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Etichal Issues of Digitalization in Healthcare Organizations

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Abstract: *The healthcare sector is being transformed by the digitalization as it revolutionizes the way medical services are delivered. In this context, healthcare organizations are forced to reinvent themselves. Under the pressure generated by the covid-19 pandemic, the accelerated digitization of the public and private medical entities is considered a solution. The advantages of digital transformation are facilitating access to care, improving quality and better financial performance. However, in this process, ethical problems also arise. In this article our goal is to identify the primary ethical issues faced by medical organizations. The finding of the article represents a tool for health professionals who are concerned about the ethical aspects that appear in the provision of medical services, especially when they share medical data with patients or with other health organizations.*

Keywords: *digitalization; healthcare organization; ethics; medical data; E-health.*

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1. Introduction

It cannot be denied that today's medicine is digital. Examples abound from various fields: HearO application can determine early cases of heart failure in which there is a risk of unfavorable evolution with an accuracy of 80% (https://www.cordio-med.com). Also, a Randomized Clinical Trial shows that an AI-based learning system leads to superior results in training students to acquire surgical skills in simulated environments compared to expert instruction (Fazlollahi et al., 2022). Together with the paradigm shift, the challenge for organizations in the medical field is to tap digitization in a way that improves efficiency and care. Competition has been created for companies all around the world due to globalization (Grigorescu et al., 2020).

2. Statement Problem

The healthcare sector is going through a digital transformation as a positive effect of technology's interference in healthcare.

Digitization directly influences the healthcare sector, and even more so all those related to this field. We emphasize the fact that the stakeholders involved in the provision of medical services fallow Prensky's influential definition being digital immigrant or digital native (younger population born digitally) (Prensky, 2009). Doctors, nurses, patients, owners, drug companies, suppliers of medical equipment and all those involved in the healthcare sector must be prepared to face the challenges brought by the digital age.

At the organizational level, new technology adoption and better services development can be considered a challenge (Kim et al., 2016). The progress of the medical sector also resides in the progress of the human resource. Clarke et al. (2012) identify fears of managers who claim that they need specialized training and new skills to be able to keep up.

Researchers outline the transformations of the way of working as an effect of digitization: the professional routine is replaced by innovation. To be able to innovate, continuous training, flexibility and openness become priorities for employees (Gjellebæk et al., 2020).

An important factor of change is the Covid-19 pandemic. Veresniuk et al (2021) reveal that for healthcare organizations, the Covid-19 pandemic has been an engine for accelerating technological transformations. Their study shows the immediate effects of the crisis:

1) the large-scale use of online tools, especially telemedicine

They provided support for both medical entities and medical personnel. In the exceptional context of the pandemic, through these digital

tools, doctors have identified a new way of carrying out the activity that will allow them to evaluate, treat and monitor the health status of patients in need. During the critical periods of the pandemic, the medical staff successfully used online tools to communicate with infected people, to monitor their state of health, but also to forecast the spread and aggressiveness of Covid-19.

2) Considering the situation of insufficient resources (logistics, personnel, and time) for the patients in isolation, technology has become, in several cases, the main communication channel with medical personnel. Online tools have allowed international non-profit organizations to be actively involved at the local level and offer support.

3) rethinking information flows, documents and the sequence of procedures by regulating clear rules regarding the digital infrastructure of medical entities

There are various factors that influence the perception of ethics family, education, life experience (Sandu, 2020). Depending on their own perception, each person identifies a behavior/action as being ethical or not. However, at the global level, certain behaviors are generally considered unethical.

Tasioulas (2017) defines ethics by referring to "goods that we have reason – and sometimes even an obligation – to pursue, such as the good of knowledge that can be used to bring about significant improvements in health."

3. Aims of the research

It is of high relevance to identify and understand the concepts that represent potential ethical issues that appear in the relationships between the organizations that provide healthcare services - patients - medical data - patients' rights and digitalization.

This paper highlights the forms of violation of trust, justice and privacy by the digitization of medicine.

4. Research Methods

The thematic analysis of the etichal issues of digitalization in the healtcare organization represents the principal methodology utilized in this study. Through direct observation, we analyzed the concepts of digital health, e-Health, ethics, big data. The presented data was collected through the empirical study. The methods used in the realization research of this article are theoretical, namely: documentation, research scientific, analysis of

specialized literature, synthesis; the comparison, generalization, systematization.

5. Findings

By analyzing the specialized literature, there can be identified the main ethical aspects:

- Healthcare data sharing

In 2018, Ross, Iguchi and Panicker addressed the issue of open data access and claimed that in certain areas it became mandatory.

