencies, and if identified, the divergent views were deliberated over in order to achieve a consensus. After selecting the publications deemed suitable for the review, the writers thoroughly examined each article to collect relevant data for the study endeavor. An impartial review of the facts was undertaken, and viewpoints were contrasted in order to reach an agreement.

The evaluation encompasses research papers published throughout the last nine years (2010–2018) across all sectors that exhibit high levels of telemedicine activity. The following fields have arisen: teleneurology, teleradiology, telemedicine for nursing, telemedicine for mental health, geriatric telemedicine, teleoculistic, and medical ethics. The previous studies were deemed unsuitable for the review since they did not provide relevant information due to the fact that the first practical implementations of telemedicine were only recorded from 2010 forward.

Results

Telemedicine is the extensive use of an electronic format to save medical data and record diagnoses, medications, and information about follow-up consultations. Currently, an electronic medical record has the capacity to store more personal and private information about an individual than any other individual document. This exacerbates the concerns around patient confidentiality. There is a lack of consistent federal rules regarding patient record privacy, resulting in minimal legal safeguards for health information that vary from state to state and country to country. This issue is further compounded when telemedicine is used across several jurisdictions [11-13]. Existing measurements often neglect ethical concerns associated with professional behavior and relationships, safeguarding patient autonomy, ensuring patient safety, embracing cultural diversity, and upholding the human value system [12].

Explicit Consent

The evaluation of the research provided compelling information that highlights the need of obtaining informed consent. All papers discussed ethical considerations and/or the concept of informed consent. Considering the extent of

the research, this outcome was predictable. Prior studies that primarily examined the technical components of telemedicine did not sufficiently address these factors [13–15]. Conversely, the most important areas of medical specializations, such as telesurgery, as well as those related to law and philosophy that extensively address ethical problems, take precedence [16-18].

Thirteen publications specifically address the topic of informed consent in relation to health care. In his work, Kluge [19] discusses the concept of informed consent being included in electronic files and highlights the importance of patient permission, as opposed to the continued existence of medical paternalism in some nations such as Japan and China. The author's contemplation on the need for patients to have access to their own data is thought-provoking, highlighting the reality that telemedicine should not just be driven by the urgency to adopt technology. Several authors discuss the importance of obtaining explicit informed consent when sharing health images. These authors also highlight the ethical implications raised in Newton's work, such as the concept of social justice in accessing telemedical treatments, the potential risk of doctors becoming overly reliant on technology, and the reminder that the patient's well-being should always be prioritized alongside the transmission of images [20-23].

Comer et al. [24] conducted a study on parent-child integration in disruptive behavior disorders and obtained informed consent from the entire family. Kotsopoulou et al. [17]'s study, on the other hand, suggests that consent can be obtained in written or oral form under specific circumstances. In their article on risk management and malpractice, Kramer et al. [25] emphasize the importance of specific consent. Ricci et al. [26] argue that even in challenging situations like providing medical assistance at sea, ethical principles and informed consent from the patient should be respected. Balestra proposes the idea of obtaining informed consent for every telemedical transmission, unless it is an emergency [27].

Botrugno emphasizes the need of a clear and unequivocal explanation in his legal work to ensure patient permission. The variation in the objectives of each research influenced the organization, substance, and presentation of the informed consent. The absence of standardization results in various consents with divergent methodologies, hence revealing the vulnerability and validity issues in telemedicine services.

Data and confidentiality protection

The safeguarding of data and the preservation of confidentiality have always been in place for medical information. The General Data Protection Regulation (GDPR) has provided a more detailed classification and definition of data points to facilitate the comprehension and management of personal data. In order to ensure the highest level of data security, several authors believe it is essential to establish standardized rules, comparable to the General Data Protection Regulation (GDPR) now in effect in the European Union [19, 25, 28, 29].

The supplier of all items has a significant obligation for ensuring the gadgets used are safe, noninvasive (so as not to make the patient feel monitored), and user-friendly. However, the doctor must exercise extreme caution when sharing the

patient's data with others (such as for a second opinion) and when storing the data. Various hypotheses have been proposed for ensuring maximum data protection. Legido-Quigley et al. [13] suggest that online data should be anonymous, while other authors propose identification through a photo, and some argue that data transmission should only occur through encrypted language [15].

It is crucial to guarantee the highest level of security when transmitting data of minors and entire groups of subjects (families). However, a study conducted by Newman et al. indicated that Australian psychiatric patients with severe mental health issues expressed a preference for delaying face-to-face meetings with healthcare professionals in favor of video conferences. One of the articles discusses the concept of Big Data, specifically in relation to data stored in electronic medical records. The essay highlights the legal concerns around breaches of confidentiality and privacy, which may lead to criminal, civil, and ethical consequences.

Botrugno argues that no system can be considered completely secure and highlights the unique nature of genetic data. Only this author discusses the concept of the right to be forgotten and the deletion of data. The majority of articles discuss the topics of data security and privacy, with a consensus among all that the information is very sensitive and requires safeguarding. The absence of a standardized format for data protection results in varying levels of security, which may lead to the abuse of the data structure [30].

Medical Malpractice and Legal Responsibility of Physicians

The carefully researched papers discuss the patient's basic rights and medical negligence problems. There is a larger level of worry voiced when the works focus on clinical health specializations such as telenursing, teleradiology, telemental, and teleneurology. However, almost all stories lacked in-depth analysis of the likely result of the aforementioned instance. The section was often characterized as being solely ethical in nature, without providing further details [16, 18, 20, 28, 30, 31].

