International Journal of Academic Excellence and Research (IJAER)
e-ISSN: 3107-3913 || Peer Reviewed || Open Access
Publication Impact Factor (I2OR) : 2.015
Vol. 02, No. 02, April-June, 2026, pp 121-126

www.mgmpublications.com

AI and HRM: A New Paradigm in Healthcare Management for the Vision Viksit Bharat

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Citation: Grover, N. (2026). AI and HRM: A New Paradigm in Healthcare Management for the Vision Viksit Bharat. International Journal of Academic Excellence and Research, 02(02), 121–126. https://doi.org/10.62823/IJAER/02.02.215

Abstract: *The healthcare sector which is instrumental for ensuring the health and well being of the society has been currently grappling with serious challenges in terms of staff shortages, increasing patient expectations, high work pressure, recruitment as well as the retention of skilled medical professionals. In this context, this paper attempts to analyze the integration of HRM with the latest technological advent in the form of Artificial Intelligence as an innovative strategy to provide effective healthcare solutions and serve the transformative vision of 'health for all'.*

Article History:
Received: 04 May, 2026
Revised: 17 May, 2026
Accepted: 20 May, 2026
Published Online: 25 May, 2026

Keywords:
AI, HRM, Indian Healthcare Sector, Recruitment, Society.

Introduction

Human capital is a vital component for the growth and development of the economies worldwide. Since human beings are recognized as the most valuable resource, their health and wellbeing becomes an imperative global priority. The healthcare requirement and wellness issues of individuals are the prerogative of the healthcare sector which encompasses hospitals, pharmaceuticals, health insurance, medical devices and medical tourism. In India, the healthcare sector is one of the driving forces of the economy in terms of revenue generation and employability. However, the occurrence of Covid-19 pandemic showcased the gap between the demand and the availability of healthcare staff and services along with the discrepancy in their accessibility in rural and urban areas of the country. As per IBEF survey, the hospital segment of Indian healthcare is expected to grow @8% from current year to 2034 and demand for healthcare professionals in India is likely to be doubled by 2030. The current ratio in India regarding availability of healthcare staff to population indicates 1.7 nurses for 1000 people and 1 doctor for 1500 people in conformity with global paucity of healthcare professionals. The finance minister in the Union budget 2026-27 emphasized upon the affordability, quality and comprehensiveness of healthcare for the vision Viksit Bharat. For this, an increase of roughly 10% from the previous year budget has been allocated to the healthcare sector. Meanwhile with a less than 2% share in the total budget, the sector is still in the struggling phase with an exorbitant infrastructural resource gap that needs to be urgently addressed.

In this scenario it is often contemplated whether AI (Artificial Intelligence) can reboot and re-boost healthcare facilities in India. Artificial Intelligence is the intellectual design created by the humans and executed by the machines (Tai, 2020). Application of computers for undertaking tasks involving reasoning, decision making and providing solutions to complex problems which traditionally only humans were capable of performing comes under the preview of AI (Coursera,2024).

Utility of AI in Healthcare

Healthcare in India is confronted with diverse challenges in terms of paucity of healthcare staff, urban- rural disparity in access to quality healthcare services, infrastructural constraints along with high healthcare cost. Additionally, the diverse population, rising nuclear family system and increasing burden of communicable and non-communicable diseases aggravates the challenges. Artificial Intelligence which has the potential to transform the Indian healthcare landscape with accessible, patient focussed and effective care is not a distant dream, but a reality. AI can be a catalyst in automating the administrative process. Routine tasks can be automated through AI assistants easing the burden on healthcare professionals leaving them with ample time to focus on patients and improving the quality of medical care. AI has the ability to fill in the gaps in expertise by simplifying complex clinical diagnostics through AI backed processes, thereby helping even less experienced staff to provide quality care. The new technology can drive personalized treatment plans and predict progression of disease by analysing data bases leading to improved patient satisfaction. In the medical field, AI has two-fold applications- virtual and physical. Electronic maintenance of records to monitor the system of health management and assisting healthcare staff in clinical decisions falls under the ambit of virtual AI. Robotic assistance in surgeries and eldercare represents the physical AI (Hamet & Tremblay, 2017). The focus of this paper is on the integration of AI with human resource management for improving the health domain in India in line with the vision Viksit Bharat of Government of India.

