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ANALYSIS OF CHALLENGES AND PERSPECTIVES IN THE ACCEPTANCE OF ARTIFICIAL INTELLIGENCE IN RADIOLOGY BY HEALTHCARE WORKERS

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ABSTRACT

Aim: The research aims to explore healthcare workers' attitudes towards and acceptance of artificial intelligence in radiology, focusing on its potential to enhance diagnostic accuracy, reduce waiting times, increase service efficiency, and improve patient care. It seeks to assess their willingness to adopt artificial intelligence, along with their concerns, expectations, and educational needs to effectively utilize this technology in radiological practice.

Methods: A prospective study surveyed 50 healthcare workers, including radiologists, technicians, nurses, and others using various radiological techniques for diagnosing diseases. Using a quantitative approach, numerical data from distributed surveys assessed their attitudes and knowledge regarding artificial intelligence in radiology. Conducted at Public Health Institution "Zdravstveni centar Brčko" in Bosnia and Herzegovina's Brčko District over 60 days, the research adhered to ethical principles and received approval from the center's Ethics Committee.

Results: The majority of respondents recognize the potential of artificial intelligence to improve the efficiency of radiological services and treatment processes, but at the same time express the need for additional education and training in order to optimally use this technology. Despite the positive perception, part of the respondents are still not sure about the use of artificial intelligence, which emphasizes the importance of continuous information and education of healthcare workers.

Conclusion: Ultimately, the research results indicate the importance of further steps in the implementation of artificial intelligence in radiology in order to improve the quality of health care and optimize treatment processes.

Keywords: Artificial intelligence, radiological diagnostics, challenges, perspectives, quality of health care.

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INTRODUCTION

The accelerated development of information technology and robotics has enabled the development of artificial intelligence, which has been implemented in many areas of clinical medicine, including radiology. Computer programs "learn" from images evaluated by experienced experts, radiologists, and from the results of histopathological examinations [1].

In the past, healthcare was more personalized where doctors in the local community knew us and our family members well, which was necessary for good treatment. However, with advances in healthcare technology, physicians have come to rely more on diagnostic devices to analyze patients' health conditions. This approach has resulted in better insight into the condition of patients and improved diagnostics and health care.

Informatization of medical devices and systems plays a significant role in modern healthcare. Through digitization, networking and connection of medical devices and systems, procedures are accelerated, data exchange is facilitated, and the efficiency and quality of healthcare is improved.

Artificial intelligence was first described in 1950; however, several limitations in early models prevented widespread acceptance and application in medicine. In the early 2000s, many of these limitations were overcome with the advent of deep learning. Now that AI systems are capable of analyzing complex algorithms and self-learning, we are entering a new era of medicine where AI can be applied to clinical practice through risk assessment models, improving diagnostic accuracy and workflow efficiency [2].

Artificial intelligence, in its narrowest definition, is an area of applied computing in which algorithms are developed and trained to perform tasks typically associated with human intelligence. In medicine, this means that artificial intelligence could first of all imitate the diagnostic skills of doctors and thus improve health care [3].

Experts in artificial intelligence believe that radiology is an area of medicine in which significant application of artificial intelligence will be in the first place, mostly due to its dependence on technological progress [4]. Artificial intelligence can help doctors and other health professionals analyze a large amount of medical data such as scans and health records to detect disease as early and accurately as possible, and make a diagnosis [5].

Recent studies show that artificial intelligence algorithms combined with radiological diagnostics detect breast cancer with an accuracy of about 90%. There have also been cases where breast cancer was detected using artificial intelligence, where seven previous radiologists did not individually diagnose cancer in the same patient [6].

The Ministry of Health, Labor and Social Protection of the Herzegovina-Neretva Canton, in cooperation with the Institute of Health Insurance, fully implemented the application of artificial intelligence in the detection of acute stroke for all patients in this canton. By implementing artificial intelligence in radiology, Herzegovina-Neretva Canton became the first center in the wider region to use this advanced system, which represents a major breakthrough in the treatment of patients with acute stroke.

Artificial intelligence has great potential to support healthcare systems in achieving their "quadruple aim", which includes improving population health, improving the quality of healthcare, reducing costs and increasing patient satisfaction. The application of artificial intelligence in the health system can provide great benefits in various areas, such as diagnostics, therapy, research, planning and management of the health system [7].

