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E-health services: concept and obstacles to implementation

Kemih Nadia[*(1)] *Hadidane Sabrina*[(2)]

nadia.kemih@univ-jijel.dz *hadidanesabrina@univ-jijel.dz*

[(1) (2)] *Laboratory of: LPSHSAD. Faculty of: Humanities and Social Sciences.*

University of Jijel,18000 Jijel (Algeria)

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Abstract

This research paper aims to identify the concept of e-health service quality and the obstacles to its application in Algeria.

The quality of health service has become important as customer expectations evolve. The electronic health service has also become necessary, especially after the Corona Virus pandemic.

Many requirements must be provided to achieve an electronic health service, but this is directed by many difficulties, the most important of which is resistance to organizational change.

✓ **Keywords** :Electronic services. Health services. Quality health services

[*]*Corresponding author:*

1. INTRODUCTION

In recent years, information technology has significantly transformed our daily lives, offering convenient solutions- to various tasks and reducing the barriers of distance in personal and business interactions.

Developed countries have realized that achieving development should not focus on the economy only; there are other areas from which development plans are launched, the most important of which is human development, by achieving a high level of services in the field of education, tourism, and health.

Attention to the quality of health service has increased after increasing awareness of the negative consequences of intermediate health services on the effectiveness of the human resource. The spread of the Corona Virus has been a turning point in the work of many health institutions; where the provision of telehealth service was imposed, which strengthened the emergence of the concept of electronic health service.

The researchers will try to address this concept through the following elements:

The concept of e-health service.

E-Health Service Requirements.

Obstacles to the application of the e-health service.

2. The concept of e-health service

If e-management in its simplest definition means the use of technology in administrative processes; the electronic health service simply means the use of electronic tools, and media to provide health services. E-Health is a broad concept that covers many types of information communication technology (ICT) tools used in the healthcare sector. (Svendsen, 03/07/2023/ 10:55h)

Because E-Health is an Internet-based health service, the definition of e-health from an ICT perspective is the most appropriate definition.

According to Eysenbach: “E-health is an emerging field in the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet and related technologies. In a broader sense, the term characterizes not only a technical development, but also a state-of-mind, a way of thinking, an attitude, and a commitment for networked, global thinking, to improve health care locally, regionally, and worldwide by using information and communication technology.”(Eysenbach G. www.jmir.org/2001/2/e20)The computer and its accessories are one of the most important means used in the electronic health service.

E-health encompasses a wide scope and has excellent potential to grow in the future. Growing numbers of experts believe that e-health will fuel the next breakthroughs in health system improvements throughout the world.

E-health allows health institutions to streamline many of their processes and provide services in a more efficient and cost-effective manner.

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Healthcare providers use E-Health for many purposes including administration, health records maintenance and access, communication and consulting, information gathering, and medical education. (Ventola, 2014: 356)

E-Health, being an internet-based health service, is best understood from an ICT perspective. According to Kirch, e-Health is "the use of the internet or other electronic media by patients, health workers, and the public to disseminate or provide access to health and lifestyle information or services" (Kirch, 2008, 322). Additionally, the Commission of the European Communities defines e-Health as the utilization of ICT with the purpose of enhancing citizen health.

Moreover, the Commission views e-Health as playing a vital role in improving the competency and efficiency of healthcare delivery, facilitating the interaction between health-service providers and patients, enhancing data transmission between institutions, and increasing the level of communication between patients and/or health professionals.

Vitacca, and all states that: " E-Health encompasses the use of electronic tools for health-related purposes and is considered an optimal approach to enhancing the quality and safety of healthcare. By leveraging up-to-date information and communication technology, E-Health addresses the needs of citizens, patients, and healthcare providers, while also catering to various political settings". (Vitacca, and all, 2009, 92)

Through the previous definitions, E-health service is a healthcare service that provides telecommunications services that rely better on information and communication technology, communication networks and Ethernet.

3. E-Health Service Requirements

With the rise in the costs of health services and after the negative results of the outbreak of the Corona virus, it has become necessary for health institutions to consider adopting telehealth systems. Most researchers agree that several requirements for e-health service must be met and several standards that contribute to its quality are adhered to. The more quality the service is provided whenever all

patients benefit. The baseline common requirements that all health organisations are expected to meet, it consists of four elements general, security, data ,commercial.