HRM, e-HRM and AI: An Integration

One of the ways of applying Artificial Intelligence in healthcare is to entwine it with human resource management. HRM refers to the management of people at work in an organisation (Boxall et.al.,2007). Recruitment, motivation and retention of employees to achieve organisational goals falls under the preview of HRM. The interface of digitalization and HRM has led to evolution of the concept of e-HRM which uses technology in routine HR functions of employee data management, processing leaves and pay. e-HRM popularised the concepts of e-Recruitment, e-Selection, e-Learning making the HR functions economical and more accessible. While e-HRM requires human assistance for making decisions, with AI algorithms certain patterns can be identified and specific decisions can be automated. With the advent of AI in HRM not only can the data be analysed but prediction of trends and digital decision making in areas like hiring, appraisals etc can be done with efficiency. Integration of AI with HRM can provide an immediate solution to the issues confronted by the medical sector. AI has the potential to assist healthcare professionals with alternative diagnosis options for the ailment, treatment recommendation and even interpreting clinical images for ease in decision making (Dilsizian & Siegel, 2013). This can ease out pressure on medical staff and they can focus on delivering better outcomes. Though there are still concerns regarding the takeover of jobs by technology, AI can prove to be a game changer in the clinical field due to the prospects it has in store for improving this prominent sector. AI assistance in routine administrative tasks, analyses of data for identifying patterns in health records to predict a disease outbreak, ability to customize treatment and handling large numbers of patients can ease out health professionals by giving them sufficient time to focus on patient care thereby improving productivity (Hazarika,2020). Physicians in clinical settings are reported to devote almost double the time that they spent with patients on maintaining their electronic health records (EHR) in addition to other clerical tasks resulting in high work load (Sinsky et al., 2016). These administrative tasks result in increased burnout tendencies among physicians. AI can help to reduce burnout by using technologies like smart stethoscopes for almost accurate heart disease detection, syncing relevant treatment with patients, prioritizing cases as per condition of patient, app based real time monitoring and automatic renewal of prescriptions (Team, 2025). Use of deep learning technology in clinical settings i.e. using unstructured data to discover patterns and make decisions, can lead to early disease detection and reduction in commitment of errors ensuring efficiency. Studies have revealed that utilizing chatbots for fixing appointments, providing notification regarding symptom-based patient's condition improves coordination and saves time (Hazarika,2020). Synchronisation of data from various sources aids better collaborations and teamwork. AI has proved its potential in monitoring patient's outcomes after clinical treatment and providing effective home care technology for chronic diseases. Thus, combining HRM with artificial intelligence specifically in the healthcare sector seems likely to have positive outcomes.

AI and HRM: Key Aspects in Healthcare

The Indian healthcare system is diverse in nature with both state and private players. It is though universal but a remarkable gap exists in urban and rural areas with rural areas grappling with

shortage of both health resources as well as personnel. In urban areas, due to the existence of private healthcare providers the situation seems a bit better. In fact, India is becoming a medical tourism hub due to the affordable medical services (in comparison with other countries) offered by these private players. However, the Government through its various initiatives, like National Health Policy, Ayushman Bharat etc. is determined to make these health care facilities accessible for everyone. Digitalization of health services has also been promoted by the Government through various platforms. The CoWIN app which was launched during the Covid-19 pandemic proved to be a successful cloud-based application for notification regarding availability of vaccines, booking appointments and issuing digital vaccination certificates. This is one of the finest examples of application of technology to make health programs accessible for all. Ayushman Bharat Digital Mission aims to create an integrated health system where the health records of individuals are easily available to them as well as healthcare professionals and service providers. This system aims to connect hospitals with each other and provide online consultancy with an aim to reach each corner of the country. The scheme aims to maintain records of patients digitally so that they can be accessed as and when required.

In tune with the mission of GOI to promote digitalization in healthcare, AI can be used to improve HRM functionalities in various dimensions as discussed below-

- **Dealing with the Shortage of Healthcare Personnel**

India is confronted with a huge shortage of healthcare staff in line with the global scenario. The migration of skilled clinical staff for better service conditions to other countries is another problem facing the country. The management of these health resources and their large attrition rate is one of the priority concerns for HR professionals. Here, AI can aid the HR of clinical settings. Chat bots can be increasingly used for scheduling patient appointments, collection of preliminary symptoms and details of patients so as to update the physician before the appointment, saving on time and efforts. Various chatbots such as mfine (for digital consultation, patient follow up and health data management), Wysa (for mental therapy, depression and loneliness), Zini (unique id for health), Practo (telemedicine) are available for healthcare needs of individuals, thereby reducing the work pressure of healthcare staff. Routine tasks can be entrusted to chatbots for easy detection and review. Remote diagnostics and virtual help can be provided by AI powered digital platforms (Lybrate) which is specifically crucial for India where a large section of population resides in remote areas with limited clinical support. Various devices use AI sensor-based technology to monitor patient's health and indicate emergency situations, if any. This virtual care would be a game changer in Indian healthcare scenarios confronted with staff deficit due to growing and aging population.