The introduction of informatics, machine learning, biobanks and personalized medicine has a significant impact on medicine in general and radiology as a specialty. Informatics and machine learning enable fast and precise analysis of medical data, leading to better understanding of pathology, development of new therapies and personalized treatment. The use of these technologies enables radiologists to make better diagnoses, which increases the chances of early intervention and a better treatment outcome. All these changes represent a great progress in medicine, but they also pose challenges and require the constant training of specialists. Radiologists must be familiar with the latest technologies and adapt their approaches to diagnosis and therapy in accordance with new knowledge. Also, it is important to ensure that these technologies are applied in accordance with ethical and legal standards [8].

Artificial intelligence algorithms can be used to analyze medical images and extract prognostic information that is invisible to the "naked" eye, such as small changes in tissue texture, shape and color. This can significantly increase the diagnostic and prognostic value of medical images [9].

It is important to emphasize that algorithms should not be used as a substitute for doctors and experts in medical diagnostics, but as additional tools that will help them in establishing a diagnosis and extracting prognostic information.

In this context, it is very important to conduct a study on the application of artificial intelligence in radiology in order to obtain as many opinions and perspectives of healthcare workers as possible in the decision-making process on the implementation of artificial intelligence systems in healthcare.

Artificial intelligence in radiology

Artificial intelligence is not perceived as a threat to radiologists, nor as a potential replacement for their role, but as a tool or support that can be implemented in clinical practice to improve radiological interpretation. Its purpose is the standardization and objectification of radiological findings. The development of increasingly complex and technologically advanced radiological devices and evaluation programs leads to an increase in the amount of information that radiologists have to deal with. In this context, computer support programs facilitate the interpretation process, reducing the burden and workload of radiologists.

In the era of the computer revolution and the pandemic that fundamentally changed many aspects of our lives, especially in medicine, computer technology is emerging as a potential solution for the survival and progress of the radiology profession. By accepting these challenges, we adapt to the changes and conditions that have changed the world forever. We learn and strive for new insights and discoveries, creating new opportunities for improvement and progress for the benefit of all of us [10].

The field of artificial intelligence represents a revolutionary technology that has the potential to transform various sectors, one of the key sectors being healthcare. In the context of healthcare, radiology plays a key role as a medical discipline that uses radiation for diagnostic purposes. By providing visual information, radiology is indispensable in the process of providing health care.

The application of artificial intelligence algorithms can result in the optimization of the quality of health care through improved interpretation of medical images, which leads to more accurate diagnoses and an individualized approach to treatment. In addition, the integration of artificial intelligence into radiology processes can significantly improve the efficiency and accessibility of the healthcare system. Automation of medical image analysis and rapid diagnosis through artificial intelligence algorithms can accelerate decision-making, enabling timely and targeted treatment of patients [11].

Artificial intelligence plays a key role in the field of radiology, significantly influencing every aspect of the work process within this discipline [12]. The main impetus for the application of artificial intelligence in radiology stems from the growing need of hospital systems for greater efficiency and effectiveness. Every day, the volume of radiological data increases significantly compared to the number of trained radiologists, which leads to increased productivity, but at the same time to inevitable errors.

The most important sphere of application of artificial intelligence lies in the interpretation of radiological images. Radiologists analyze large numbers of images every day, setting parameters such as window width and mean Hounsfield units. Relying solely on their own experience and education, radiologists are trained to identify abnormalities and recognize pathological conditions. The introduction of artificial intelligence systems into the work process could significantly improve efficiency and reduce the possibility of errors. In many situations, deep learning algorithms can even make clinical decisions instead of radiologists, analyzing image parameters and evaluating their importance against other factors.

The research problem is how to maximize the potential of artificial intelligence in radiology to improve treatment and facilitate the work of healthcare professionals, including analyzing large amounts of patient and treatment data, finding patterns and trends, and tracking patients after treatment to identify recurring problems or risks.

The lack of understanding and acceptance of artificial intelligence by healthcare professionals can be a problem in the application of this technology in radiology. There is a possibility that healthcare professionals may have prejudices or resistance to new technologies, which includes the application of artificial intelligence in radiology. This may be due to lack of knowledge and insufficient education about artificial intelligence, fear of job loss or reduction in importance in the work of radiologists, and uncertainty in the quality of diagnostics provided by artificial intelligence algorithms.

