3

Revolutionizing Healthcare: The Role of AI in Ayush Systems

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Abstract

This chapter concerns the transformational role of Artificial Intelligence (AI) as the tool of enhancing Ayush systems Ayurveda, Yoga, Naturopathy, Unani, Siddha, Homeopathy, etc. becomes a part of modern evidence-based healthcare. It describes the applicability of AI to personalized medicine, predictive analytics, data-intensive diagnostics, and optimization of treatments and reports about their use in AI-assisted prakriti assessment, models of herbal formulation, advice in yoga and naturopathy, and decision-support systems in Unani, Siddha, and Homeopathy. The chapter also describes the benefits of AI to improve patient care, expand availability, accelerating research, and the utilization of modern healthcare. It also addresses its problems and ethical concerns, including standardization of data, model validation, preparation of practitioners, and privacy. Lastly, the other trends in the future are connected with AI-based systems of clinical decisions support, global digital wellness, and research partnerships across disciplines, as per which AI is regarded as the driving force in updating Ayush practices and globalizing it.

Keywords: *Artificial Intelligence, Ayush Systems, Ayurveda, Yoga, Naturopathy, Unani, Siddha.*

1. Introduction

The merging of Artificial Intelligence (AI) and the Ayush systems Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy is a revolutionary development in health care provision.

The AI-based predictive, preventive, and personalized healthcare models are fully consistent with the Ayurvedic prakriti-based personalized medicine (Sharma and Prajapati, 2020). With the help of modern technologies, AI improves the quality of diagnostics, the optimization of treatment, and the overall well-being of both a contemporary and a traditional healthcare system on the global level (Ng et al., 2024). Such convergence can be observed in the creation of clinical data warehouses (in the Traditional Chinese Medicine) (Zhou et al., 2010) and the development of machine learning-based diagnostic systems (Harry, 2023; Sorathiya and TS, 2025). Moreover, AI assists in updating the classical systems with the help of computational modeling (Li et al., 2022), computation of multi-herbal formulations by deep learning, as well as natural language processing methods that can retrieve therapeutic knowledge in classical Ayurveda, Siddha, and Unani texts (Farooque et al., 2025; Karmegam et al., 2022).

Outside diagnostics, AI is helpful in evidence-based clinical decision-making and patient counseling. ChatGPT and clinical decision-support systems can be used to provide practitioners with standardized, data-informed advice (Ferdush et al., 2024; Khude and Shende, 2025). Also, telemedicine and mobile health applications are facilitated by AI, making Ayush services available to rural and remote areas, thereby facilitating equal access to healthcare (Alowais et al., 2023). Research and innovation are also being accelerated by AI through simulating drug interactions, herbal formulations are being optimized to be safe and effective (Goryanin et al., 2025), and integrative frameworks that bridge the gap between traditional wisdom and modern scientific understanding are being promoted (Chouhan and Joshi, 2025).

Nevertheless, amidst these potentially beneficial prospects, there are a number of challenges associated with the integration of AI into the Ayush systems. The discontinuity of patient information, insufficient digital infrastructure, and a lack of practitioner engagement are the main barriers (Kilaru & Potluri, 2025; Jantos et al., 2025). Strong regulatory frameworks and ethical protection of the information privacy, informed consent, and algorithmic bias need to be established to gain credibility and trust (Ali, 2025; Acharya, 2025). Moreover, it is essential to promote interdisciplinary approaches to the integration of AI with the Ayush tradition by involving technologists, healthcare professionals, and traditional practitioners in collaboration to establish a scientifically sound, patient-centered, and globally accepted model of integrative healthcare (Baptista and Simini, 2021).