One of the most important of these requirements is to provide a proper life style structure, providing the technologies of machine information and communication networks, training health staff on the use of technical devices on the one hand and on the use of health applications for telehealth on the other hand.

E- health service, like other electronic services, needs several standards and requirements by which it can be said that it has achieved the required quality and efficiency, including the following efficient administration of e-health implementation: Planning to utilize the latest technologies in the healthcare industry is an important strategy for many healthcare organizations to enhance healthcare services and reduce operations costs. (Davidson, and Bridging. 2006: 24)

Increasing coordination over E-health Standardization: There is a need for improved coordination to track and itemize various E-health standards, identifying competing specifications that hinder interoperability. Globally agreed-upon standards offer stability for economic investments, and design decisions for E-health standards should consider public interest effects. (Laura,denardis , 2012,15)

zarifa argued that: ”The strategy for the training of human resourcer in the e-health is important for the health data cellecation , security and for the high quality use of the sysem and data in the future,to achieve the final results besed.”(zarifa G.jabrayilova,2016,58).

Information and communications technology: Growth in the ICT industry is benefiting new innovations.

Leveraging existing technologies and infrastructures, such as mobile devices and social media, can support various E-health initiatives and improve access to health

information. (Laura,denardis , 2012,17) Dr Bokolo has indentified the necessary requiments for E -health service Telemedicine and e-health platforms utilize computer telecommunication hardware and software systems to offer remote healthcare services. These platforms enable real-time, interactive visual, textual, audio, and data communication for medical care, consultations, diagnoses, guidance, medical data transfer, and treatment. The deployment of telemedicine and E -health platforms is facilitated through telephones, Internet Protocol (IP) over the internet, and voice and video discussions. (Bokolo,2021,360).

All applications are involved in providing the electronic health service efficiently and quality, in record time by seeking to reach every quarter of the world to all individuals (patients) to help them get the opportunity to consult, mentor, treat and follow-up health. Software engineers through these applications aim to educate patients. Access to an enormous amount of health information and telehealth. In order to avoid the dailymovement of hospitals and medicalclinics.

Innovative-ICT applications in healthcare are continuously emerging, and one notable example is smartphone-based pacemaker devices, ranked as a top innovation for 2021 by the Cleveland Clinic. These cutting-edge devices can securely and wirelessly transmit data to a patient's network using a mobile app. By doing so, patients gain valuable insights into their pacemaker's health data while also enabling the transmission of this crucial information to their physicians for better monitoring and care.

Video-commincation: Since March of 2019, the National Institution for Deaf People of Greece has established five video communication stations catering specifically to the needs of the deaf and hearing-impaired individuals. This groundbreaking service operates round-the-clock, allowing individuals with hearing difficulties to connect with specialized interpreters via video calls using electronic devices such as mobile phones or computers. By utilizing this program, the communication and service

quality for the deaf and hearing-impaired community have been significantly enhanced. Users now have access to high-quality healthcare services, covering areas like prevention, diagnosis, treatment, hospital care, rehabilitation, administrative support, and real-time information exchange with other medical practitioners. (Sofia Voutsidou, 2021, 8)

Social Networking Applications (Facebook, Skype, WhatsApp, FaceTime, etc.): Social networking applications have emerged as essential tools during self-quarantine and social isolation periods. While E- Health platforms cannot fully replace face-to-face interactions, they provide a sense of ease and connection for individuals feeling lonely and depressed due to stay-at-home orders or lockdowns. These applications are versatile, compatible with platforms like Windows Phone, Android, BlackBerry, and IOS, and can also be installed as desktop applications on Windows systems and Apple Mac Book, among others (Anthony Jnr. Bokabo, pp. 362-363).

Another significant application in digital healthcare is blockchain-based Electronic Medical Records (EMRs). These blockchain- based systems aim to streamline the process of accessing patient information, thereby reducing the time required for data retrieval. Additionally, blockchain technology -enhances access security, data privacy, and scalability- make it an appealing solution for digital healthcare applications.