It is important to emphasize that the application of artificial intelligence in radiology does not mean replacing human expertise, but is an additional tool for improving diagnostics and treatment. Also, healthcare workers should be familiar with the advantages and opportunities provided by artificial intelligence in order to reduce the fear of the unknown and increase the acceptability of this technology. Involving healthcare professionals in development and implementation in medicine can also help build trust and acceptance of the technology. It is important to conduct a study that will investigate the perception of healthcare workers about the application of artificial intelligence in their work, so that the processes of introducing and accepting this technology in the healthcare system can be improved.

Aims of research

Investigate the views and opinions of healthcare workers on the application of artificial intelligence in radiology with the aim of improving diagnostic accuracy, reducing waiting times, increasing the efficiency of radiological services and treating patients, and improving the quality of healthcare.

An analysis of the attitudes and opinions of healthcare professionals on the application of artificial intelligence in radiology, including their readiness to accept the technology, their concerns and expectations.

Assessing the needs for education and training of healthcare workers to increase their ability to use artificial intelligence in radiology.

PATIENTS AND METHODS

Study Design and Patients

The conducted research was a prospective study in which 50 healthcare workers were surveyed. More specifically, the respondents included radiologists, radiology technicians, nurses and other health professionals who used various radiological techniques in the diagnosis of a particular disease.

The research was carried out in the "Zdravstveni centar Brcko" Brcko District of Bosnia and Herzegovina for a period of 60 days, in accordance with ethical principles. Each subject was informed about the research and the procedures that were performed along with the form they signed. The exclusion criteria were respondents who did not want to voluntarily participate in the research..

Materials and Methods:

Quantitative research through a survey questionnaire that was distributed to radiologists and other healthcare professionals served as an effective method for collecting data on healthcare professionals' perceptions of the application of artificial intelligence in radiology. Questionnaire research was one of the most common methods of data collection in research.

The research was conducted using a survey questionnaire containing 23 questions. Five questions related to the respondents' sociodemographic data (age, gender, occupation, type of healthcare facility, period of work in the healthcare facility), while 18 questions had

multiple answers about the users' feelings/predictions regarding the appearance of artificial intelligence in radiology practice in the next 10 years.

Also, a literature study and analysis of professional articles and publications on the application of artificial intelligence in radiology was carried out with an emphasis on the analysis of challenges and perspectives in the acceptance of technology by healthcare workers, in order to obtain a broader overview of existing knowledge on this topic. The literature included research and studies published in medical databases such as PubMed, Scopus, National Library of Medicine and Web of Science. In order to explain the test results, tabular results, graphs and diagrams were used as a data visualization method.

Statistical analysis:

In this research, the data was archived in a database created in the commercial program Microsoft Access, and various statistical methods were used to process the collected quantitative data. In the statistical processing, the method of descriptive statistics was used to describe the demographic data of the research participants (mean value and standard deviation). The Pearson test was a method of statistical analysis to assess the linear correlation between two continuous variables. A statistically significant difference between the values of the investigated parameters was considered if $p<0.05$.

RESULTS

The research was conducted on 50 participants, 24 (48.0%) were men and 26 (52.0%) were women. Based on the results of the research on the age of the respondents, it was determined that two age groups have an identical percentage: the age group from 18 to 29 years (30.0%) and the age group from 30 to 39 years (30.0%). The 50-50 age group has the lowest percentage. It is concluded that the respondents are relatively young people.

The obtained results indicate that medical radiology graduates record the highest percentage of participation in the survey, which is 50.0%. On the other hand, the same percentage of 20.0% was achieved by radiologists and doctors of other specialties. The lowest percentage of participation, of 10.0%, was recorded among medical technicians. 68% of respondents work in a hospital, while 32% of respondents work in a health center.

The majority of respondents (40%) rate their information as good, while 28% rate it as very good. On the other hand, 26% of respondents rated their information as poor, while the smallest percentage (6%) rated it as excellent.

40% of respondents rate their information as good, while 28% rate it as very good. On the other hand, 26% of respondents rated their information as poor, while the smallest percentage (6%) rated it as excellent.