2. Literature Review

Table 1.1

Author(s) & Year	Focus of Study	Key Insights / Findings	Relevance to AI in AYUSH Systems
Sharma & Prajapati (2020)	Ayurvedic concept of *Prakriti* and personalized medicine	Links traditional Ayurvedic constitution-based diagnosis to predictive and preventive healthcare models.	Establishes conceptual foundations for integrating AI with Ayurvedic personalization.
Soumya (2024)	AI in diagnostics and treatment	Highlights AI's role in enhancing accuracy and efficiency in diagnostics and personalized treatment pathways.	Demonstrates the potential of AI tools to strengthen Ayurvedic diagnostic precision.
Ng et al. (2024)	AI and traditional medicine integration	Explores how AI supports traditional, complementary, and integrative medicine systems.	Emphasizes the synergy between AI and AYUSH for holistic health improvement.
Zhou et al. (2010)	AI in Traditional Chinese Medicine (TCM)	Describes the development of a TCM clinical data warehouse for knowledge discovery.	Provides a model for creating AI-driven Ayurvedic databases for clinical decision support.
Harry (2023)	Machine learning in medical diagnosis	Reviews AI's transformative impact on diagnostic processes and patient outcomes.	Supports AI adoption in AYUSH systems to enhance diagnostic objectivity.

Sorathiya & TS (2025)	AI and diagnostic devices in Ayurveda	Discusses the role of AI in developing diagnostic tools for Ayurvedic practice.	Directly relates to AI-enabled devices improving Prakriti and Dosha-based assessments.
Li et al. (2022)	Deep learning in TCM pharmacology	Applies machine learning to decode complex herbal interactions and pharmacodynamics.	Provides a blueprint for AI modeling of Ayurvedic formulations and herbs.
Nagalakshmi et al. (2025)	NLP and ML in pharmaceutical analytics	Demonstrates AI's power in interpreting complex pharma data through NLP.	Enables automated analysis of Ayurvedic formulations and texts.
Farooque et al. (2025)	Mathematical modeling of *Mijaz* in Unani medicine	Introduces computational modeling for temperament analysis.	Aligns with creating algorithmic frameworks for Dosha and Prakriti assessment in Ayurveda.
Karmegam et al. (2022)	Siddha medicine database creation	Establishes a structured data system for Siddha literature analytics.	Encourages parallel AI-based digitization of Ayurvedic and Unani manuscripts.
Ferdush et al. (2024)	ChatGPT and clinical decision support	Evaluates LLM-based systems for supporting medical diagnosis.	Demonstrates how generative AI can aid Ayurvedic practitioners in clinical reasoning.

Alowais et al. (2023)	AI in clinical practice	Discusses AI's clinical roles, ethical aspects, and decision accuracy.	Supports AYUSH integration with mainstream AI-enabled healthcare systems.
Kilaru & Potluri (2025)	AI adoption challenges in Indian healthcare	Identifies barriers such as regulation, infrastructure, and training.	Highlights practical challenges for scaling AI in AYUSH systems across India.
Goryanin et al. (2025)	AI and systems pharmacology	Examine AI in drug discovery through quantitative modeling.	Useful for decoding complex multi-herb interactions in Ayurvedic drugs.
Chouhan & Joshi (2025)	Integrative Ayurveda for global health	Advocates merging Ayurveda with modern scientific tools.	Endorses AI as a bridge between traditional Ayurveda and modern healthcare.
Jantos et al. (2025)	AI implementation standards in healthcare	Discusses challenges in standardizing and validating AI tools.	Calls for regulatory frameworks before full-scale AI integration in AYUSH.
Higgins & Johner (2023)	Validation of AI products in regulated industries	Reviews AI validation processes for clinical reliability.	Guides the validation of AI-driven Ayurvedic diagnostic systems.
Lopez-Perez et al. (2024)	Regulatory frameworks for AI in healthcare	Proposes validation and ethical guidelines for AI systems.	Encourages policy development for AI-based AYUSH solutions.