Through an exchange/sharing of healthcare information, with the help of technology organizations and medical personnel have the possibility to electronically share data and information between autonomous and independent systems (Newman, 2022). A correct sharing of medical data can make the difference between life and death for some patients. Auffray et al. (2016) defines Big Data in health as "encompassing high volume, high diversity biological, clinical, environmental, and lifestyle information collected from single individuals to large cohorts, in relation to their health and wellness status, at one or several time points"

Unfair medical data sharing (hiding, fragmenting, sharing wrong medical data) can lead to an incorrect diagnosis, treatment or care.

We will present the particularities of medical organizations that use artificial intelligence. In such an organization, the use of artificial intelligence depends on the access to data. Data allows evaluate experiments, test hypotheses, discover side effects and continues improve the practice of medicine (Rao, 2021). In other words, sharing medical data is sharing the new gold.

Fasso Wamba and Queiroz (2021) perform a bibliometric analysis of how artificial intelligence is approached in the medical field. The article identifies the gaps, limitations and even weaknesses of artificial intelligence in the context of digital health, including ethical issues.

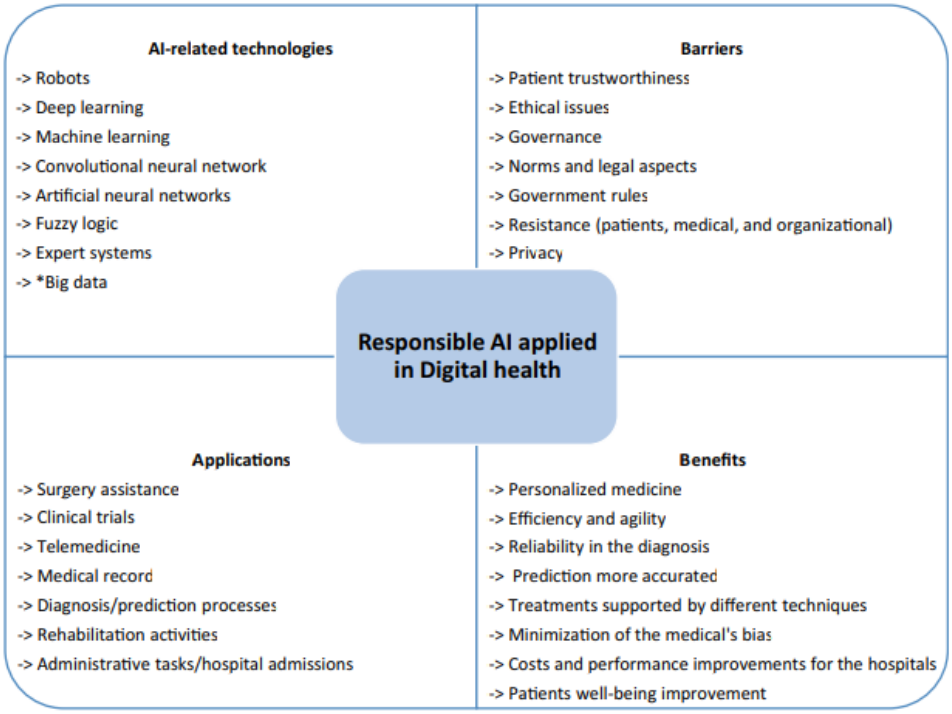


Fig.1 AI – in Digital health
Source: Fasso Wamba & Queiroz, 2021

The global desired is the collection, sharing and use of medical data at the level of laboratories, clinics, and health care institutions to allow stratification for targeted prevention and to obtain a medical act of real precision and high quality.

From the patients' perspective, reluctance is still common. Studies show that even the existence of uncertain benefits make patients with long-term conditions, those suffering from serious diseases and those with urgent medical problems to be more open and support the sharing of medical information.

● Access to medical data (records) and Safety

The novelty for the current medical system is that, currently, access to medical data is also done with external systems. A benefit of the old system in which access to medical data was allowed only at the internal level of the organization was the easier tracking of data and the preservation of

their confidentiality. Dhopeshwarkar et al (2012) highlight the fact that many patients want third parties not to have access to their medical data.

An opposite direction is that of the concept of democratization of medical data. A new system is born in which patients and their families become main actors in medical decisions. An effective engagement of patients is the way to succeeding under accountable-health models (Tang et al., 2016). The concept of democratization of medical data empowers patients.

The study performed by Agaku et al. (2014) shows that new measures and policies are needed to protect the security of health-related information. The authors point out the interest, but also the concern of patients related to the transfer of personal medical data.