In the presentation of the research results from table 7, respondents were given the option of multiple answers to the question about the type of technology that will be used in the application of artificial intelligence. However, CT technology was singled out as a category with a result of 28%, and MR was also singled out as a separate category in this research with a result of 12%. An even more interesting result is the category that represents a combination of two technologies, namely CT and MR (16%). According to the obtained results, respondents believe that CT and MR are the best technologies in the field of application of artificial intelligence. The lowest result was recorded for mammography and radiography (2%).

In the analysis of the attitudes of agreement on the question about technology and the application of artificial intelligence, the respondents most agree that artificial intelligence will improve the efficiency of radiological services and treatment processes ($M=3.94$, $sd=0.775$), while they agree the least on the question of being informed about the application of artificial intelligence ($M=2.86$, $sd=0.881$) and about the experience of working with artificial intelligence in radiology ($M=2.86$, $sd=0.351$). Such results show that artificial intelligence will have an effect on efficiency, but that medical experts need to be more informed about it, provide them with quality education, and enable cooperation with colleagues who know the field of work very well.

In the analysis of the attitudes of agreement on the question about technology and the application of artificial intelligence, the respondents most agree that the application of artificial intelligence in radiology requires additional education and training of health workers ($M=4.48$, $sd=0.735$), while the least agree that due to automation artificial intelligence reduce the number of jobs ($M=3.24$, $sd=1.021$). Such results show that artificial intelligence will have an effect on efficiency, but that medical experts should be more informed about it, provide them with quality education, and enable cooperation with colleagues who know the area of work very well.

The majority of respondents (68%) disagree with the statement that the use of artificial intelligence in radiology could improve the quality of healthcare, while 32% of respondents agree with this statement. This research result indicates the existence of skepticism and the attitude that artificial intelligence is not a key solution for improving the quality of health care in Bosnia and Herzegovina.

The majority of respondents (70%) declare that they do not feel safe when using artificial intelligence, while 30% of them claim that they feel safe. The high percentage of respondents who do not feel confident using artificial intelligence suggests a lack of training and education among medical radiology professionals about this technology. Therefore, additional education of experts could increase their sense of security when applying artificial intelligence. The results of the research, shown in graph 1, showed that the highest percentage when assessing the perspective of using artificial intelligence in radiology was grade 7 (32%), and the lowest

was grade 2 and 4 (2%), considering that that grade 0 marked as poor, and grade 7 as excellent. No results were recorded for grade 0 and grade 1.

The descriptive results of the research showed that, of the sociodemographic data related to the respondents, the highest arithmetic mean is the assessment of the perspective of using artificial intelligence in radiology (M=7.50, sd= 1.644), while the lowest arithmetic mean is agreement with the statement that the use of artificial intelligence in radiology can improve the quality of health care (M=1.52, sd=0.505).

Table 1. Age of the respondents

	Category	Frequency	%	Valid %	Cumulative %
Valid	18-29 years old	15	30.0	30.0	30.0
	30-39 years old	15	30.0	30.0	60.0
	40-49 years old	9	18.0	18.0	78.0
	50-59 years old	2	4.0	4.0	82.0
	60-69 years old	9	18.0	18.0	100.0
	TOTAL	50	100.0	100.	

Table 2. Occupation of respondents

	Category	Frequency	%	Valid %	Cumulative %
Valid	1. Med. technician	5	10.0	10.0	10.0
	2. Dip. eng. med. radiology	25	50.0	50.0	60.0
	3. Radiologist	10	20.0	20.0	80.0
	4. Doctor of other specialties	10	20.0	20.0	100.0
	TOTAL	50	100.0	100.0	

Table 3. Experience in working with artificial intelligence

What technologies do you think will be the most important area of application of artificial intelligence in the future?

	CATEGORY	Frequency	%	Valid %	Cumulative %
Valid	1. X-ray	5	10.0	10.0	10.0
	2.1. Radiography 2.2. Mammography 2.3. CT 2.4. MR 2.5. Ultrasound	5	10.0	10.0	20.0
	3.1. Radiography 3.2. CT 3.3. MR	1	2.0	2.0	22.0
	4.1. Radiography 4.2.CT	1	2.0	2.0	24.0
	5.1. Radiography 5.2. Ultrasound	1	2.0	2.0	26.0
	6. Mammography	1	2.0	2.0	28.0