Panagoulias et al. (2025)	AI regulation and validation challenges	Analyzes global issues in AI governance and trustworthiness.	Highlights the need for ethical and transparent AI adoption in AYUSH.
Ali (2025)	Ethics and bias in healthcare AI	Discuss bias, data ethics, and responsible AI practices.	Stresses fairness and inclusivity in AI models trained on AYUSH data.
Acharya (2025)	AI integration into Ayurveda	Explores opportunities and hurdles for AI applications in Ayurvedic practice.	Central reference outlining direct pathways for AI-driven Ayurvedic evolution.
Ranjitsingh & Rao (2025)	Legal and safety standards for AI	Recommend frameworks for AI reliability and safety testing.	Suggests protocols to ensure AI tools for AYUSH meet regulatory compliance.
Khude & Shende (2025)	AI-driven clinical decision systems	Examine AI in personalized drug therapy.	Supports individualized treatment plans in AYUSH through AI-driven recommendations.
Baptista & Simini (2021)	Interdisciplinary collaboration	Argues that cross-disciplinary teamwork enhances AI application outcomes.	Advocates collaboration among technologists, clinicians, and AYUSH experts for AI success.

3. Relevance of Artificial Intelligence in Strengthening Ayush

The Ayush systems can be improved significantly with the help of Artificial Intelligence (AI), which can establish the connection between the traditional knowledge and the existing scientific validation. The AI enhances the reliability and validity of the Ayush practice by predictive analytics of early interventions, prakriti assessment method-based individualized medicine, and clinical and herbal database mining (Sharma and Prajapati, 2020; Zhou et al., 2010). In addition, AI-based diagnostic technology makes the diagnoses more accurate, and online solutions make available to more people, in addition to integrating with healthcare systems in other countries (Ng et al., 2024; Harry, 2023). Thus, AI will not only modernize Ayush but also transform it into a reliable and evidence-based instrument of the holistic healthcare industry in the 21st century.

The Ayurveda has been concerned with individual medicine, and in this case, it centered on diagnosis based on prakriti i.e. classification of individuals depending on their own constitution i.e. vata, pitta and kapha. This model is quite comparable to the modern concepts of predictive, preventative and personalized medicine (PPPM). Sharma and Prajapati (2020) state that it is not only the disease predisposing factor but the responsiveness to treatment, so, it is evident how to integrate the ancient knowledge with modern personalized care. In addition to this paradigm, there is Artificial Intelligence (AI) that helps in augmenting the colossal integration of genetic, phenotypic data, and lifestyle data, which can be then super implanted to prakriti types. All these data points, according to Ng et al. (2024), will be processed by high-order AI systems, which will then be used to create personalized treatment paths, and, therefore, make Ayush-based interventions more accurate and applicable.

Ayush also has another valuable AI input, predictive modeling. The AI systems can forecast the development of diseases and forecast seasonal alterations in health risks with machine learning algorithms, which is rather familiar to the Ayurvedic doctrine of seasonal regimens (ritucharya). Soumya (2024) highlights the issue that discoveries related to AI are already revolutionizing the process of health diagnostics by identifying the risk factors before the disease occurs and, therefore, preventing healthcare. Similarly, Sharma and Prajapati (2020) mention that Ayurveda predictive model according to prakriti, and lifestyle assessment can be validated and enabled by AI technology. This synergy makes

early interventions possible therefore favoring the major philosophy of Ayush of prevention rather than cure.

The Ayush systems are well equipped with classical literature, clinical records and herbal preparations but little of this has been utilized. The potential of AI to connect these different streams of data results in a potential of connecting them into coherent and evidence-based knowledge. Zhou et al. (2010) that developed a clinical data warehouse in Traditional Chinese Medicine (TCM) that enabled the discovery of knowledge and decision support prove this. This approach can be used in Ayush where patient records, herbal research databases and clinical outcomes mining can be subject to scientific rigor in order to demonstrate traditional practices. It is also stated by Ng et al. (2024) that AI-assisted data analysis in complementary and integrative medicine does not solely strengthen evidence-based practice but also facilitates the international acceptance of the paradigm through the reconciliation of the conventional and modern paradigm of healthcare.

