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## **Artificial Intelligence in Healthcare**

**Artificial intelligence technology is one of the most influential innovations in our modern era, especially in the healthcare field. we have watched remarkable progress in ai applications thatgive significantly and clearly to improving the quality of healthcare, increasing efficiency, and facilitating complex medical procedures. These studies aim to explore the role of ai in improving the healthcare sector, with a focus on the areas of diagnosis and data management.**

### **1- Artificial Intelligence in Healthcare : A Systematic Review**

**Authors: Singelaks et al.**

**Objectives: The study aims to analyze how artificial intelligence improves workflows in healthcare, especially in diagnosis and management.**

**Methods: A systematic review of research that includes 132 scientific studies.**

**Results: Artificial intelligence has contributed to improving efficiency, safety, and quality of care, especially in the areas of diagnosis and data management.**

**Weaknesses: There are ethical challenges related to privacy and data security.**

**Comparison: The study provides a comprehensive coverage compared to studies that focus only on specific applications in the health field**

## **2- "Applications of Artificial Intelligence in Smart Healthcare: A Survey"**

**Authors:** Zhou and Quinn.

**Objectives:** Classify AI applications in smart healthcare and identify their technical foundations.

**Methods:** Survey and classify AI applications in ten different health fields.

**Results:** Key applications include predictive diagnosis, personalized treatment, and health monitoring.

**Weaknesses:** High costs and privacy are major challenges.

**Comparison:** The study provides a structural framework for classifying applications, making it more comprehensive compared to reviews that focus on only one technology.

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## **3- "Artificial Intelligence in Healthcare: Personalized Medicine and Disease Diagnosis"**

**Authors:** IEEE Conference Paper

**Objectives:** Study the role of AI in developing personalized medicine and disease diagnosis.

**Methods:** Analyze AI-based tools to achieve personalized healthcare for patients.

**Results:** Improve diagnostic accuracy and provide personalized treatments.

**Weaknesses:** Ethical issues and potential data bias.

**Comparison:** The study focuses more on a personalized approach, compared to general studies in artificial intelligence.

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#### **4- "Advances in Artificial Intelligence for Disease Prediction and Diagnosis"**

**Authors: Mijovic et al**

**Objectives:** Explore the capabilities of artificial intelligence in early detection of diseases.

**Methods:** Case studies and evaluations of artificial intelligence-based diagnostic tools.

**Results:** Effective in early detection of diseases such as cancer and heart disease.

**Weaknesses:** Limited generalizability to different populations.

**Comparison:** The study's focus on predictive analytics makes it more personalized than some other reviews.

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#### **5- "Artificial Intelligence for Improving Clinical Workflow in Healthcare"**

**Authors: Thompson et al**

**Objectives:** Evaluate the impact of artificial intelligence on the efficiency of healthcare workflow and patient management.

**Methods:** Analyze artificial intelligence-based tools in hospital settings.

**Results:** Significant improvement in administrative efficiency and reduction in patient waiting time.

**Weaknesses:** Reliance on extensive data and high initial setup cost.

**Comparison: The study focuses on administrative applications compared to studies that focus on clinical diagnosis.**

**6- "Ethical and social challenges of artificial intelligence in healthcare"**

**Authors: Troff and Burke**

**Objectives: Discuss the ethical challenges surrounding the use of artificial intelligence in healthcare.**

**Methods: Ethical analysis and review of case studies on artificial intelligence in healthcare.**

**Results: The research highlights risks such as biases and ethical challenges related to the use of data.**

**Weaknesses: Limited practical solutions to ethical challenges.**

**Comparison: Focuses on social implications unlike studies that focus primarily on technical developments.**

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**Finally, we can say that artificial intelligence is a pivotal step to improve healthcare through (accelerating diagnosis, facilitating data management, and enhancing efficiencies in dealing with patients).**

| Title of the Study                                                                        | Authors               | Year of publication | Methodology Used                                                 | Main Findings                                                                                        | Weaknesses                                               |
|-------------------------------------------------------------------------------------------|-----------------------|---------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| <i>Artificial Intelligence in Healthcare: A Systematic Review</i>                         | Singelaks et al       | 2024                | Systematic review of 132 scientific studies.                     | AI has improved efficiency, safety, and quality of care, especially in diagnosis and data management | Ethical challenges related to privacy and data security. |
| <i>Applications of Artificial Intelligence in Smart Healthcare: A Survey.</i>             | Zhou and Quinn        | 2024                | Survey and classification of AI applications in 10 health fields | Key applications include predictive diagnosis, personalized treatment, and health monitoring         | High costs and privacy issues are major challenges.      |
| <i>Artificial Intelligence in Healthcare: Personalized Medicine and Disease Diagnosis</i> | IEEE Conference Paper | 2024                | Analyzed AI-based tools for personalized healthcare.             | Improved diagnostic accuracy and personalized treatment                                              | Ethical issues and potential data bias.                  |
| <i>Advances in Artificial Intelligence for Disease Prediction and Diagnosis</i>           | Mijovic et al         | 2024                | Case studies and evaluations of AI-based diagnostic tools.       | Effective in early detection of diseases such as cancer and heart disease                            | Limited generalizability to different populations.       |
| <i>Artificial Intelligence for Improving Clinical Workflow in Healthcare</i>              | Thompson et al        | I couldn't find it  | Analyzed AI-based tools in hospital settings.                    | Significant improvement in administrative efficiency and reduced patient waiting times               | Reliance on extensive data and high initial setup costs. |
| <i>Ethical and Social Challenges of Artificial Intelligence in Healthcare</i>             | Troff and Burke       | I couldn't find it  | Ethical analysis and review of case studies on AI in healthcare. | Highlights risks such as biases and ethical challenges related to data use                           | Limited practical solutions to ethical challenges.       |

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