Galetin Milena*
https://orcid.org/0000-0002-1489-6050
Mladenov Marijana**
https://orcid.org/0000-0002-4574-5159

UDC: 364.69:004.8
Original scientific paper
DOI: 10.5937/ptp2504042G
Received on: September 30, 2025
Approved for publication on:
October 14, 2025
Pages: 42–55

THE RIGHT TO HEALTH IN THE CONTEMPORARY WORLD – THE APPLICATION OF ARTIFICIAL INTELLIGENCE FROM THE PERSPECTIVE OF HEALTHCARE PROFESSIONALS

ABSTRACT: The application of artificial intelligence has become inevitable in almost all areas of life and it is indisputable that it also affects different human rights. In the paper, the authors deal with the impact of artificial intelligence on the right to health, one of the basic human rights, and in this sense explore the attitudes of healthcare professionals regarding the application of artificial intelligence in this sector. In addition to empirical research and theoretical analysis, the most important legal documents related to the application of artificial intelligence in healthcare are presented. In the last part of the paper, the authors present concluding considerations and indicate further steps that should be taken in this sector regarding the application of artificial intelligence.

Keywords: *artificial intelligence and healthcare, AI strategy in healthcare, right to health and artificial intelligence.*

---

* LLD, Associate Professor, University Business Academy in Novi Sad, Faculty of Law for Commerce and Judiciary in Novi Sad, Novi Sad, Serbia, e-mail: milena.galetin@pravni-fakultet.info

** LLD, Associate Professor, University Business Academy in Novi Sad, Faculty of Law for Commerce and Judiciary in Novi Sad, Novi Sad, Serbia, e-mail: alavuk@pravni-fakultet.info

1. Introduction

There are various ways and different areas of AI application in healthcare. Its role in this sector can be found in *medical imaging and diagnostics, virtual patient care, medical research and drug delivery, rehabilitation, patient engagement and compliance, administrative application* (Al Kuwaiti et al., 2023; see Arnold, 2021).

It is undeniable that "possible applications of AI for health and medicine are expanding continuously" (Ethics and governance of artificial intelligence for health: WHO guidance, 2021, p. 5), and it could have "substantial potential for cost reduction and enhancement of service quality" (Tulli, 2023). In addition to the numerous benefits that this application brings, we also face numerous risks and challenges, especially considering that it is a constantly changing and progressing area. In the literature, challenges in the application of AI in healthcare stand out – ethical (privacy, transparency, trust, responsibility, bias, cybersecurity, and data quality) (Jeyaraman, Balaji, Jeyaraman, & Yadav, 2023), technical and governance challenges (Al Kuwaiti et al., 2023). In particular, in this context, the impact of artificial intelligence on the improvement of the doctor-patient relationship is discussed (Li, Li, Wei & Li, 2024, see also Report on the application of artificial intelligence in healthcare and its impact on the 'patient-doctor' relationship, Steering Committee for Human Rights in the fields of Biomedicine and Health (CDBIO), 2024).

In order for the application of artificial intelligence in the healthcare sector to be fully implemented and in such a way to protect fundamental human rights and overcome abovementioned challenges, it is necessary to undertake and improve this process. First of all, this implies "collaboration among researchers, healthcare professionals, policymakers, and technology experts" (Jeyaraman, Balaji, Jeyaraman, & Yadav, 2023), and "to develop implementation strategies across healthcare organizations to address challenges to AI-specific capacity building" (Petersson et al., 2022), which imply their "investment in the necessary infrastructure, training, resources, and partnerships to support its successful adoption and ensure equitable access for all" (Sezgin, 2023).

Finally, it is absolutely certain that AI cannot replace healthcare workers, but can serve as a very useful, complementary tool in their work, which leads to "improved service quality, patient outcomes, and a more efficient healthcare system" (Sezgin, 2023; Al Kuwaiti, et al., 2023).