The question of diagnostic accuracy has been a burning point of the modern and the traditional medicine system. In general, machine learning algorithms and AI are having a revolutionary effect in this area. According to Harry (2023), AI has changed the diagnosis process according to the principle of matching complex patterns of symptoms, identifying hidden clinical manifestations, and reducing the error of diagnosing the patient. The use of the AI in Ayush systems can be useful in enabling the practitioners to comprehend patient information on a multi-dimensional format, such as prakriti, symptoms, lifestyle, and environmental factors (to make more accurate diagnoses). Soumya (2024) notes that AI-based diagnostic systems may also help make practitioners more efficient by providing a decision-support solution and, consequently, help to improve patient outcomes and more accurate diagnoses in turn.

4. Integrative Applications of Artificial Intelligence Across Ayush Disciplines

The actual capabilities of the Artificial Intelligence in the Ayush field are not only in the field-related enhancement but also the potential of integrating the information in Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy. AI has provided normative digital format with the ability to process heterogenous data, including prakriti types, mizaj (temperament) tests, and Siddha recipes in Ayurveda, yoga-based lifestyle prescriptions and homeopathic repertories. With the most recent generation of machine learning algorithms, as demonstrated in the traditional research of medicine (Li et al., 2022), AI can determine general trends of

treatment, restructure the multi-mode of treatment, and examine the pharmacodynamics of different systems.

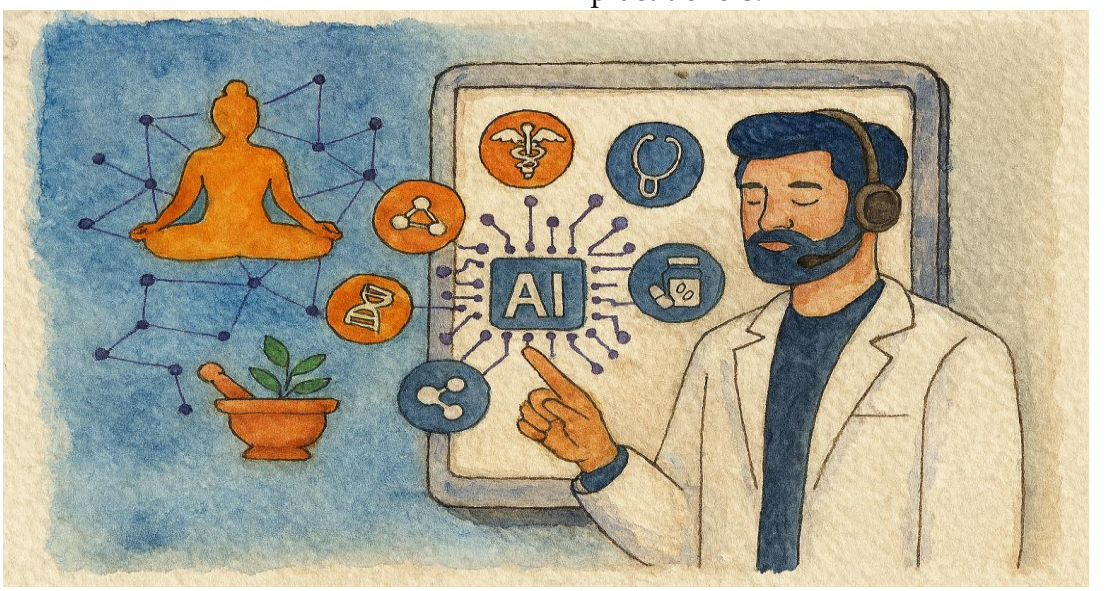
Artificial Intelligence has been very promising in changing Ayurveda to the extent of enhancing the diagnostic and treatment processes. The AI-enabled diagnostic machines have the potential to measure the imbalance of prakriti, vikriti, and doshas more precisely therefore assisting those who practice in the field to study their patients (Sorathiya & TS, 2025). The machine learning models also optimize the mixtures of herbs based on predicting efficacy and pharmacodynamic principles as has been the case with the Traditional Chinese Medicine and this is likewise like Ayurveda (Li et al., 2022). Furthermore, the insights regarding treatment could be inferred by the Natural Language Processing (NLP) through the analysis of large Ayurvedic literature and pharmaceutical data sets hence would standardize prescription of the treatment and improve clinical vision (Nagalakshmi et al., 2025). These applications combined make Ayurveda even more accurate, and they preserve its philosophy of the holistic approach.

