

STUDY OF HUMAN RESOURCE MANAGEMENT AND THE ROLE OF ARTIFICIAL INTELLIGENCE IN PATIENTS' SATISFACTION

Alina-Georgiana PETRE

PhD Student

Bucharest University of Economic Studies, ROMANIA

E-mail: alina.petre1010@gmail.com

ORCID: 0009-0006-7365-6221

Abstract: *We are living in a new era of technology in which artificial intelligence (AI) is becoming increasingly prevalent in as many sectors of activity as possible. Artificial intelligence is predicted to transform human resource management by automating processes of recruitment, evaluation and development of employees as well as managerial decision-making. One of the most demanding sectors of activity that presents a high degree of interest for every person is health. Human resource management has a crucial role in terms of the quality of services provided by medical personnel. Sustainable human resource management is increasingly recognized as a key driver in achieving organizational sustainability goals. The purpose of this study is to analyze the way in which the implementation of artificial intelligence in human resource management in the health sectors can influence patients' satisfaction. The results of this study indicated significant correlations between human resources efficiency and employee performance monitoring, employee skill development, the monitoring of physicians' role and behavior, and the patient satisfaction evaluation system. These findings highlight that the implementation of AI in the various work structures of human resource management can increase the efficiency of employees and implicitly, the patients' satisfaction. This study lays the groundwork for future explorations into the synergistic relationship between human resource management and AI in enhancing patient satisfaction. By identifying key factors and outcomes, it paves the way for future research that can deliver actionable recommendations for healthcare organizations seeking to leverage AI in their human resource management practices, ultimately contributing to improved patient care and satisfaction levels.*

Keywords: *Human resource management, artificial intelligence, service quality, employee performance, patient satisfaction.*

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1. Introduction

The development of sustainable Human Resources Management is increasingly recognized as a key factor in achieving organizational sustainability goals. It extends traditional human resource management practices by integrating economic, environmental and social dimensions. In parallel, Artificial Intelligence (AI) is transforming business operations, including human resource management, by providing tools for automation, prediction and decision-making.

The purpose of this study is to deepen the specialized knowledge regarding the role that AI can have on patient satisfaction when integrated into human resource management. The present study is based on syntheses and analyses of the specialized literature in the field of human resource management and outlines a theoretical model with the role of contributing to the improvement of patient satisfaction in the health sector in a sustainable way. Also through this study, we have come up with recommendations to amplify the crucial role that AI can have in human resource management when we want to improve patient satisfaction in a sustainable way.

This review explores how AI contributes to sustainable human resource management practices, identifies current trends and highlights research gaps. One of the most important sectors in which AI plays a crucial role is that of the healthcare sector. By combining AI technology with human understanding, the healthcare sector can build a future-ready, equitable and sustainable workforce aimed at increasing patient satisfaction.

2. Study of patient satisfaction and factors that determine it

Patient satisfaction has become a central focus in healthcare management, serving as both an indicator of service quality and a determinant of health system performance. In recent decades, healthcare reforms in both developed and developing countries have increasingly emphasized the role of patient-centered care, recognizing the influence of patient satisfaction on outcomes, compliance and institutional reputation (Batbaatar et al., 2017)[1]. The literature reflects a growing consensus that service quality and patient satisfaction are deeply interconnected and influenced by multiple variables within healthcare delivery.

Patient satisfaction has always been an essential element in the process of reforming healthcare systems, both in Europe and in the United States. For this reason, numerous specialized studies focus on the relationship between the quality of medical services and patient satisfaction, either according to the type of services provided or by analyzing patient satisfaction with the healthcare system (Bleich et al., 2007) [2].

Patient satisfaction is commonly defined as the extent to which patients perceive how their needs and expectations are met by healthcare services (Ware et al., 1983) [3]. Healthcare service quality, on the other hand, encompasses both technical and functional dimensions, including clinical effectiveness, accessibility, communication, empathy and environment (Donabedian, 1988) [4].