AI application in healthcare raises the question of its impact on the right to health – one of the human rights confirmed in the most important international documents (UN, General Assembly Universal Declaration of Human Rights, 1948, article 25; see also The Right to Health, World Health Organization Office of the United Nations High Commissioner for Human Rights; Charter of Fundamental Rights of the European Union). The Constitution of the Republic of Serbia also stipulates that "Everyone shall have the right to protection of his/her mental and physical health" and that the Republic of Serbia shall assist the development of health and physical culture "(Article 68 Constitution of the Republic of Serbia (2006).

In the European Declaration on Digital Rights and Principles for the Digital Decade is stated that "what is illegal offline, is illegal online" and it clearly indicates that the right to health, as well as other fundamental rights, enjoy full protection also in the digital environment. Furthermore, the aim of AI is to increase human well-being (European Declaration on Digital Rights and Principles for the Digital Decade, 2023; see also Feasibility Study, Ad hoc Committee on Artificial Intelligence (CAHAI), 2020).

In the European Union, Artificial Intelligence Act (AI Act) is the most important legal document regulating artificial intelligence and it is "particularly significant for the healthcare sector, where the use of AI products for diagnosis, treatment, and patient care is rapidly increasing" (Kolfschooten & Oirschot, 2024, p. 1), but it also implies certain "challenges, and uncertainties within the EU regulatory nexus" (see Vardas, Marketou & Vardas, 2025, p. 834). Risk-based approach in AI Act classifies AI systems into four categories—unacceptable, high, limited, and minimal risk or a general-purpose AI model and "different types of health-related AI systems fall into divergent risk categories" (Kolfschooten & Oirschot, 2024, p. 2). And different categories impose different requirements. Thus, for application health-related AI systems fall into a high-risk category, stricter requirements have to be fulfilled, such as risk management, data quality and data governance, technical documentation, record-keeping, transparency and the provision of information to deployers, human oversight, and accuracy, robustness and cybersecurity (AI Act).

The Republic of Serbia still does not have a special law on artificial intelligence, and its adoption is expected in the near future. In the Ethical guidelines for the development, application and use of trustworthy and responsible artificial intelligence, which were adopted in 2023, artificial intelligence systems in the field of healthcare are considered as high-risk systems, and it is especially emphasized for systems that analyze genetic and health data (Conclusion on the adoption of ethical guidelines for the development, application and use of

trustworthy and responsible artificial intelligence, 2023). The Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2025-2030 envisages as one of the objectives the *Increase the application of artificial intelligence in priority segments of society and economy*, and one of the measures is *Incentives for the application of artificial intelligence in healthcare and biotechnology, so health improvement by (AI) technology is at the top of the priority list.* (Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2025-2030, 2025). The indicators in this regard set out in the Strategy are the "*number of products and technologies developed and commercialized with the support of state funds and subsidies* and the *number of educational programmes, courses and certifications supported by state funds and intended for training experts in the use of AI" in those fields.* Finally, as effects of measures within this objective, the Strategy highlights: *improvement of diagnostics and treatment, resulting in a better health of the population; in administration – more efficient and faster services to citizens, reducing waiting times and improving transparency; faster and more accurate diagnostics will reduce treatment costs and enable more efficient use of healthcare resources"* (Strategy for the Development of Artificial Intelligence in the Republic of Serbia for the period 2025-2030, 2025).

2. Analysis of the application of artificial intelligence in healthcare sector – empirical research

2.1. Research sample, Research instrument, Data collection

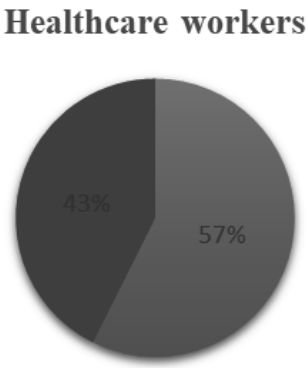
A carefully designed questionnaire for the research purpose was created to collect data. It was printed and delivered to target groups – healthcare workers – doctors and medical staff (medical associates, healthcare assistants, nurses...), with the goal to examine their views on the application of artificial intelligence in the healthcare system. The questionnaire consisted of two parts – General information about the respondents and Attitudes regarding the application of artificial intelligence systems in healthcare. The latter were multiple-choice questions that aim to examine the respondents' familiarity with AI application in healthcare; usefulness of AI application in this sector and reasons; whether they use AI tools in their work; risks or challenges in using artificial intelligence in healthcare; opinions on what would contribute to improving the application of artificial intelligence in healthcare.

