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AI-ENABLED HEALTH INTELLIGENCE AND RISK FORECASTING FRAMEWORK FOR COMMUNITY WELLBEING: A MANAGEMENT PERSPECTIVE

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Abstract

The integration of Artificial Intelligence (AI) in healthcare gives us a transformation. It helps in the enhancement of community well being, for which predictions of risk, proactiveness is essential. This research work will be about the implementation of AI from a managerial context. This will highlight how the technology can be used in decision making, for effective health care, community wellbeing and a strategic plan. A well structured questionnaire was developed and adopted to collect the data. It was collected from 250 respondents in CBE district and various statistical tools was used to analyse various factors. The results outlined that there is an awareness of the use of AI in healthcare, but there are challenges to be addressed in the implementation. The finding of the research work will lay as a foundation for the policy framers, stakeholders in healthcare and facilitators of technology.

Keywords*:* Artificial Intelligence, Health Intelligence, Risk Forecasting, Community Wellbeing, Healthcare Management

INTRODUCTION

AI is undoubtedly used in all fields including healthcare management. It will help for forecasting risks, resource utilisation to its fullest extent, and to provide an enhanced healthcare. As the scenario of health care is changing, AI can be adopted in identifying risks (diseases) and address the issues. For the top level managerial people, this will enable to take strategic decisions with ethical responsibility.

Statement of the Problem

Though there is a huge uprise in innovation and technology, the usage of AI in the field of healthcare has its own limitations because of the high implementation costs, IT literacy, ethics, societal responsibility and cyber safety. In our region like Coimbatore, the preparedness towards AI in health care management is yet to reach its pace. So this study will enable to know the existing level and help in taking apt decision for use of AI in health care.

Despite rapid technological advances, the adoption of AI-enabled health intelligence in community healthcare remains limited due to challenges such as high implementation costs, lack of digital literacy, ethical dilemmas, and data privacy concerns. In regions like Coimbatore

Objectives of the Study

The objectives of the study is to:

- Study the awareness and perception of community members toward AI-enabled health intelligence.
- Identify and analyse the factors persuading the use of AI in forecasting the risk.
- Assess the role of strategies in implementing the use of AI.
- Find the reasons and give recommendations for the stake holders in health care management.

REVIEW OF LITERATURE

Krittanawong et al. (2020) examined the usage of AI in cardiovascular disease prediction and management. In their study they have cited that the ML models could accurately predict. They have also found that using AI helps in better decision making. But the fullest benefits can be understood only when it is strategically implemented in health care management practices.

Sharma and Singh (2020) made a study about implementation of AI across India in public health systems. They have highlighted about the challenges and initiatives that is required for community well being, i.e. structured frameworks.
Meskó and Topol (2021) discussed how AI enhances diagnostics in radiology and pathology, reducing human errors and increasing efficiency in medical decision-making.
Reddy and Rao (2021) made their study on the challenges in adopting AI in Indian hospitals.
They found that there is a lag in strategic vision, lack of knowledge and financial constraints.
Das and Gupta (2022) explored AI-based risk forecasting for chronic diseases in rural India and emphasized how management practices can ensure inclusivity and equity in technology-driven healthcare.
Ghosh (2022) emphasised about implementing AI for community well being and effective management. This will help in overcoming the technical challenges for sustainability.
Patel and Mehta (2022) has found that data privacy is a concern in health care. That should not affect the ethics and patient's concern.
Wang et al. (2022) studied at the global level and found that forecasting of risks will be very much useful. But it must be supported by strong policies and management's facilitation for the same.
Lee et al. (2023) studied AI-based mobile health (mHealth) applications for chronic disease management. They highlighted how AI apps enhanced patient adherence to treatment and lifestyle modifications. However, the study underscored that management practices, including patient education programs and feedback mechanisms, are vital to ensuring successful deployment and widespread acceptance.
Zhang et al. (2023) has developed a model. Their AI based model was in China. They found that managerial efficiency in health care has to be enhanced for a better forecast.
Thompson and Kumar (2024) focused on AI predictive tools. They have found that it should be collaborative effort to be taken by the various stake holders. If done, they will be more effective when implemented for the community well being.
Fernandes et al. (2025) has outlined that the use or adoption of AI will enable the forecast of risk and resource mobilisation. But for its effectiveness, a holistic approach is essential. It has to be understood from their study that AI alone will not enable improved well being of the community, but a timely strategic decision.

RESEARCH METHODOLOGY

- Population: Residents of Coimbatore District, Tamil Nadu.
- Sample Size: The sample size for the study would be 250. The respondents were chosen by using Stratified Sampling Method.
- A well framed questionnaire was used for the primary data collection.
- Statistical tools for data analysis:
    1. Descriptive statistics,
    2. Chi-square, and
    3. ANOVA.

6. Data Analysis & Interpretation

Table 1: Descriptive Statistics of Awareness and Perception

Factor	Mean	Std. Dev	Interpretation
Awareness of AI in healthcare	4.21	0.65	High awareness
Trust in AI systems	3.68	0.81	Moderate trust
Perceived benefits	4.05	0.72	Strongly positive
Data privacy concerns	3.92	0.84	High concern

Interpretation: The data collected and analysed shows that majority are aware of the benefits arising by the use if AI.

Table 2: Chi-Square Test (Age vs Awareness of AI in Healthcare)

Chi-Square Value	df	Sig. (p-value)	Result
12.45	4	0.014	Significant

Interpretation: The data collected and analysed is implicit that the awareness on the use of AI varies across different age groups. It was evident that the youngsters are more aware.

Table 3: ANOVA (Occupation vs Perceived Benefits of AI in Healthcare)

Source	df	F-value	Sig. (p-value)	Result
Between Groups	**3**	**4.76**	**0.003**	**Significant**

Interpretation: Perception of AI's benefits differs significantly across occupations, with healthcare professionals reporting higher perceived benefits.

Findings

- High awareness of AI in healthcare among respondents.
- Privacy concerns and trust issues remain barriers to adoption.
- Younger respondents are more receptive to AI adoption.
- Occupation influences perception, with healthcare professionals being most positive.

Suggestions

- Conduct community-level awareness programs on AI in healthcare.
- Strengthen data privacy frameworks to build trust.
- Provide training for healthcare managers and staff in AI adoption.
- Encourage public-private partnerships for cost-effective implementation.

CONCLUSION

AI-enabled health intelligence and risk forecasting hold transformative potential for enhancing community wellbeing. While awareness and perceived benefits are high, trust, privacy, and cost issues hinder adoption. From a management perspective, addressing these challenges through ethical governance, community education, and strategic investment can accelerate AI's role in strengthening healthcare delivery.

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