Numerous empirical studies have confirmed a strong positive correlation between service quality and patient satisfaction. For instance, Otani et al. (2003) [5] found that interpersonal communication, particularly between patients and healthcare professionals, significantly impacts satisfaction. Similarly, Andaleeb (2001) [6] identified responsiveness and assurance as primary predictors of patient satisfaction in developing country hospitals.

Effective communication has been consistently highlighted as a key determinant of patient satisfaction. Studies have shown that patients who feel listened to, respected and involved in decision-making report significantly higher satisfaction levels (Street et al., 2009) [7].

Although Human Resource Management influences patient satisfaction indirectly, it plays a critical role in ensuring quality care through staff training, motivation and performance evaluation (Redman & Mathews, 1998) [8]. The alignment of Human Resource Management strategies with patient-centered care has been shown to improve job satisfaction among staff, which in turn, positively affects patient interactions.

In both Europe and the United States, patient satisfaction has long been recognized as a key component in healthcare reform initiatives. As highlighted by Heath (2016) [9], one illustrative example underlines the importance of prioritizing communication between patients and healthcare professionals: the difference between merely waiting and understanding why one must wait can significantly alter the patient experience. In situations where unexpected emergencies delay care, proactive communication by medical staff can prevent a decline in patient satisfaction.

Developing a conceptual framework for understanding patient satisfaction with healthcare services presents significant challenges due to the complexity of defining and measuring this construct and the variety of perspectives regarding its key components. Patient satisfaction is shaped by numerous factors, including lifestyle, individual expectations and personal values.

To better capture the essence of satisfaction, some studies have instead focused on identifying causes of dissatisfaction. Roy Carr-Hill (1992) [10], for instance, identified poor communication between doctors and patients - particularly regarding treatment options and procedural expectations - as a leading source of dissatisfaction. These findings also show variability based on patient age, education level, and socio-demographic background.

In the academic discourse, patients are often conceptualized as both clients and consumers of healthcare services, with a subtle yet meaningful distinction between the two. The client is viewed as the primary recipient, while the consumer represents the end-user. Recognizing this distinction is vital when assessing satisfaction as it influences the analytical lens through which improvement strategies are developed. Sample selection also plays a crucial role; respondents should be recent users of public healthcare services and both the timing of data collection and duration of response are considered critical to the reliability of findings (Carr-Hill, 1992).

Another angle in the analysis of patient satisfaction involves its behavioral consequences. Satisfaction may affect patients' health-seeking behaviors, treatment adherence and willingness to cooperate with medical personnel. From a methodological perspective, the timing and format of satisfaction measurement are essential, especially in terms of how results are interpreted by healthcare management to inform strategic improvements. Disease type and severity also influence how patients evaluate their care experiences (Crow et al., 2002) [11].

Patient satisfaction may be measured from two distinct perspectives: content and methodology. In terms of content, it may involve general multidimensional assessments, condition-specific evaluations, or direct versus indirect approaches.

The overarching goal of these measurement approaches is to integrate patient perspectives into the strategic planning and delivery of healthcare services (Hudak & Wright, 2000) [12]. As such, patient satisfaction has become a critical indicator of care quality in the eyes of both policymakers and healthcare providers (Steiber & Krowinski, 1990) [13].

Ross et al. (1995) [14] conducted a study evaluating the impact of different measurement tools on reported patient satisfaction. Methods included analog scales, multidimensional surveys, satisfaction-based dual-criteria evaluations, six-component attitude measures, and behavior intention scales. The sample comprised 233 participants, mostly women, aged between 21 and 87 years. The findings confirmed that the method of assessment significantly influences satisfaction results, thus underlining the importance of methodological consistency.

In assessing the quality of nursing care, it is essential to consider both patient perceptions and professional performance evaluations. Additionally, psychosocial factors must be acknowledged. For example, some patients may report higher satisfaction based on the opinions of trusted individuals or out of fear of retaliation. Anonymity in survey responses is therefore crucial to ensuring honest feedback.