Healthcare workers from both private and public sectors participated in the research. The collection of filled questionnaires was carried out in the

period from July to September 2025. The total number of respondents was 122 – 70 doctors and 52 medical staff.

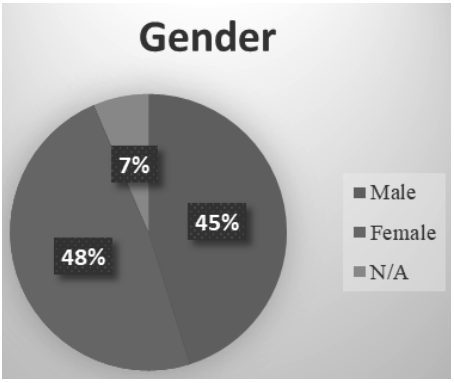
Data concerning gender, age categories and sectors surveyed work in:

Chart 1.



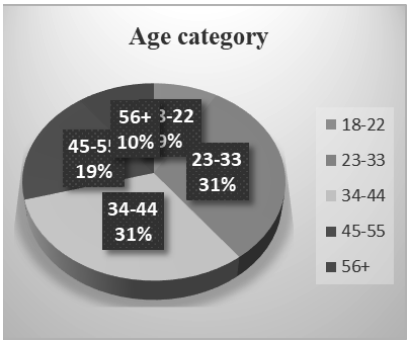
Source: Authors' research

Chart 2.



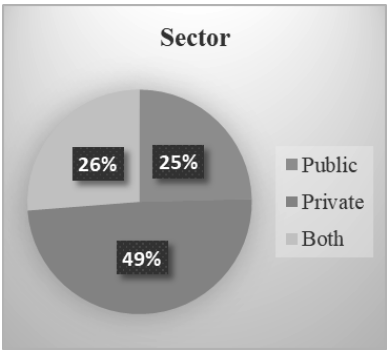
Source: Authors' research

Chart 3.



Source: Authors' research

Chart 4.



Source: Authors' research

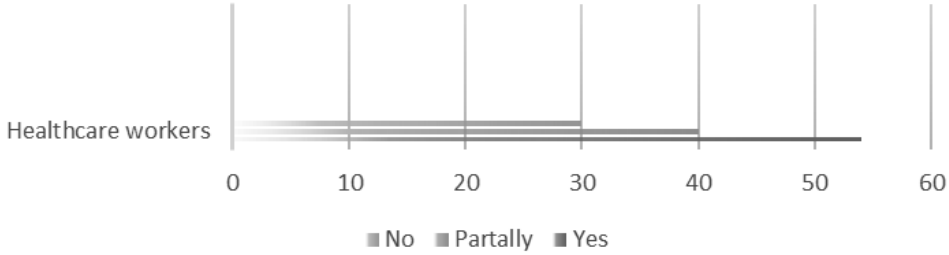
Therefore, more doctors participated in the survey (57%) compared to medical staff (43%); slightly more females (48%) than males (45%). The largest number of respondents belongs to the 23-33 and 34-44 age categories and the most work in the private sector.

Further, attitudes of healthcare workers concerning AI application in healthcare were subject of the second part of the survey.