CATEGORY	Frequency	%	Valid %	Cumulative %
7.1. Mammography				
7.2. CT	2	4.0	4.0	32.0
8. CT	14	28.0	28.0	60.0
9.1. CT				
9.2. MR	3	6.0	6.0	66.0
9.3. Ultrasound				
10.1. CT 10.2. MR	8	16.0	16.0	82.0
11.1. CT 11.2. Ultrasound	1	2.0	2.0	84.0
12. MR	6	12.0	12.0	96.0
13. Ultrasound	1	2.0	2.0	98.0
14. Other	1	2.0	2.0	100.0
TOTAL	50	100.0	100.0	

DISCUSSION

This research represents a key step forward in understanding the challenges and opportunities brought by the implementation of medical technologies based on artificial intelligence in the field of radiology. Its results provide a deeper insight into how healthcare workers perceive and experience this technological revolution and what advantages and challenges they recognize in its application.

Based on the analysis of data on research participants, we can highlight several key aspects that are important for understanding and interpreting the results. First, the analysis of the respondents' gender shows that there is a slight dominance of the female gender (52%) over the male gender (48%). This balance contributes to a broader and more comprehensive approach to the analysis of the results, taking into account potential gender differences in the experience of artificial intelligence in this context.

The age structure of the respondents is also significant, with a larger percentage belonging to the younger age group of 18 to 29 years (30%) and 30 to 39 years (30%). These results suggest that young healthcare professionals or those at the beginning of their careers were actively involved in AI research. This is important because young people may be more open to technological innovation, and their perspective may be key to the successful integration of artificial intelligence into radiology practice.

The analysis of professional titles shows that the largest percentage of respondents was a B.Sc. engineer medical of radiology (50%), which indicates the significant participation of experts from the radiology profession itself in the research. These experts bring a deep understanding of the specific needs and challenges of radiology practice, which makes the results of this research more relevant and applicable.

Regarding the type of health institution, a higher percentage of respondents worked in a hospital (68%) compared to those who worked in a health center (32%). These data highlight the importance of tailoring AI implementation strategies to the specific needs and priorities of different healthcare institutions to ensure successful integration of this technology.

Finally, the analysis of work experience shows that the highest percentage of respondents worked from 0 to 5 years (34%), while the lowest percentage was those with work experience from 6 to 10 years (16%). These data suggest that younger workers or those with less experience were represented in the survey. This can be key to tailoring training and educational programs to ensure the successful adoption and use of artificial intelligence in radiology.

The results of a survey conducted on the perception of artificial intelligence in radiology reveals a fascinating landscape of opinions and experiences among medical professionals. With its deep dive into this topic, the survey revealed that as many as 86% of respondents still had no experience with the application of artificial intelligence in radiology. This suggests that we are at the very beginning of this revolutionary technological transformation in the medical world.

On the other hand, we cannot ignore those 14% of respondents who already had experience with the application of artificial intelligence. Their experiences are a valuable source of information and learning opportunities for those yet to step into the field. The results of the research clearly show that the future in radiology will be closely related to artificial intelligence, and that further education and workshops are needed to train specialists in the use of this significantly complex technology.

When analyzing sociodemographic data, we discover interesting nuances. For example, the score of information about the application of artificial intelligence has an arithmetic mean of 2.86, which suggests that most respondents have an average level of knowledge about this technology. However, the gender of respondents shows the lowest arithmetic mean of 1.52, which

points to the need for more intensive information and education of certain groups of respondents.

When it comes to the type of technology used in artificial intelligence, the research revealed intriguing preferences. As many as 28% of respondents mentioned CT technology as key in this area, while MR technology received 12% participation. An even more interesting result is the combination of CT and MR technologies, which received a high percentage of 16%. These data indicate the importance of this technology in radiological processes and the need for further research and implementation.

This research not only provides insight into the current state of perception of artificial intelligence in radiology, but also lays the groundwork for future steps in the education, research and application of this advanced technology. Given the speed of technological advancement, it's clear that artificial intelligence will become ubiquitous in the medical world, making healthcare more efficient, accurate and affordable for everyone.

The survey results suggest that the majority of respondents see the potential of artificial intelligence to improve the efficiency of radiology services and treatment processes. This is in line with the general trend in healthcare where technology is increasingly being used to improve the quality and speed of healthcare delivery.