● Defense of Rights

Given the particularities of data from the medical field, health organizations must be more careful in their use. A medical data leak can have a mephistophelic purpose. For exemple, information about sensitive medical data (sexually transmitted disease, mental illnesses) can lead to discrimination, marginalization, opprobriu or inequalities at work.

Dove et al. (2017) claims that the patient's consent has become insufficient to prevent abuses and for them to know exactly what kind of data is collected and what it is used for. Knoppers and Thorogood (2017) identifie trust and accountability to combat the increased risk of privacy-related harm and for the protection of private life.

Violations or flagrant violations of human rights through ethical issues arise together with the multiple ways of using, for the benefit of third parties, of the stored medical data.

● Equality and Equity

In the digital age, every person should have equal chances to benefit from medical services provided with the help of information technology. It must be taken into account that E-health directly depends on the Internet connection. Moghaddasi et al. (2017) write about the inequity that results from E- health. The article presents the factors that become obstacles for the effective use of health tools: lack of significant access to the Internet, inadequate expertise, insufficient basis and health literacy, age and disability.

● The Competence of eHealth Professionals

If in the past the provision of medical care was inconceivable without the presence of health personnel, together with the changes brought

by the covid-19 pandemic, humanity has learned, forced by circumstances, to trust medical devices and techniques.

The use of telemedicine applications and med-tech devices has boomed. King et al (2011) show that the patients do not want the medical services to completely replace the medical staff, but only to improve the medical act. Due to the complexity and technicality of medical science, medical care providers are forced, in certain cases, to mediate the relationship between patients and E-health services.

Jokinen et al. (2020) states that if users want to benefit from the potential of digital services, they must constantly develop their digital and technological skills. The author claims that the use of digital medical services cannot exist without users having up-to-date technology or Internet. independence in the use of electronic health services is gained through proactivity, openness and individual study. The obligation of health professionals is to provide support and guidance to citizens where they are overwhelmed by the complexity of digital tools as well as the interface of online medical services.

- Accuracy and legitimacy and processing of data

With the exponential growth of medical data (big data phenomenon), the concept of data accuracy came under the scrutiny of researchers and people working in the medical field. Hogan and Wagner (1997) identified the effects of inaccurate data: "clinicians can make treatment errors, researchers can underestimate disease prevalence, health system managers can underestimate adherence to standards of care such as vaccination guidelines, and alert systems can send false alarms doctors. "

Advanced medical technique involves obtaining a very large number of medical data (e.g. images obtained by performing ultrasounds). But many medical data also mean an increased risk of human errors in diagnosis. Cho et al. (2015) claims that the answer to this problem is represented by computer-aided detection (CADe) and diagnostic (CADx) systems.

6. Conclusions

Based on the analysis of specialized literature, we identified the most common ethical issues that appear at the intersection between digitization and medicine.

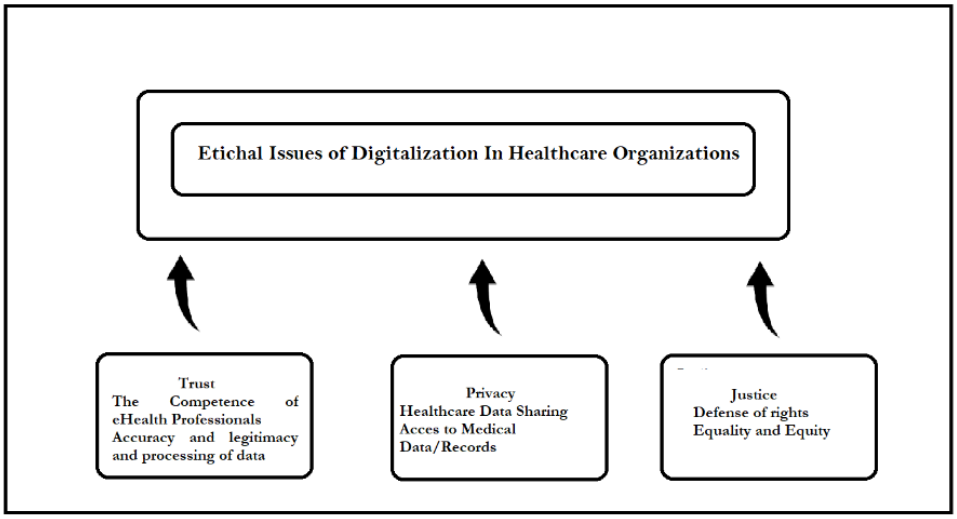


Fig. 2. Ethical Issues of Digitalization in Healthcare Organizations
Source: Authors' research

The findings of the article represent a tool for health professionals who are concerned about the ethical aspects that appear in the provision of medical services, especially when they share medical data with patients or with other health organizations.

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