

The reality of digitalization in health sector and her impact on various public health services.

واقع الرقمنة في قطاع الصحة وأثرها على مختلف خدمات الصحة العامة

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Abstract :

Humanity has gone through many important stages. One of the most important was the Industrial Revolution , which was a big turning point in history. It created the foundation for the modern world and made a huge difference globally.

Today, in the 21st century, and especially in 2025, we are seeing fast technological changes and new transformations.

This is why I chose to talk about a very important and current topic wish is: The reality of digitalization in Algerian public hospitals. The study aims are :

- Explain important terms related to the topic.
- Understand how digital technology is used in hospitals.
- Learn about its effects—both the positives and the negatives.
- Suggest ways to use these new technologies better, to help our country, Algeria.

Keywords: Digital transformation ,Public hospitals, Algeria, Digitalization, Healthcare sector, Scientific study Innovation , E-health (electronic health).

ملخص :

شهدت البشرية مراحل الجهورية منها الثورة صناعية التي كانت نقطة تحول عظيمة في تاريخ البشرية، وضعت الأساس للعالم الحديث حيث أحدثت فرق شاسعا وكبيرا في العالم كله. وصولا لمرحلة المعاصرة (القرن 21 (ونظرا لتطورات تكنولوجياية وتحولات الجديدة الطارئة في سنة 2025 تطرقت إلى التحدث في موضوع ذو قيمة وأهمية علمية كبيرة ولذي أصبح حديث الساعة ألا وهو واقع الرقمنة في المؤسسات العمومية الاستشفائية الجزائرية. حيث ساعد هذه الدراسة :

- إلى محاولة تعريف و توضيح مختلف مصطلحات المرتبطة بالموضوع ،
- معرفة مدى تطبيق هذه تكنولوجيا الجديدة في المستشفيات ،
- إضافة إلى ذلك معرفة أثرت تطبيقاتها وإيجابيات وسلبيات هذه الأخيرة ،
- كيفية المساهمة في إدراج و استخدام الأمثل لهذه التقنيات الجديدة فيما يفيد الوطن الحبيب "الجزائر

الكلمات المفتاحية:

التحول الرقمي، المستشفيات العامة، الجزائر، الرقمنة، قطاع الرعاية الصحية، الدراسة العلمية، الابتكار، الصحة الإلكترونية

Introduction

Over the past five years, technological innovations have significantly reshaped various sectors, notably enhancing our daily lives by making them more efficient, accessible, and manageable. One of the most promising fields of transformation is healthcare, particularly through the process of digitalization, which integrates digital technologies into medical services, patient care, and health management.

In 2022, the Algerian Ministry of Health established the National Agency for the Digitization of Health Care (ANNS) to oversee and implement digital strategies within the healthcare sector. This initiative aims to improve operational visibility, optimize resource management, and ensure the consistent availability of medical supplies. The digitalization of healthcare offers numerous benefits, including a reduction in medical errors, faster diagnoses, improved patient engagement, and more efficient use of resources. However, challenges such as cybersecurity risks, the high cost of implementation, and resistance to change must be addressed to ensure a smooth transition toward a fully digitalized healthcare system.

Although Algeria has made significant strides in digitalizing its healthcare system, there is still much work to be done to overcome existing challenges and maximize the potential of digital health technologies.

- Study Problem

This study seeks to explore the realities of digitalization in the healthcare sector and its impact on improving the quality of public health services. The primary question guiding this research is:

What is the reality of digitalization, and how does it contribute to the enhancement of the healthcare sector in Algeria's public health services?

Several sub-questions to explore include:

- What role does digital health play in enhancing healthcare services and human capacity?
- What are the challenges faced in the digitalization process within public hospitals?
- To what extent have modern digital technologies been adopted and implemented effectively in Algerian hospitals?

- Study Hypotheses

Based on the research questions, the study proposes the following hypothesis:

"The digitalization of the healthcare sector can significantly enhance the quality of patient care by streamlining processes, reducing operational costs, and improving the efficiency of healthcare services."

- Study Objectives

This study aims to achieve the following objectives:

To understand and analyze the concept of digitalization in the healthcare sector.

To evaluate the level of digitalization practices within the Public Community Health Institution of Ouled Yaich, Blida.

To assess how digitalization can enhance healthcare management efficiency.

To identify the challenges faced and propose feasible solutions based on available resources.

This topic was selected due to its relevance in the context of modern technological advancements and its underexplored nature in research. The rapid pace of digital transformation calls for a deeper understanding of its implications, particularly in the healthcare sector. This research aims to contribute valuable insights that can enhance Algeria's healthcare system and support future advancements.

- Methodology

To address the research objectives, this study uses an analytical and descriptive approach, relying on books, articles, and data analysis to draw conclusions about the digitalization of healthcare services in Algeria.

- Scope and Delimitations

The study focuses on the following parameters:

Geographical Scope: The research is confined to the Public Community Health Institution of Ouled Yaich, Blida, where fieldwork and data collection were conducted.