To give directions to yoga poses, track breathing habits, and recommend lifestyle changes depending on the health needs of an individual, wearable devices and mobile applications are increasingly being used to a powered-by-AI source. Using AI-based analytics and other digital platforms, it would be possible to introduce the use of personalized wellness interventions in real-time. The users can also rely on the virtual assistants to help them develop customized yoga and naturopathy programs according to his or her health goals to ensure compliance and measurable health outcomes. Though it is not mentioned directly, the list of AI-enabled healthcare solutions described by Nagalakshmi et al. (2025) suggests that NLP and machine learning could be used to analyze patient-specific data and offer specific and reactive wellness prescriptions, which could be easily applied to yoga and naturopathy practices.

An Unani medicine diagnosis and treatment is very sensitive to temperament (mizaj). The mizaj or the temperament proposed to be determined mathematically (Farooque et al., 2025) enables the AI algorithms to relate the result of a disease with the temperament, which makes clinical diagnosis more effective. Similarly, Siddha medicine that is text-based and formulation-based is beneficial with the help of AI-driven digital platforms. Such an example of how AI can arrange and process a large volume of traditional knowledge is the Karmegam et al. (2022) database and

indexing system of Siddha literature analytics. The above developments are not only enhancing the quality of treatment recommendation but are also turning the access and systematic research of the Unani and Siddha practices into a better place.

Using AI in homeopathy is expected to assist in the selection of more effective remedies and standardization of the treatment process. The most effective remedies to some conditions can be proposed with the help of machine learning algorithms, which can be trained on stories about patients, and in repertory databases. Ferdush et al. (2024) reiterate the application of AI-based clinical decision support systems, conversational chatbots, such as ChatGPT, to assist practitioners to make evidence-based and accurate recommendations. They are also capable of helping to provide standardized answers to common ailments and, hence, reduce the difference in the conduct of treatment and provide digital support to practitioners.



Source: conceptual figure by author

Fig 1.1, This figure illustrates the fusion of Artificial Intelligence with Ayush, symbolizing modern diagnostics and personalized care rooted in traditional wisdom. It highlights AI's role in enhancing prakriti-based treatment, predictive analytics, and integrative healthcare.

5. Transformative Benefits of AI in Traditional Ayush Systems

Artificial Intelligence offers a transforming benefit to the Ayush systems of the past since it provides the opportunity between the ancient Ayush and the evidence-based healthcare. The AI-based diagnostic tools are useful to enhance clinical accuracy so that the practitioner could be more accurate in diagnosing the imbalances in doshas, the alterations in mizaj, or the clusters of symptoms. In this manner, healthcare will be provided fairly through mobile platforms and telemedicine to the rural and remote population, which include Ayurveda, Yoga, Unani, Siddha, and Homeopathy. Research AI is applied to accelerate drug discovery, using the model of herbal compounds interaction, predicting the pharmacological profile and optimization of formulations, thus rationalizing the traditional remedies in the new scientific principles. Besides that, AI will facilitate integrative healthcare to integrate the Ayush concepts with allopathic framework, facilitate the cross-disciplinary collaboration, and position Ayush as the complementary concept in global health policies. All these pros have the transformational nature of AI in terms of Ayush being rejuvenated to suit the requirements of the 21 st century.

Artificial Intelligence enhances patient care in the Ayush system significantly by the precision of diagnosis, real-time monitoring, and clinical decision-making. As highlighted by Alowais et al. (2023), evidence-based decisions will be made by utilizing AI applications in clinical practice to reduce instances of diagnostic variability and give the practitioner accurate information. The application of AI-based systems to Ayurveda, Yoga, Unani, Siddha and Homeopathy works that such systems do not only make the treatments patient-based; they are backed by the effectiveness of the data analysis. This enhances the efficacy of the Ayush practices and equates these with the contemporary medical practices.