The growing consumerist orientation within the healthcare sector further amplifies the relevance of patient satisfaction as a concept. However, one theoretical limitation lies in the lack of a consistent framework to conceptualize and measure satisfaction. A major

challenge stems from its inherently subjective nature - shaped by the gap between expectations and actual experience.

Healthcare service quality has been interpreted from multiple angles. From a patient-centered perspective, it is influenced by emotional needs, personalization of care, involvement in treatment decisions, access to individualized information, respect, privacy and emotional support.

A study involving 448 patients and 350 nurses developed a new conceptual model of healthcare service quality from the patient perspective. Cultural variables were found to significantly influence how patients perceive service quality (Sofaer & Firminger, 2005) [15].

A study conducted with 500 participants from the United States population identified two distinct models for assessing patient satisfaction, both centered around the variable of time. The first model emphasizes immediate evaluation following a medical visit and considers factors such as patient age, expectations and the quality of the doctor-patient relationship. The second model proposes a follow-up analysis conducted three months after the medical visit, incorporating not only patient age and expectations, but also the degree of symptom improvement experienced during the intervening period (Jackson et al., 2001) [16].

In the United Kingdom, a survey involving 340 hospital professionals revealed that 59% observed a notable increase in patient satisfaction when they were able to spend more face-to-face time with patients. Another factor contributing to improved satisfaction levels was enhanced accessibility to various healthcare services (Heath, 2016).

Given the critical role of healthcare quality and patient satisfaction in the performance of health systems, a study conducted in North Lampung, Indonesia, sought to identify the key determinants influencing patient satisfaction. Utilizing a randomized sample of 200 patients across 25 healthcare centers, data were collected through structured questionnaires. The findings indicated that patient satisfaction was significantly influenced by socioeconomic factors such as income and education level, the frequency of medical visits and the perceived quality of healthcare services provided (Widavati et al., 2017) [17].

3. The Role of Artificial Intelligence in Enhancing Human Resource Management in a Sustainable Manner

A sustainable Human Resource Management (HRM) system is defined as the implementation of Human Resource practices that ensure the long-term well-being of employees, efficient resource utilization and organizational resilience (Ehnert, 2009) [18]. This concept encompasses several key areas, including:

- Employee engagement and retention;
- Work-life balance;
- Environmentally responsible HRM practices;
- Diversity, equity and inclusion.

Recent scholarly work suggests that sustainability in HRM extends beyond environmental practices and involves aligning human capital strategies with long-term organizational goals (Jabbour & Sousa Jabbour, 2016) [19].

Sustainable Recruitment

The integration of artificial intelligence (AI) into recruitment processes enhances transparency and facilitates more inclusive hiring practices. AI-driven applicant tracking systems and predictive analytics support long-term talent planning and help reduce employee turnover, a critical factor for sustainable workforce management.

Employee Well-being and Retention

AI tools such as sentiment analysis platforms and mental health chatbots promote emotional well-being and assist in early identification of burnout risks. These technologies contribute to early intervention and reduced absenteeism, thus supporting a more resilient and sustainable Human Resource system (Parent-Rochelleau & Parker, 2021) [20].

Learning and Development

AI enables the personalization of employee learning pathways, enhancing skill development and workforce adaptability. Personalized learning fosters long-term employee engagement, which is a cornerstone of social sustainability within organizations (KPMG, 2021) [21].

Workforce Planning and Flexibility

Artificial intelligence also facilitates the design of flexible work arrangements, contributing to sustainable workforce management. Tools that optimize scheduling and support remote work capabilities help decrease environmental impact, for instance, by reducing carbon emissions associated with commuting.

Based on insights from the literature and developments in human resource management, several priority actions are proposed to strengthen the impact of human resource management on patient satisfaction:

Data-Driven Decision-Making in Human Resource Management

The application of predictive analytics in healthcare's human resource management allows institutions to anticipate staffing needs based on patient flow trends, thereby ensuring the appropriate availability of personnel during peak hours. This data-informed approach enhances operational readiness and service continuity.