- **Recruitment and Selection**

Health care setting is that arena which deals with human life indicating that any mistake committed would be fatal. Thus, the professionals employed here need to be competent with the required skill set so that the chances of committing errors and mistakes are minimum. Recruitment and selection of skilled professionals in this sector can be a time consuming and tiring process if done manually. AI based solutions to this process not only streamlines it but also reduces the efforts of HR staff. Healthcare organisations can develop their websites with employment sections. Interested candidates can sign up here creating a database. This way only interested candidates are drawn to the portal. Recruitment chat bots can be used to engage with the interested candidates for updating their details and further sending them questions to shortlist them. An email can later be dropped for their selection or rejection. These chatbots can also sort queries related to job profiles. Selected candidates move to the automated round of graded assessments. Interviews of selected candidates are scheduled by sending mails to both the interviewer and interviewee. Once finally selected, the candidate is requested to upload required documents following the receipt of the offer letter. An employee profile is created alongside for further communication. The entire recruitment process thus gets completed with minimalistic human intervention (Leoforce).

- **Facilitates Training**

In the field of medicine continuous upgradation is a requisite to keep up with the dynamic environment and technological advancements. AI based training programs can be customized as per the interest and ability of the learner. These programs use simulation techniques for an immersive experience providing real life learning exposure. Since the healthcare staff is hard pressed for time, these digital self-paced training sessions accommodate this challenge too. The staff has an option to update

and refine their skills with these anytime accessible learning platforms as per their convenience. These digital training sessions are not only comfortable but are also cost effective. Studies have validated the utilization of AI platforms for successful diagnostic as well as surgical training (Goyal,2024).

- **Improve Patient Outcome**

AI can be used by HR professionals to enhance a patient's experience. Automated appointment scheduling saves time required for waiting in long queues, improving clinical experience. AI has the potential to analyse patient records with accuracy leading to early detection of the ailment and timely treatment. Customized treatment plans for patients can be created by Precision medicine, which relies heavily on AI. Monitoring of the health of patients by using AI devices such as sensors, provides an effective treatment mechanism. These sensors can also give alternative treatment plans by analysing the patient's current data if the patient is not responding well to the treatment. AI can improve the accuracy and efficiency of medical billing mechanisms leading to reduced administrative workload and better focus on patient care (Garvin,2024). AI algorithms can be used to synchronize data from varied departments and identify patterns of patient admission, length of stay and discharge to predict demand for hospital beds and effectively manage the same. This leads to swift allocation of beds to the patient on arrival and also optimizes allocation on the basis of urgency. Settlement of insurance claims which otherwise is a time-consuming process, can also be made efficient using digitalization. These small interventions made in the health delivery organisations using digital techniques go a long way in enriching employee as well as patient experience.

- **Enhancing HRM**

It is well known that the healthcare sector is confronted with a high attrition rate of its staff. Occupational stressors consisting of heavy workload, shiftwork, burnout, role ambiguity, exposure to infections, working conditions etc. are few of the factors that makes this sector prone to high walk aways. AI based technology can be utilized to sort this issue to a certain extent. AI uses data to showcase employee engagement, job scheduling, increased employee retention and uplift employee happiness quotient. It can analyse trends of shift swapping, frequent absenteeism, loss of productivity, missing engagement surveys and predict tentative turnover. HR teams can work upon these warning signals as flagged by AI to retain employees by offering better shifts or better career enhancement opportunities. Consideration of this data driven assessment as derived by AI, assists HRM to better understand the reasons for employee turnover and take timely action to retain the staff. Regular surveys conducted using digital platforms can prove useful in knowing employee sentiment and taking remedial action accordingly. Healthcare professionals work in a strenuous environment witnessing sufferings and death on a daily basis, making them prone to stress and burnout. These issues can be resolved by AI by providing customized wellness plans and stress management programs. AI based interventions can assist HR professionals to reduce the cost of employee turnover and improve retention rate.