The transformative way of utilizing AI is also possible to expand the number of Ayush services offered to the underserved populations. The telemedicine systems and utilization of mobile health applications based on AI ensure that the provision of health care is not contingent on geographic variables. The implementation of AI in Indian healthcare, according to Kilaru and Potluri (2025) is highly necessary within the context of eliminating rural-urban disparities particularly through scalable digital systems. By implementing Ayush principles into these AI-based applications, holistic healthcare should be more incorporated into the rural communities, hence the traditional

knowledge will be democratized and the level of influence on society will be magnified.

The application of AI may be employed to facilitate drug discovery and validation of therapies in Ayush and, above all, in Ayurveda herbal pharmacology. According to Goryanin et al. (2025), AI in combination with quantitative systems pharmacology can be applied to simulate the compound-compound interaction and predict pharmacological behavior. Incorporating the approaches in the domain of herbal medicine, it could allow the researcher to investigate the multi-compound formulations in a systematic way and offer the best dosage and identification of new therapeutic opportunities. This assists in securing the process of Ayush remedies being in empirical practice to scientifically acceptable interventions that increases their acceptance in the current research systems.

One may consider AI as the force behind the Ayush integration process into the mainstream healthcare system through setting up the cross-disciplinary cooperation. Chouhan and Joshi (n.d.) point out that the most significant in health restoration in the world is the traditional Ayurveda and the scientific innovation. This integration can be made through the assistance of AI because it offers the prospect of interoperability of Ayush-based diagnostic frameworks and allopathic clinical systems, which make the hybrid frameworks of care accessible. Such form of integration not only validates Ayush therapies through application of scientific rigor but also improves Ayush therapies as a complement to the use of complex and lifestyle-related disorders.

6. Ethical Concerns and Implementation Challenges in AI Integration with Ayush

The implementation of the Artificial Intelligence (AI) into the Ayush systems is a complex ethical and implementation issue requiring a critical approach to adoption sustainability. The key issues in these questions are patient privacy, informed consent, and algorithmic bias. As AI heavily depends on patient and clinical data, it is crucial to guarantee sensitive health information confidentiality and reveal data use, which serves as the key to winning trust. Furthermore, the non-standardized and inadequate datasets could cause algorithmic biases which is against the holistic and personalized Ayush practices.

The absence of digital documentation and standardization in the various branches Ayush is another obstacle to the application of AI in Ayush since it has a great number of branches: Ayurveda, Yoga, Unani, Siddha, and Homeopathy. Regarding the reliability and training of

AI models, as underscored by Acharya (2025), there is a scarcity of structured datasets and consistent parameters or strategies of diagnosis or therapy. The AI applications have no chance of producing consistent and non-generalizable results because clinical records and methodologies are not standardized. In addition, to gaining credibility in healthcare, it is necessary to ensure clinical validation and regulatory compliance of AI. According to Higgins and Johner (2023), AI-based medical applications will have to undergo formal validation procedures similar to medical equipment. Equally, Lopez-Perez et al. (2024) and Panagoulias et al. (2025) emphasize that there is a need to harmonize international regulatory standards to ensure safety, efficacy, and reproducibility and that Ranjitsingh and Rao (2025) provide implications of the Ayush setting on real-world testing environments to ensure reliability.

Such ethical concerns as data misuse, the absence of consent, and algorithmic discrimination are also the burning problems. Ali (2025) cautions that the concern over personal health information not being handled in an ethical manner may undermine the level of trust has been placed on AI-based healthcare systems. The incomplete/non-representative data may also be affected by algorithmic bias that produces unequal results and damages the guiding principles of trust and patient-centered care, which are the core of Ayush traditions. Moreover, the fact that Ayush practitioners have low digital literacy is a major implementation challenge. According to Acharya (2025), there is an urgent necessity in capacity-building and digital literacy programs in order to enable practitioners and make them more prepared to deal with AI integration. Devoid of this preparedness, even validated AI solutions will not be able to embrace extensive or successful implementation in Ayush systems.