Workforce Optimization

Artificial Intelligence (AI)-based solutions play a pivotal role in optimizing staff allocation by ensuring that qualified healthcare professionals are deployed at the right time and place to meet patient care demands. Such optimization contributes to both efficiency and the quality of care delivery.

Employee Retention Strategies

Through sentiment analysis, AI tools can identify employees at risk of disengagement or turnover. This enables proactive interventions aimed at improving job satisfaction, reducing attrition rates and supporting continuity of care — an essential component of a stable and effective healthcare system.

Patient-Centered Outcomes

Improving staff competencies through targeted training enhances the ability of healthcare providers to effectively address patient needs. Better-trained personnel are more responsive and adaptable, which contributes to higher levels of patient satisfaction.

Increased Employee Engagement

Engaged and satisfied employees are more likely to deliver high-quality care. Their active involvement fosters positive patient-provider interactions, which in turn elevates the overall patient experience.

Efficiency in Care Delivery

Streamlined human resource processes lead to faster response times and more efficient service delivery. These improvements directly contribute to enhanced patient satisfaction and operational performance within healthcare institutions.

The proposed theoretical model illustrates the potential for integrating Artificial Intelligence (AI) into Human Resource Management (HRM) within the healthcare sector to enhance patient satisfaction. By focusing on improving employee satisfaction and operational efficiency, healthcare organizations can develop a more effective workforce that is better prepared to deliver high-quality patient care. Overall, the model emphasizes the critical importance of aligning human resource functions with patient-centered outcomes to achieve success in the dynamic and evolving healthcare environment.



Figure 1. Theoretical model

Source: developed by the author

4. Methodology

This section should comprehensively describe the research design, data collection procedures, and analytical techniques. Ensure that methodological choices are justified, allowing for reproducibility. When applicable, include descriptions of datasets, statistical models, software used, and any experimental protocols. The section should be structured clearly and precisely.

This study employs a mixed-methods approach, integrating both quantitative and qualitative techniques to obtain a comprehensive understanding of the potential impact that the implementation of AI-based human resource management may have on employee efficiency within healthcare institutions. For data collection, two methods were employed:

- survey method: a questionnaire was used as the investigative instrument;
- documentary research method: this involved the analysis of specialized literature to support the achievement of the general objective and the specific objectives of the study.

The sample consisted of 107 employees from Romanian healthcare institutions, having the position of doctors and nurses, more precisely from Bucharest region, due to the high density of medical professionals in this region, all of whom met the eligibility criteria of being direct staff members. As this condition was fully satisfied, no participants were excluded from the dataset. Data collection was carried out through the opinion poll method, the distribution of the questionnaire to the respondents being carried out using the classic pen-and-paper model so that the confidentiality of the individuals could be ensured. The questionnaires were collected in a specially arranged mobile box.

The questionnaire used for this study is a validated questionnaire, short-form patient satisfaction questionnaire (PSQ III), presenting the following scales: human resources efficiency and employee performance monitoring, employee skill development, the monitoring of physicians' role and behavior. These scales were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

For the quantitative analysis, the Statistical Package for the Social Sciences (SPSS) was employed to assess the validity of the measurement instrument and to determine the relationships between the dependent and independent variables. A significance level of 5% and a 95% confidence interval were adopted for statistical calculations. Multiple regression analysis was used to examine the influence of the independent variables on the dependent variable - employee efficiency - based on the following predictors: monitoring of employee behavior, stress monitoring, evaluation systems and skill development.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_n X_n + \varepsilon \quad (1)$$

where:

- Y: dependent variable;
- $X_1, X_2, \dots, X_n$: independent variable;
- $\beta_0, \beta_1, \dots, \beta_n$: regression coefficients
- ε : residual error.

Table 1. Descriptive results of the variables

Variable	Mean	Median	Mode	Standard Deviation
Employee efficiency	2.8	3	3	0.85
Employee Performance	3.2	3	3	0.75
Employee skill development	3.0	3	3	0.70
Employee behavior	3.9	3	3	0.80

Source: SPSS data

Following the administration of the questionnaire, the normality of the distribution for all four independent variables was assessed. The data were subsequently processed using SPSS, and Pearson correlation tests were conducted to evaluate the bivariate relationships between variables.