The discourse on malpractice may be categorized into two categories: the emergence of telemedicine has introduced a novel kind of malpractice, or there is no distinction from regular malpractice when the patient is physically present [15,18]. The interpretation is left to the discretion of the end user [25,32,33].

Several articles have introduced intriguing ideas, such as the training of doctors to prevent "telenegligence." Kluge also suggests a division of responsibility between doctors and patients, questioning how medical interventions should be utilized in cases of errors in readings, inaccurate values, or unintentional interference with automated measurements or transmission. Parimbelli et al. [34] provide more details on the individuals and groups participating in the study, including patients, doctors, nurses, system developers, hardware manufacturers, and hospital managers. Several studies suggest that implementing telemedicine should be accompanied by expanded insurance coverage or civil liability measures to safeguard the professional careers of healthcare practitioners.

Nevertheless, when weighing the potential dangers and advantages, the advantages of teleconsultation seem to well outweigh the possibility of facing a lawsuit.

Legal framework and guidelines governing the practice of telemedicine

Due to the wide range of ethical and legal considerations surrounding telehealth, it was anticipated that there would be a scarcity of research specifically addressing laws and regulations. Among those who acknowledged it, the majority seemed to lack informative and useful input, instead emphasizing the need for uniform law. There are two main categories of literature on telemedicine laws. North American works focus on laws related to telemedicine activities between different states and the issue of licenses for telemedicine practitioners. European works, on the other hand, discuss the European Directives, their implementation, and efforts to standardize them. Chiang et al. [35]'s study provides limited information on Taiwan's constitutional laws, highlighting the lack of specific regulations and laws that protect medical practitioners and clarify their responsibilities, leading to potential disputes.

In this article, remote regions are defined as places in underdeveloped countries or those afflicted by war and refugee populations that have limited access to quality healthcare. The aforementioned entities mostly rely on assistance from charitable organizations and fundamental government programs. However, a significant constraint is the susceptibility to local culture, since treatment is often administered by medical professionals hailing from diverse geographic and cultural origins. The statement above highlights the significance of educating telemedicine practitioners and their clients on cultural issues. International airports have made significant efforts to teach security officials on the ethnic and cultural variety, as well as the looks, of different populations. This allows for a comparison to be established. In the field of healthcare, the challenges are deep and intricate, requiring a consistent and dedicated commitment from all individuals and groups involved.

Statistics indicate that the collective adoption of telemedicine may result in improved treatment for people, long-term cost savings, and a more efficient and consistent approach to public health. Despite being a topic of extensive dispute, the provision of universal healthcare is a subject of discussion in nations that either practice, propose, or oppose it. Nevertheless, we are certain that as the use of AI in healthcare becomes more widespread, we will be able to broaden the range and effectiveness of telemedicine while also improving cost efficiency [36].

Conclusion

Telemedicine has shown feasibility and widespread acceptance among patients in several fields of medical consultation, nursing, teleradiology, psychotherapy, and teleneurology. The papers highlight many benefits, including the ability to bridge geographical gaps between doctors and patients, particularly in remote and inaccessible regions. Additionally, telemedicine offers the potential for receiving help from various healthcare professionals, such as medical specialists, nurses,

and psychologists. Global acceptance of telemedicine may be enhanced by the establishment of standardized legislation governing its use.

Data privacy is a matter of utmost importance. While the current level of assurances is substantial, it is essential to maintain optimal safeguarding of patient data in the future. This assurance must be primarily supplied by both device suppliers and health practitioners. The maintenance, use, and replacement of equipment (which have a limited lifespan) are subjects of significant concern addressed in all the examined papers.

An additional crucial factor is the training and expertise of those engaged in telemedical operations. Universities, training institutes, and individual scientific organizations are responsible for preparing and delivering comprehensive health training that includes telemedicine components in a timely manner. This will significantly enhance the efficiency of health professional services.

It is essential to recognize the significance of the lack of law. Multiple studies indicate that there is a significant deficiency, or even a total absence, of regulation regarding telemedicine activities in many instances. The lack of clear regulations adds to the challenges faced by telemedicine in its efforts to provide medical treatment. Several articles mention the community directives in Europe that facilitate the development of telemedicine operations. In the future, it is preferable to conduct a comprehensive evaluation in this field to see if lawmakers worldwide will exhibit more sensitivity. Two prominent concerns that have become integral to telemedical practices are ethical debates and financial considerations.

The ethical dimensions of telemedicine have been extensively examined in numerous studies, and it is reassuring that all the authors have emphasized the importance of safeguarding patient information, obtained informed consent, and recognizing that there is a vulnerable individual behind the screen, rather than reducing the patient to a mere statistic. Multiple papers analyzed the exorbitant expenses associated with the adoption of telemedicine, mostly attributed to factors such as automation, security, and legality.

Ultimately, via this study, we want to emphasize the significance of telemedicine in several aspects of healthcare, including treatment, alleviation, and consultation. Despite the presence of some underdeveloped components or noticeable weaknesses, it is reasonable to assert that telemedicine effectively addresses any organizational or practical deficiencies that may be present. The goal of the literature study is to avoid any potential negative consequences of telemedicine. If the identified issues are not addressed, there is a possibility of a boomerang effect occurring. Transforming a very beneficial healthcare system into a platform for professional liability might lead to a surge in lawsuits and negligence allegations, undermining the effectiveness and importance of patient care.

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