Respondents also emphasize the need for additional education and training of healthcare workers in connection with the application of artificial intelligence in radiology. This is an important emphasis because technological advances require health professionals to be informed and trained to effectively apply new tools and techniques. The lack of information and experience working with artificial intelligence is also highlighted as an area that requires attention and investment.

One characteristic that is important to highlight is that the majority of respondents do not believe that artificial intelligence will lead to job cuts in radiology due to automation. This is a positive indicator as it points to the perception that artificial intelligence will act to support healthcare professionals, facilitating their work and improving outcomes, rather than replacing them.

It is also important to ensure cooperation between experts in different fields in order to use the full potential of artificial intelligence in improving the quality of health care and optimizing the treatment process.

The results of the survey show that the majority of respondents (70%) do not feel safe when using artificial intelligence, while a smaller percentage (30%) declare that they feel safe. These data indicate the need for additional education of medical radiology experts about artificial intelligence, because it is assumed that information about it in the medical context is insufficient or incomplete. Education, therefore, is not only a necessity but also a means to empower experts and patients and to build trust in artificial intelligence as an additional tool in medical diagnostics.

Analysis of the ratings of the perspective of using artificial intelligence in radiology shows that the largest percentage of respondents (32%) gave a rating of 7, which indicates an excellent perspective. On the other hand, the smallest percentage gave grades 2 and 4 (2%), which indicates a more negative perspective. It is important to note that no responses were recorded for scores 0 and 1, suggesting that most respondents believe that artificial intelligence has at least some useful perspective in radiology. This diversity reflects the complexity of accepting new technologies, where optimism and caution are intertwined.

In the world of radiology, where precision, speed and accuracy play a key role, the perception of technologies is becoming increasingly important. This is supported by a deeper analysis of descriptive results that clearly show that experts in the field consider the perspective of artificial intelligence extremely important, which is evident from the high average grade of M=7.50. That rating suggests that experts recognize the potential of artificial intelligence to revolutionize radiology.

On the other hand, the average score of M=1.52 for attitudes about improving the quality of healthcare indicates the need for greater understanding of how artificial intelligence can directly affect the quality of healthcare services. While experts agree that artificial intelligence is key to advancements in radiology, there is a clear indication that more research and understanding of how these technologies can improve the quality of healthcare itself is needed.

Through analysis, it was discovered that artificial intelligence not only improves diagnostic accuracy, but also significantly improves the efficiency of radiology services. This is not just a dry statistical discovery - this is a discovery that can potentially save lives and improve the quality of life of patients around the world.

However, the advantages of artificial intelligence are not only visible in medical procedures. The results emphasize that healthcare workers increasingly feel supported by this technology. Their positive perception indicates that artificial intelligence not only speeds up processes and makes them more accurate, but also reduces stress and worries, allowing them to focus on the essential aspects of their jobs and providing the best possible healthcare to patients. Education about this technology not only increases their confidence, but also ensures a better integration of artificial intelligence into the work environment, creating a synergy between man and technology.

Taking all these facts into account, it is clear that artificial intelligence is more than just a technological trend. It is a revolution that is shaping the future of medicine and healthcare, creating space for innovation that will have a lasting and positive impact on the health of people around the world.

Reviewing professional literature and research articles on the application of artificial intelligence in radiology, with an emphasis on the analysis of challenges and perspectives in the acceptance of this technology among health professionals, wanting to get a comprehensive insight into the current state of knowledge on this topic, it is important to highlight the research conducted in 54 European countries with 1,041 respondents (13). The

results showed that 48% of respondents had a positive and proactive attitude towards artificial intelligence, which is in line with our own research. As for the fear of changing jobs, (39%) respondents expressed this fear. However, it is interesting that this fear was less present among respondents with more advanced knowledge about artificial intelligence (33%) compared to those with basic knowledge (45%).

Our research showed that even (86%) of the respondents had no experience with the application of artificial intelligence in radiology, however, 14% of the respondents already had experience with its application, which is a significant number considering the relatively new nature of this technology in the medical context.

Ultimately, the comparison of these two studies emphasizes the importance of continuous education, information and promotion of positive experiences with the application of artificial intelligence in medical practice. Promoting an open and proactive attitude towards this technology can significantly contribute to its successful adoption and improvement of the quality of health care.