Table 2. Results of the study

Variable	Correlation coefficient r	p-value
Employee behavior	0.511	<0.01
Employee Performance	0.607	<0.01
Employee skill development	0.644	<0.01

Source: SPSS data

5. Results and Discussion

The results of the study revealed the following:

- A statistically significant positive correlation was identified between employee behavior monitoring and employee efficiency ($p = 0.000$), with a moderate-to-strong correlation coefficient ($r = 0.511$).
- A statistically significant positive correlation was observed between employee performance and employee efficiency ($p = 0.000$), with a strong correlation coefficient ($r = 0.607$).
- A statistically significant positive correlation was recorded between employee skill development and employee efficiency ($p = 0.000$), with a strong correlation coefficient ($r = 0.644$).

The Pearson correlation results confirm the study's hypothesis, demonstrating the existence of significant positive relationships between all three independent variables and perceived employee efficiency within the sample of healthcare employees in Romania.

6. Conclusions

The present study underscores the potential of integrating artificial intelligence (AI) into human resource management processes within healthcare services, particularly in enhancing patients' satisfaction. As healthcare systems increasingly adopt digital technologies, the strategic implementation of AI-driven management solutions emerges as critical factor in improving human resources efficiency and employee performance monitoring, employee skill development, the monitoring of physicians' role and behavior.

From a theoretical perspective, this study contributes to the existing literature by bridging two critical areas: human resource management and patient care improvement. It provides empirical evidence that highlights how AI can streamline human resource management functions, thereby reducing operational inefficiencies and enhancing staff engagement. The research implications extend beyond theoretical frameworks, suggesting practical applications of AI tools in optimizing human resource management practices, which can lead to better employee performance and, consequently, higher patient satisfaction.

Despite these valuable insights, several avenues for further research remain. Future studies could explore the specific AI technologies that most significantly impact human resource management practices and their subsequent effects on patient satisfaction metrics. Additionally, longitudinal studies examining the long-term effects of AI integration on employee engagement and patient outcomes would provide deeper insights into the sustainability of these improvements.

Moreover, research could investigate the challenges and ethical considerations associated with implementing AI in human resource management, including issues related to data privacy, bias in algorithms, and the implications for job roles within healthcare. Exploring the perceptions of both healthcare employees and patients regarding AI interventions could further enrich the understanding of trust and acceptance in AI-driven processes.

Findings indicate that AI applications - such as predictive staffing, real-time performance monitoring and personalized training - can contribute significantly to optimizing human resource processes. These improvements are closely linked to enhanced patient experiences, as better-managed healthcare professionals are more likely to provide timely, empathetic and efficient care. Furthermore, AI facilitates data-driven decision-making, allowing institutions to align workforce capabilities with patient needs more effectively.

However, the successful deployment of AI in human resource management requires careful consideration of ethical, organizational and workforce-related challenges. Ensuring transparency, addressing employee concerns about automation and investing in digital literacy and AI readiness are essential steps to maximize the benefits of such technologies.

In conclusion, the integration of AI into human resource management processes is a promising pathway towards not only improving internal workforce efficiency but also elevating the standards of patient satisfaction. Future research should further explore the longitudinal effects of AI adoption in healthcare human resource management and its implications for institutional performance and patient-centered outcomes.