7. The Future of Artificial Intelligence in Ayush-Based Healthcare

The Artificial Intelligence (AI) convergence of Ayush systems offers new potential in creating smart and integrative healthcare systems. One of the most promising directions is the development of the AI-driven decision-support systems that are installed in Ayush hospitals. These systems can change the treatment regime, which, as Khude and Shende (2025) note, enables one to select the medication and pursue personal pursuant treatment. Such tools can be changed to Ayush and therefore, clinical signs and lifestyle details can be investigated to generate evidence-based treatment alternatives, thereby enhancing the correctness of diagnosis and treatment outcome.

The second significant path that must be established in the future is the establishment of international digital platforms that will provide tailored solutions to wellness through the Indian traditional practices. Such applications would offer customized Ayurvedic routines, yoga to their customers in various geographical locations and make Ayush more convenient and closer to the global trend of preventive and holistic medicine.

And the last, but not the least, is the necessity to establish long-term and interdisciplinary research collaborations to assist in reconciling ancient wisdom and contemporary biomedical science. As Baptista and Simini (2021) emphasize, the key to success of medicine-based informatics, and the same can be offered to Ayush to create new methods of validation of traditional practices, the development of integrative medicine, and the improvement of healthcare systems across the globe.

Conclusion

The conjunction of Artificial Intelligence and Ayush systems is the shift in the paradigm of comprehensive healthcare when the ancient world becomes combined with the high standards of scientific research. AI enhances personal diagnostics, predictive analytics, optimization of treatments, and investigation and makes it more accessible and allows the integration with the current medical practices. The strategic adoption and regulatory regulation implementation can be safe, effective, and reliable in spite of the challenges of data standardization, ethical issues, the validation of the model, and the desire of the practitioners to practice it. There are ways to do this in future by applying AI-based decision-support systems, universal digital wellness platforms, cross-disciplinary partnerships and aid in modernizing and globalizing Ayush to become a scientifically proven, patient-centred and cross-disciplinary and internationally applicable healthcare system.

References

1. Acharya, R. (2025). Integrating artificial intelligence into Ayurveda: Pathways, potentials, and challenges. *Journal of Drug Research in Ayurvedic Sciences*, *10*(3), 177-180.

2. Ali, A. (2025). Ethical Considerations and Bias in AI Applications in Healthcare. In *Artificial Intelligence in Healthcare Information Systems – Security and Privacy Challenges* (pp. 129-146). Cham: Springer Nature Switzerland.

3. Alowais, S. A., Alghamdi, S. S., Alsuhebany, N., Alqahtani, T., Alshaya, A. I., Almohareb, S. N., ... & Albekairy, A. M. (2023). Revolutionizing healthcare: the role

of artificial intelligence in clinical practice. *BMC medical education*, *23*(1), 689.

4. Baptista, B. V., & Simini, F. (2021). Interdisciplinary Collaboration. *Medicine-Based Informatics and Engineering*, 187.

5. Chouhan, P. N., & Joshi, A. INTEGRATIVE AYURVEDA STRATEGIES FOR GLOBAL HEALTH RESTORATION: BRIDGING TRADITION WITH SCIENTIFIC INNOVATION. *Ayurveda Rising*, 124.

6. Farooque, M. M. J., Abdulrasheed, M. A., Arif, S. A., Quadri, M. S. A., & Rashid, K. A. Mathematical Representation of the Process Of Determination of Mijaz the Unani Temperament. *International Journal of Environmental Sciences*, *11*(21s), 2025.

7. Ferdush, J., Begum, M., & Hossain, S. T. (2024). ChatGPT and clinical decision support: scope, application, and limitations. *Annals of Biomedical Engineering*, *52*(5), 1119-1124.

8. Goryanin, I., Goryanin, I., & Demin, O. (2025). Revolutionizing drug discovery: Integrating artificial intelligence with quantitative systems pharmacology. *Drug Discovery Today*, 104448.