2.2. Research results

Familiarity with the concept of applying artificial intelligence in healthcare

Chart 5. Familiarity with the concept of applying artificial intelligence in healthcare

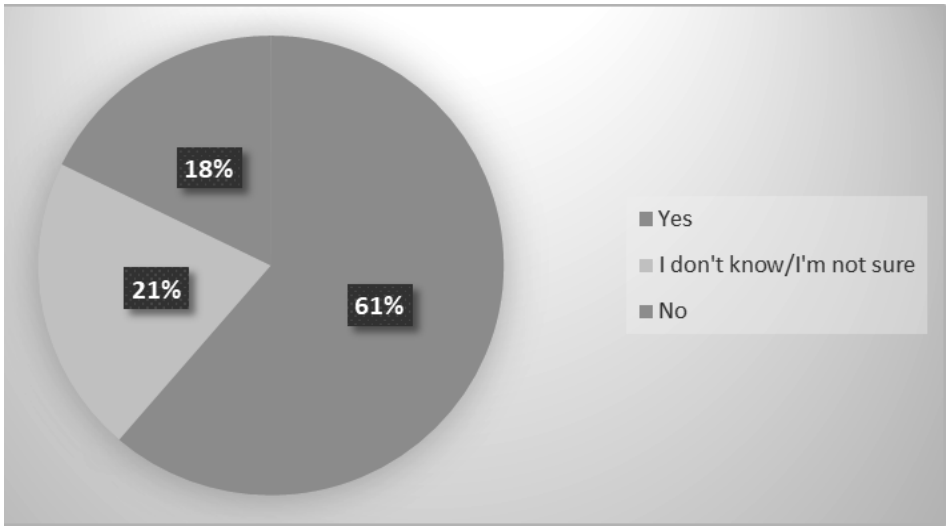


Source: Authors' research

Usefulness of AI application in healthcare sector

According to the respondents' answers, 61% is of the opinion that AI application in healthcare sector may be useful; 18% believes that this application is not useful in healthcare, while 21% is not sure/ do not know.

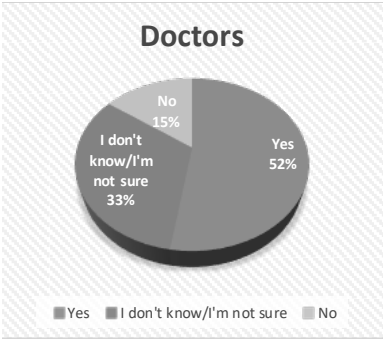
Chart 6. Usefulness of AI application in healthcare sector



Source: Authors' research

If we compare opinions of two target groups who participated in the survey (Chart 7 & Chart 8), medical staff believe, in higher percentage (62% – medical staff; 52% doctors), that AI application in healthcare sector is useful. There is greater uncertainty among doctors concerning this question.

Chart 7.
Usefulness of AI application in healthcare sector – medical staff



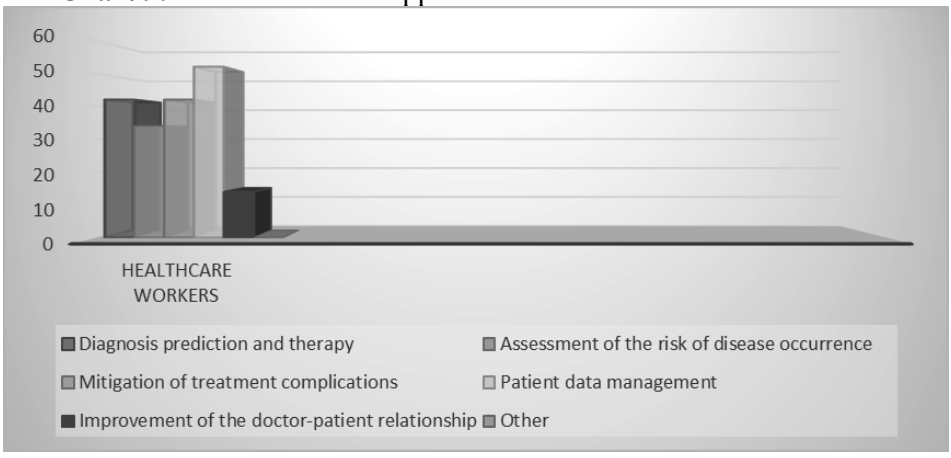
Source: Authors' research

Chart 8.
Usefulness of AI application in healthcare sector – doctors

Authors' research

Afterwards, among healthcare workers who found AI application in this sector useful, the reasons for this standpoint are following:

Chart 9. Usefulness of AI application in healthcare sector – reasons

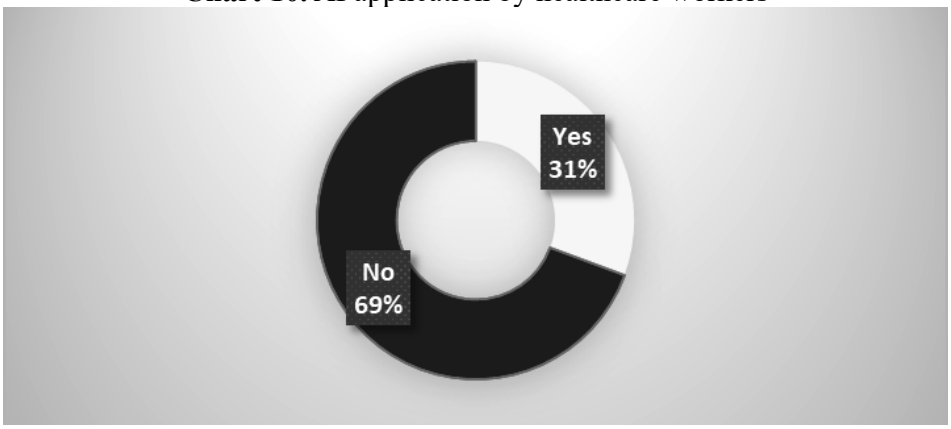


Source: Authors' research

Application of AI tools

Regarding the question whether healthcare workers use AI systems in their work, results show the following:

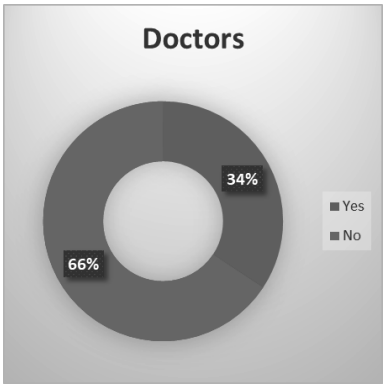
Chart 10. AI application by healthcare workers



Source: Authors' research

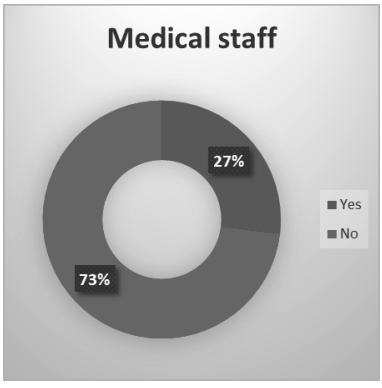
Also, results indicate that just 34% of surveyed doctors and 27% of medical staff use AI in work (Chart 11 and Chart 12).

Chart 11.
AI application by doctors



Source: Authors' research

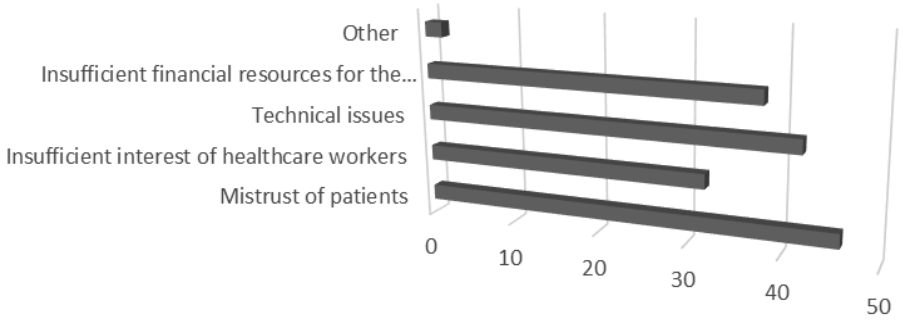
Chart 12.
AI application by medical staff