AI in healthcare applications plays a crucial role in enhancing human decision-making by automating and expediting tasks that were once labor-intensive. For instance, numerous hospitals now rely on AI-based patient monitoring tools to collect real-time reports and provide appropriate treatment accordingly. In the field of medical imaging, AI can streamline the process by reducing the number of clicks needed for tasks and offering context-based recommendations for the next steps

Recently, AI-based objects have become widely popularized in our current time and urgent need to provide comprehensive, rapid and sophisticated health care that

benefits everyone. And treatment of the most complex conditions, by connecting the segments to the location of the disease, especially those suffering from chronic diseases, these segments are usually placed in any area of the human body that constitutes damage and the inability of drugs to treat them as a segment of heart disease, diabetes, digestive diseases, heart disease, rice and nerves.

Ensuring Privacy, Security, and Safety: Protecting the sensitive nature of healthcare information requires robust privacy protections, quality assurance, and security measures. Additionally, healthcare practitioners may be hesitant to adopt new technologies, and standards efforts must address patient privacy, safety, and security concerns.

Data governance should adhere to industry best practices and guidelines, taking into consideration aspects such as data protection, privacy, social license, and More data sovereignty. Health organizations should assess their compliance with the Health Information Governance Guidelines.

Health organizations must conduct regular assessments to ensure conformity with the Health Information Security Framework for all newly introduced electronic services, employing guidance.

E- services should undergo independent security testing, proportionate to their criticality and the type of data they process, with evidence provided that any identified deficiencies or vulnerabilities have been rectified.

To maintain their efficiency, electronic services and the underlying infrastructure must be regularly maintained and upgraded, ensuring they stay within the agreed-upon supplier support thresholds, at a minimum.

4. Obstacles to the application of the E-health service

The utilization of **E** -health technologies by health-care professionals is complex, there is frequent evidence that largely indicates failures or unsustainable **E** -health implementations in different countries for different reasons.

There are numerous issues affecting the successful implementation of **E** -health such as lack of standardized **E** -health applications, deployment costs, training costs, legal challenges, privacy and security fears, implementation and acceptance time of such applications, technical difficulties, educational issues, resistance to change, and pilot projects or small implementations. (Sharifi and all, 2013)

There is a high increase in the demand on healthcare services while the shortages in qualified healthcare professionals such as doctors, nurses and pharmacists form one of the toughest challenges confronting healthcare providers. (Young, H.M. 2003)

The move towards E-Health Cloud will require significant changes to clinical and business processes and also to the organizational boundaries in the healthcare industry. This challenge is concerned with the changes that an E-Health Cloud will introduce upon participants. Examples of such changes could be in the form of new policies, procedures and workflows in addition to changes in how medical processes and documentation are done. (AbuKhousa and others, 04-00621)

The Electronic health records (EHR) record instruments are valuable in enhancing clients' safety, assessing care quality, optimizing efficiencing staffing requirements (Silow-Carroll et all 2012, 1).However, despite nurses supporting the EHR, they also express dissatisfaction with its framework and burdensome electronic procedures. This study analyzes the views of nurses shared in empirical literature and encourages them to share their EHR experiences and concerns with Information Technology (IT)

experts and vendors. It emphasizes the importance of considering nurses' input when making nursing-based IT decisions. (Lavin, Harper, & Barr, 2015.1).

Other challenges can be shortened are the lack of ICT infrastructure, ICT knowledge/basic skills, Internet access, financial issues. (mudassarqureshi ,farooq and all,2021 ,2-5)

Among the obstacles, internal resistance (doctors, nurses, staff) hinders the acceptance and implementation of E-health innovation. The shift from traditional practices to e-health requires employees to undergo learning and adaptation, which has been seen as difficult and troublesome, and threatens their job security.

In contrast, there can be external resistance, which is that of external users of health services, as they face difficulties in adapting to the change from manual to digital services on the Internet, as it involves tasks they have not faced before. Which is due to the traditional culture, with a digital divide, E -health resistance has been exacerbated by the prevailing digital divide, which has created gaps in capabilities, knowledge and skills to access digital devices. (BevaolaKusumasari, Widodo AgusSetianto, & all., 2018, pp. 11-12).

5. CONCLUSION

E-health services are perceived as a good complement to traditional health care service delivery, even among older people. These people, however, need to become aware of the e-health alternatives that are offered to them and the benefits they provide. (Louise Jung&Loria,25/06/2023/12:03h)

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