9. Harry, A. (2023). Revolutionizing healthcare: how machine learning is transforming patient diagnoses-a comprehensive review of ai's impact on medical diagnosis. *BULLET: Jurnal Multidisiplin Ilmu*, *2*(4), 1259-1266.

10. Higgins, D. C., & Johner, C. (2023). Validation of artificial intelligence containing products across the regulated healthcare industries. *Therapeutic Innovation & Regulatory Science*, *57*(4), 797-809.

11. Jantos, B. A., Wierzbicki, M. P., & Tomaszewski, M. (2025, May). Standardization Processes for the Implementation of AI in Healthcare System: Challenges and Limitations. In *International Conference on Dependability and Complex Systems* (pp. 61-74). Cham: Springer Nature Switzerland.

12. Karmegam, D., Prakash, M., Karikalan, N., & Mappillairajan, B. (2022). Development of database structure and indexing for siddha medicine system–A platform for siddha literature analytics. *Dialogues in Health*, *1*, 100008.

13. Khude, H., & Shende, P. (2025). AI-Driven Clinical Decision Support Systems: Revolutionizing Medication Selection and Personalized Drug Therapy. *Advances in Integrative Medicine*, 100529.

14. Kilaru, M., & Potluri, R. M. (2025). Artificial Intelligence (AI) Adoption and Implementation Challenges in Indian Healthcare Sector. In *Artificial Intelligence in Healthcare Information Systems – Security and Privacy Challenges* (pp. 171-183). Cham: Springer Nature Switzerland.

15. Li, D., Hu, J., Zhang, L., Li, L., Yin, Q., Shi, J., ... & Zhuang, P. (2022). Deep learning and machine intelligence: new computational modeling techniques for discovery of the combination rules and pharmacodynamic characteristics of Traditional Chinese Medicine. *European journal of pharmacology*, *933*, 175260.

16. Lopez-Perez, L., Merino, B., Rujas, M., Maccaro, A., Guillén, S., Pecchia, L., ... & Fico, G. (2024, June). Regulatory frameworks and validation strategies for advancing artificial intelligence in healthcare. In *European Medical and Biological Engineering Conference* (pp. 260-265). Cham: Springer Nature Switzerland.

17. Nagalakshmi, R., Khan, S. B., Mahesh, T. R., sAlojail, M., Sangwan, S. R., & Saraee, M. (2025). Enhancing drug discovery and patient care through advanced analytics with the power of NLP and machine learning in pharmaceutical data interpretation. *SLAS technology*, *31*, 100238.

18. Ng, J. Y., Cramer, H., Lee, M. S., & Moher, D. (2024). Traditional, complementary, and integrative medicine and artificial intelligence: Novel opportunities in healthcare. *Integrative medicine research*, *13*(1), 101024.

19. Panagoulias, D. P., Tsihrintzis, G. A., & Virvou, M. (2025). Challenges in Regulating and Validating AI-Driven Healthcare. In *Artificial Intelligence-Empowered Bio-medical Applications* (pp. 135-152). Springer, Cham.

20. Ranjitsingh, L. M., & Rao, T. S. (2025). Establish legal and regulatory standards for the testing and validation of AI systems to ensure their reliability and safety in operational environments. *International Journal of System Assurance Engineering and Management*, 1-16.

21. Sharma, R., & Prajapati, P. K. (2020). Predictive, preventive and personalized medicine: leads from ayurvedic concept of Prakriti (human constitution). *Current Pharmacology Reports*, *6*(6), 441-450.

22. Sorathiya, P., & TS, R. C. (2025). Ayurveda and AI: Advancing Diagnostic Medical Devices.

23. SOUMYA, M. A. A. K. (2024). *AI-Driven Insights: Revolutionizing Health Diagnostics and Treatment*. BUDHA PUBLICATION.

24. Zhou, X., Chen, S., Liu, B., Zhang, R., Wang, Y., Li, P., ... & Yan, X. (2010). Development of traditional Chinese medicine clinical data warehouse for medical knowledge discovery and decision support. *Artificial Intelligence in medicine*, *48*(2-3), 139-152.