Source: Authors' research

Risks and challenges of using artificial intelligence in healthcare

Chart 13. Risks and challenges of using AI in healthcare

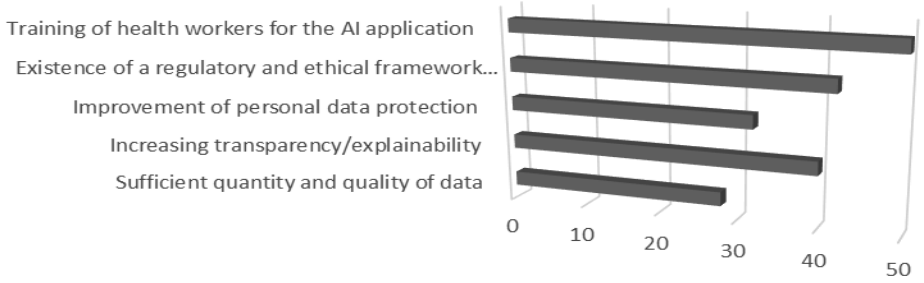


Source: Authors' research

There was a remark that misdiagnosis may occur if there is excessive reliance on artificial intelligence; it could only be a useful tool.

Finally, the last question has the aim to examine healthcare workers' attitudes regarding the improvement of AI application in healthcare (Chart 14).

Chart 14. Contribution to AI improvement in healthcare



Source: Authors' research

3. Conclusion with recommendations

Based on the analysis of the questionnaire, it could be concluded that respondents are not sufficiently familiar with the concept of AI application in healthcare (44% answered yes). 24% of the surveyed are not familiar with it at all, and 32% are partially familiar which indicates a quite high level of nescience among healthcare workers.

According to the respondents' answers, 61% is of the opinion that AI application in the healthcare sector may be useful; 18% believes that this application is not useful in this sector, while 21% is not sure/ do not know. This points out to still a small percentage of those who think this application is useful. If we compare the opinions of two target groups who participated in the survey, medical staff believe, in a higher percentage (62% – medical staff; 52% doctors), that AI application in the healthcare sector is useful. There is greater uncertainty among doctors concerning this question (33%), but also a higher percentage of respondents among medical staff who found it useless (19%).

Among healthcare workers who have found AI application in this sector useful, the reasons for this standpoint are the following: the largest number of them believes that it is patient data management, followed by Diagnosis prediction and therapy and Mitigation of treatment complications; a slightly smaller number states Assessment of the risk of disease occurrence, while much smaller is number of those who thinks that improvement of doctor-patient relationship is the reason for usefulness of AI application.

Regarding the question whether healthcare workers use AI systems in their work, results show that a worryingly large number of healthcare workers do not use AI in their work: 69% do not use, while only 31% do. Results indicate that 66% of surveyed doctors and 73% of medical staff do not use AI in their work. It is used the most in the age category 34-44 (52.63%), while in the age category 56+, none of the respondents use artificial intelligence in their work. This indicates that emphasis should be placed on the implementation, which also includes and consists of training for healthcare workers, explainability, encouragement and incitement, their involvement in the use of artificial intelligence systems.

Afterwards, when it comes to Risks and challenges of using artificial intelligence in healthcare, a surprisingly large number of answers related to mistrust of patients, and then to technical issues and insufficient financial resources for the implementation of AI in the health system. Especially important is that the results indicate that insufficient interest of healthcare workers is not considered as one of the main obstacles for the AI application into healthcare.

Finally, according to the surveyed, training for healthcare workers for the AI application would contribute the most to the improvement of the application of artificial intelligence in healthcare. In that regard, the existence of a regulatory and ethical framework for the AI application in healthcare and increasing transparency/explainability would have a medium impact. Improvement of personal data protection and existence of sufficient quantity and quality of data would have the least influence.