7. References

1. BATBAATAR, E., DORJDAGVA, J., LUVSANNYAM, A., SAVINO, M. M., & AMENTA, P. Determinants of patient satisfaction: A systematic review. *Perspectives in Public Health*. 2017, 137(2), 89–101.
2. BLEICH, S. N., ÖZALTIN, E., & MURRAY, C. J. How does satisfaction with the healthcare system relate to patient experience? *Bulletin of the World Health Organization*. 2009, 87, 271–278.
3. WARE, J. E., SNYDER, M. K., WRIGHT, W. R., & DAVIES, A. R. Defining and measuring patient satisfaction with medical care. *Evaluation and Program Planning*. 1983, 6(3–4), 247–263.
4. DONABEDIAN, A. The quality of care: How can it be assessed? *JAMA* 1998, 260(12), 1743–1748.
5. OTANI, K., HERRMANN, P. A., & KURZ, R. S. Improving patient satisfaction in hospitals through training in service quality. *Journal of Health Care Management*. 2003, 48(4), 225–238.
6. ANDALEEB, S. S. Service quality perceptions and patient satisfaction: A study of hospitals in a developing country. *Social Science & Medicine*. 2001, 52(9), 1359–1370.
7. STREET, R. L., MAKOUL, G., ARORA, N. K., & EPSTEIN, R. M. How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Education and Counseling*. 2009, 74(3), 295–301.
8. REDMAN, T., & MATHEWS, B. P. Service quality and human resource management: A review and research agenda. *Personnel Review*. 1998, 27(1), 57–77.
9. HEATH, S. More face-to-face interaction is key to patient engagement. *Patientengagementthit.com* 2016. [online]viewed 01.02.2025. Retrieved from URL: <https://patientengagementthit.com/news/more-face-to-face-interaction-is-key-to-patient-engagement>
10. CARR HILL, R. The measurement of patient satisfaction. *Journal of public health*, 1992, Vol 14 <https://doi.org/10.1093/oxfordjournals.pubmed.a042739>.
11. CROW R., GAGE H., HAMPSON S., HART J., KIMBER A, STOREY L. The measurement of satisfaction with healthcare: implications for practice from a systematic review of the literature. *Health Technology assessment*. February 2002, [online] viewed 20.02.2025. Retrieved from URL: <https://pubmed.ncbi.nlm.nih.gov/12925269/>
12. HUDAK P.L., WRIGHT, J.G. The characteristics of patient satisfaction measures. December 15, 2000, vol 25, 3167-3177. [online] viewed 20.02.2025. Retrieved from URL: <https://doi.org/10.1097/00007632-200012150-00012>
13. STEIBER, S.R., KROWINSKI W.J. Measuring and managing patient satisfaction. Chicago-Ed. American hospital publishing. ISBN 1556480520. 1990, Pg 179
14. ROSS, C.K., STEWART, C.A., SINACORE, J.M. A comparative study of seven measures of patient satisfaction. *Med-care* 1995. Vol 33, no4. doi: 10.1097/00005650-199504000-00006
15. SOFAER, S., FIRMINER, K. Patient perceptions of the quality of health services. 2005, *Annu rev public* 26 doi: 10.1146/annurev.publhealth.25.050503.153958
16. JACKSON J.L., KROENKE K., CHAMBERLIN J. Prediction of patient satisfaction. 2001, doi: 10.1016/S0277-9536(00)00164-7

17. WIDAVATI, M.Y., TAMTOMO, D., ADRIANI, R.B. Factors affecting quality of health service and patient satisfaction in community health centers in North Lampung Sumatera, Jurnal of health policy and management. 2017, DOI: 10.26911/thejhpm.2017.02.02.08
18. EHNERT, I. Sustainability and human resource management: Reasoning and applications on corporate websites. European Journal of International Management. 2009 DOI:10.1504/EJIM.2009.028848
19. JABBOUR, C., JABBOUR, S. Green Human Resource Management and Green Supply Chain Management: Linking two emerging agendas. Journal of cleaner production. 2015, DOI:10.1016/j.jclepro.2015.01.052
20. PARENT-ROCHELEAU, X. & PARKER, S. Algorithms as work designers: How algorithmic management influences the design of jobs. Human Resource Management Review. 2021, DOI:10.1016/j.hrmr.2021.100838
21. KPMG. Refocusing on culture and employee engagement, 2021. [online] viewed 12.12.2025. Retrieved from URL: <https://assets.kpmg.com/content/dam/kpmgsites/uk/pdf/2021/07/refocusing-on-culture-and-employee-engagement.pdf>