Challenges Ahead

Healthcare mechanism in India is a complex system which operates at various levels with varied stake holders. The growing and ageing population with different spending capacity, infrastructural constraints, urban -rural divide, scarcity of healthcare service providers are few of the issues confronting this eminent sector. Though digitalization and artificial intelligence has the potential to address the concerns, it has its own challenges.

- **Data based Divide**
  - **Availability of Accurate Data:** Data is the backbone of digital technology. Availability of accurate data sets is a prerequisite for the application of AI in healthcare. In India, generally people do not consult a single physician. They have the tendency to visit different clinics /hospitals for different ailments. Physicians maintain their own records and their diagnosis is often written by hand. It makes digitalization of health records difficult. Paucity of centralized health records makes it difficult for AI undertakings to provide representative health patterns and trends. In the absence of accurate data, it becomes difficult for HR professionals to improve patient’s satisfaction and outcome. Data entries in the health portal being a strenuous exercise is often delayed by healthcare staff who are already overburdened. Though centralized digital health record keeping is now a priority concern for the Government of India, still there is a long way ahead.

- **Representativeness of Data:** AI thrives on inputs available from historical data. Any bias existing in demo data would impact the HR decision based on the same. These biases can occur when the diversity of the population is not taken into consideration. Since India is in the early stage of digitalization, it becomes difficult to obtain data from each and every segment of population. Thus, AI algorithms may show trends depending on the sectional data available to them. HR professionals may face the dilemma in recruitment, selection and performance evaluation of employees based on such biased data sets. In case of diagnosis and prediction of a patient's ailment also, there may be a concern regarding representativeness due to lack of centralized health records. AI algorithms may be based on data sets available from a few selected medical institutes, which may not always generate correct diagnosis.
- **Data Privacy:** Data driven technologies require a huge amount of data, but keeping this data safe is another issue which HR professionals have to take care of. Data related to both the patients as well as healthcare staff needs to be protected against the hackers. End to end encryption of mobile based clinical apps and e-Health Records is mandatory. Similarly, data encryption is a necessity to safeguard electronic data with healthcare organisations. The Health Insurance Portability and Accountability Act (1996) stated the parameters for accessing data of patients in healthcare settings along with the usage of clinical records. The act has mandated healthcare providers to safely keep medical data and records of patients (Jaro Education,2023). The prominent aspect here is, who should be entrusted with healthcare records, who should be authorised to access it and how it can be put to use.

- **Infrastructural Constraints**

AI has been visualised to bridge the gap between urban and rural healthcare facilities in India. Amalgamation of HRM and AI may create a more efficient healthcare system but it must be backed by a competent and skilled workforce and infrastructure. For the implementation of digital HRM, technological infrastructure is a necessity. In the healthcare facilities operating in the remote and rural parts of the country this technological support may be missing leading to the disruption in the functioning of automated HRM. Absence of steady internet connectivity and hi-tech digital resources further disrupts the functioning of HRM. Another issue relates to synchronizing AI with already well-established HR mechanisms and existing IT set up in healthcare settings. There is a shortage of skilled and trained HR professionals who can imbibe digitalization in HR functions with ease. Thus, training and updating both healthcare providers and HR professionals is the need of the hour.

- **Human Considerations**

Healthcare is a sector which thrives on empathy and care giving. Interaction with the care giver not only boosts morale of the ailing but also rekindles hope. Mechanisation of this sector through AI instils fear of loss of human touch in care giving. To adopt AI in healthcare, there is a need to renovate HR teams with the professionals who are competent and skilled to adopt new technology and provide training to existing staff to upgrade them. This often creates resistance from the existing staff to switch over to new technology due to time and efforts involved. It has been apprehended that AI would gradually replace humans and take away their jobs. The fear of job loss has been detrimental to the adoption of AI in various processes. In the medical arena, it has been reported that due to care requirements and unpredictability of clinical processes and patient response, AI may never take the centre stage. The clinical jobs won't become obsolete because of AI, but they need to be restructured to meet the current scenario (Khan et.al.,2023).

Conclusion

AI in the healthcare sector is all about improving the quality of care through data driven technology. Adoption of AI in HRM of healthcare facilities has the potential of improving efficiency, attracting and retaining talent and enhancing patient experience. However, considerations regarding data security, infrastructural issues and human apprehensions still need to be catered to. An integrated effort of all stakeholders is essential to reap the benefit of this transformative digital revolution to experience quality care for a healthier future.

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