***

Like the AI Act, which *does not constitute distinct sectoral rules, but applies horizontally to all sectors, including healthcare* (Kolfschooten & Oirschot, 2024), it should not be expected otherwise in special law regarding AI in Serbia. The importance of a sectoral approach of AI application imposes the need to create a special strategy in the field of healthcare as well. In addition to adoption a special law in this area, this represents a significant step in the implementation of artificial intelligence. Taking all of the above into consideration, strategy for the application of artificial intelligence in healthcare should include and cover several key areas – *Introduction* – in which, in addition to the possibility of presenting the current state of application of artificial intelligence in the healthcare system, should be stated what artificial intelligence is, how it is used, what are the advantages and disadvantages, i.e. the risks of its use; *Goals and objectives* – improving data management (ensuring quantity and high quality of data; increasing transparency, explainability; reducing discrimination and prejudice; improving the protection of personal data); establishing a regulatory and ethical framework for the application of artificial intelligence; training of healthcare workers for collection/implementation of AI; patient-related improvements (early diagnosis, personalized treatment plan, disease risk assessment, treatment effectiveness/success assessment, management or mitigation of treatment complications, etc.); *Risks and strategies for their reduction*; *Assessment of the institution's readiness*; *Management*.

This approach could be very important for the trustworthy, ethical and safe application of artificial intelligence, and the next steps should be aimed at creating and improving the strategy for the application of artificial intelligence in different sectors, taking into account their specificities, which would later lead to the development of a strategy at the level of various institutions/organizations. In addition to legal regulations in the field of artificial intelligence, we believe that this, in healthcare sector, would greatly contribute to the protection of the right to health, as one of the fundamental human rights.

ACKNOWLEDGEMENT

The paper is the result of a long-term scientific research project, *Progressive Development of Law in the Modern Digital Society*, financed by the Provincial Secretariat for Higher Education and Scientific Research (Decision No. 003069523 2024 09418 003 000 000 001-01003069523 2024 09418 003 000 000 001-01, 21 November 2024).

Conflict of Interest
The authors declare no conflict of interest.

Author Contributions
Conceptualization, M.G. and M.M; formal analysis, M.G. and M.M; investigation, M.G. and M.M; methodology, M.G. and M.M; validation, M.M; visualization, M.G; writing – original draft, M.G. and M.M; writing – review & editing, M.G. and M.M. All authors have read and agreed to the published version of the manuscript.

Galetin Milena
Univerzitet Privredna akademija u Novom Sadu, Pravni fakultet za privredu i pravosuđe u Novom Sadu, Novi Sad, Srbija

Mladenov Marijana
Univerzitet Privredna akademija u Novom Sadu, Pravni fakultet za privredu i pravosuđe u Novom Sadu, Novi Sad, Srbija

PRAVO NA ZDRAVLJE U SAVREMENOM SVETU – PRIMENA VEŠTAČKE INTELIGENCIJE IZ UGLA ZDRAVSTVENIH RADNIKA

APSTRAKT: Primena veštačke inteligencije je postala neminovnost u gotovo svim sferama života, a njen uticaj na različita ljudska prava je nesporan. Autori se u radu bave uticajem veštačke inteligencije na pravo na zdravlje, jedno od osnovnih ljudskih prava i u tom smislu ispituju stavove zdravstvenih radnika o primeni veštačke inteligencije u ovom sektoru. Pored empirijskog istraživanja i teorijske analize, prikazani su i najznačajniji pravni dokumenti koji se odnose na primenu veštačke inteligencije u zdravstvu. U poslednjem delu rada, autori iznose zaključna razmatranja, te ukazuju na dalje korake koje bi trebalo preduzeti u ovom sektoru kada je primena veštačke inteligencije u pitanju.

Ključne reči: *veštačka inteligencija i zdravstvena zaštita, strategija veštačke inteligencije u zdravstvu, pravo na zdravlje i veštačka inteligencija*.