Human Scope: The study targets a specific group of employees from the institution, whose insights were integral to the research findings.

Time Frame: The research was carried out from December to January, within a defined period.

I. Research Challenges

Throughout the research process, several challenges were encountered, particularly the limited availability of specialized resources related to digitalization. The novelty of the subject and the scarcity of prior studies made comparison and analysis more complex. Additionally, obtaining reliable data and statistics was a challenge, which hindered the depth and accuracy of the study.

1. Definition of Digitalization in Healthcare

Digitalization in healthcare refers to the integration of digital technologies into every aspect of healthcare delivery and management. This transformation includes the use of electronic health records (EHRs), telemedicine platforms, health information systems, mobile health applications, wearable health devices, and advanced data analytics. The primary aim of digitalization is to enhance the quality, accessibility, and efficiency of healthcare services while supporting evidence-based decision-making, improving patient outcomes, and ensuring data security and compliance with regulations.

2. Importance of Digitalization in Healthcare

Improved Quality of Care: Digital tools enable more accurate diagnoses, personalized treatment plans, and continuous monitoring, leading to better patient outcomes.

Enhanced Efficiency: Automation of administrative tasks such as patient registration, billing, and record-keeping reduces errors and frees up resources for patient care.

Increased Accessibility: Telemedicine and mobile health apps expand access to care, particularly in remote areas.

Data-Driven Decisions: The use of big data and artificial intelligence helps in early disease detection, predictive analytics, and more informed clinical decisions.

Cost Reduction: By reducing redundant tests, preventing errors, and optimizing processes, digitalization can lower healthcare costs.

3. Advantages of Digitalization in Healthcare

Improved Patient Care: Real-time access to medical records and decision-support tools improves diagnostic accuracy and treatment outcomes.

Enhanced Collaboration: Integrated systems facilitate communication and coordination among healthcare professionals.

Efficient Emergency Responses: The rapid sharing of patient information can expedite emergency care.

Support for Preventive Healthcare: Predictive analytics enable early detection and prevention of health issues.

4. Challenges to Digitalization in Healthcare

High Implementation Costs: Significant financial investments are required for infrastructure, software, and ongoing maintenance.

Limited Infrastructure: Inadequate technological resources, particularly in rural settings, can hinder the adoption of digital systems.

Data Privacy Concerns: The handling of sensitive health data raises concerns about confidentiality and cybersecurity risks.

Resistance to Change: Healthcare professionals may resist new technologies due to fear of disruption to existing workflows.

Lack of Digital Literacy: Both patients and healthcare providers may struggle with using new digital health tools effectively.

Training and Support Gaps: Insufficient training and technical support can limit the effective use of digital systems.

Digitalization in healthcare offers substantial benefits, including enhanced patient care, improved operational efficiency, and increased accessibility. However, realizing these benefits requires overcoming obstacles such as data privacy concerns, achieving interoperability, and securing adequate infrastructure and training. Addressing these challenges through strategic planning and investment is crucial for unlocking the full potential of digital health technologies.

II. Practical Aspect

Definition of the Public Community Health Institution –ADL – OULED YAICH – BLIDA

The **Public Community Health Institution of -ADL – OULED YAICH – BLIDA** is considered one of the most vital healthcare facilities in the **Blida Province**. Classified as a **Category “A”** institution, it has been operational since **2011** and has gradually expanded its services to better serve the local population.

□ Structure and Geographic Coverage

The institution consists of:

Multi-service clinics.

Treatment rooms distributed throughout the municipality of OULED YAICH and its surrounding areas.

The institution's material components and the geographical health area it covers are defined by a **ministerial decision from the Minister of Health**. It serves a significant portion of the local population within its designated area.

□ Legal and Administrative Characteristics

It possesses **legal personality** and enjoys **administrative and financial autonomy** regarding its establishment and management.

It is governed by the legal and regulatory framework established by the state.

□ Core Health Services

A **24/7 emergency unit** was established to provide around-the-clock care.

A **maternity ward** became operational in **February 2014**, further enhancing the institution's healthcare capacity.

□ Main Missions of the Institution

The institution is committed to providing **comprehensive and continuous** healthcare services, including:

1. **Primary Health Care**

- Preventive care and basic treatment.
- Early disease diagnosis.
- Community-level treatment and follow-up.

2. **General and Basic Specialized Medicine**

- General medical consultations.
- Access to basic specialized medical services.

3. **Reproductive Health**

- Services related to reproductive health and family planning.

4. **National Health Programs**

- Implementation of national health and population programs set by the Ministry of Health.

5. **Additional Responsibilities**

1. Contributing to **environmental protection** in areas related to public hygiene and sanitation.
2. Combating **social harms and environmental risks**.
3. Improving the skills and knowledge of healthcare staff through **continuous training**.
4. Serving as a training ground for: **Paramedical education**.
5. **Healthcare management training**, based on agreements with recognized training institutions.

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