References

1. Al Kuwaiti, A. Nazer, K., Al-Reedy, A., Al-Shehri, S., Al-Muhanna, A., Subbarayalu, A.V., Al Muhanna, D., & Al-Muhanna, F.A. (2023). A Review of the Role of Artificial Intelligence in Healthcare. *Journal of Personalized Medicine*, *13*(6), p. 951, DOI: https://doi.org/ 10.3390/ jpm13060951
2. Arnold, M. H. (2021). Teasing out Artificial Intelligence in Medicine: An Ethical Critique of Artificial Intelligence and Machine Learning in Medicine. *Bioethical Inquiry*, *18*(1), pp. 121–139, DOI: https://doi.org/10.1007/s11673-020-10080-1
3. Charter of Fundamental Rights of the European Union. OJ C 326, 26.10.2012
4. *Ethics and governance of artificial intelligence for health: WHO guidance* (2021). Geneva: World Health Organization
5. European Declaration on Digital Rights and Principles for the Digital Decade (2023/C 23/01)
6. Feasibility Study, Ad hoc Committee on Artificial Intelligence (CAHAI), Council of Europe, CAHAI (2020)23, Strasbourg, 17 December 2020
7. Jeyaraman M., Balaji S., Jeyaraman N., & Yadav, S. (2023). Unraveling the Ethical Enigma: Artificial Intelligence in Healthcare. *Cureus*, *15*(8), e43262, DOI: 10.7759/cureus.43262
8. Kolfschooten, van H., & Oirschot, van J. (2024). The EU Artificial Intelligence Act (2024). Implications for healthcare. *Health policy 149*, p. 105152, DOI: https://doi.org/10.1016/j.healthpol.2024.105152
9. Li, Y., H, Li, Y., L., Wei, M.,Y., & Li, G.Y. (2024). Innovation and challenges of artificial intelligence technology in personalized healthcare. *Scientific Reports*, *14*(1), p.18994, DOI: https://doi.org/10.1038/ s41598-024-70073-7
10. Petersson, L., Larsson, I., Nygren, J.M., et al. (2022). Challenges to implementing artificial intelligence in healthcare: a qualitative interview study with healthcare leaders in Sweden. *BMC Health Serv Res*, *22*(1), p. 850, DOI: https://doi.org/10.1186/s12913-022-08215-8
11. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU)

No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (Text with EEA relevance)
12. Report on the application of artificial intelligence in healthcare and its impact on the 'patient-doctor' relationship, Steering Committee for Human Rights in the fields of Biomedicine and Health (CDBIO), Council of Europe, September 2024
13. Sezgin, E. (2023). Artificial intelligence in healthcare: Complementing, not replacing, doctors and healthcare providers. *Digital health*, *9*, pp. 1–5, DOI:10.1177/20552076231186520
14. Strategija razvoja veštačke inteligencije u Republici Srbiji za period 2025-2030 godine [Strategy for the development of artificial intelligence in the Republic of Serbia for the period 2025-2030]. *Službeni glasnik RS*, br. 5/25
15. Tulli, S.,K.,C. (2023). Utilisation of Artificial Intelligence in Healthcare – Opportunities and Obstacles. *The metascience*, *1*(1), pp. 81–92
16. UN, General Assembly Universal Declaration of Human Rights. New York-Geneva: United Nations Publications, resolution 217 A (III), 10 December 1948
17. Ustav Republike Srbije [Constitution of the Republic of Serbia]. *Službeni glasnik RS*, br. 98/06 i 115/21
18. Vardas, E.P, Marketou, M., & Vardas, P.E (2025). Medicine, healthcare and the AI act – gaps, challenges and future implications. *European Heart Journal – Digital Health*, *6*(4), pp. 833–839, DOI: https://doi.org/10.1093/ehjdh/ztaf041
19. Zaključak o usvajanju etičkih smernica za razvoj, primenu i upotrebu pouzdane i odgovorne veštačke inteligencije [Conclusion on the adoption of ethical guidelines for the development, application and use of trustworthy and responsible artificial intelligence]. *Službeni glasnik RS*, br. 23/23