Also, it is important to point out that a similar study was conducted in China during 2021 by the Chinese Association of Radiologists. Out of 3666 respondents, 95.77% of them were familiar with the concept of artificial intelligence, while 71.99% of them stated that they used this technology in their workplace. The percentage of radiologists in China who are familiar with artificial intelligence in radiology, which is 95.77%, significantly exceeds the percentages from other surveys. For example, a 2020 survey in Saudi Arabia showed that 61.2% of radiologists had heard of artificial intelligence in that domain [14]. Also, this percentage surpasses the figure from a survey of healthcare professionals in Australia, where 50% of respondents reported current use of artificial intelligence [15], as well as our survey, in which the majority of respondents (40%) rated their awareness as good, while only 6% consider their knowledge of artificial intelligence to be excellent. These results indicate China's long-term investments in medical technologies based on artificial intelligence, which should also be followed by health institutions in Bosnia and Herzegovina. In this study, 72.80% of participants found AI useful, 78.18% expressed willingness to use it, and 29.90% believed AI would reduce labor demand in radiology.

Most Chinese radiologists are willing to accept advanced technologies such as artificial intelligence, which shows a positive trend in their adoption. Key research findings in China highlight the need for a multidisciplinary approach in advancing artificial intelligence in medicine. Educators, hospital leaders, and policy makers need to work together to understand the barriers and incentives and develop strategies and policies that will facilitate the adoption of artificial intelligence among medical professionals [16].

These results are essentially in agreement with our research, which shows that the majority of healthcare professionals are optimistic about artificial intelligence and believe that it can improve radiological healthcare.

With this research, the healthcare workers of the Brčko Health Center showed a high level of interest and awareness of the application of artificial intelligence in the field of radiology. Their active participation in research indicates the importance of technological innovations in the medical sector and their willingness to adapt to new technologies in order to improve the quality of health care. The high degree of occupation, positive perception and identified needs for additional education indicate a positive step towards the successful integration of artificial intelligence into radiological practice and improvement of health care in that area.

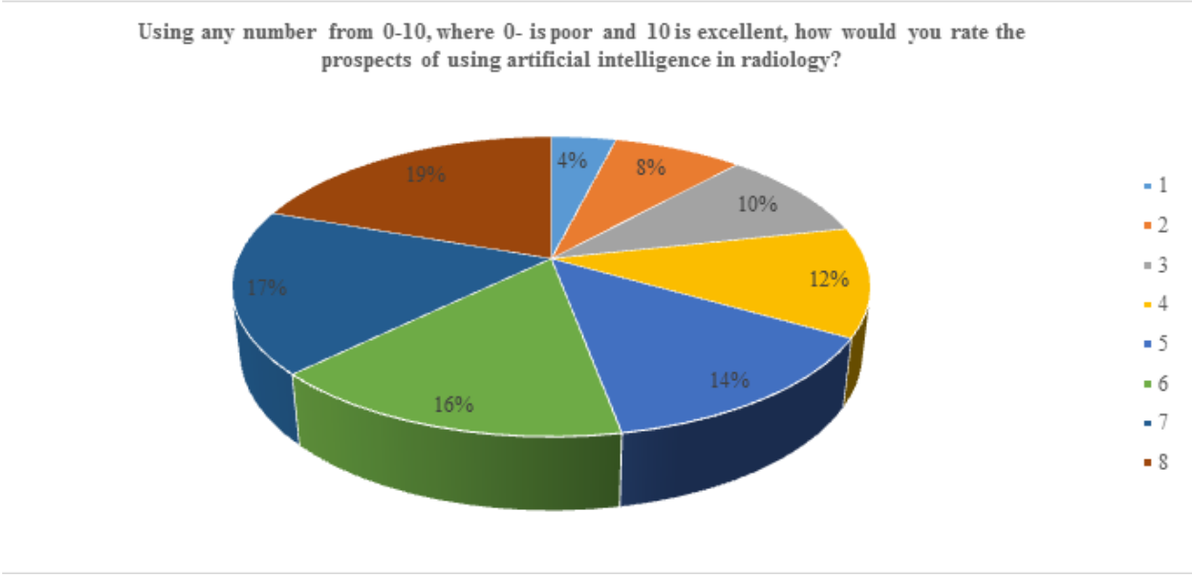

Figure 1: Evaluation of the perspective of using artificial intelligence in radiology

CONCLUSION

There is a high potential for the integration of artificial intelligence into the radiological practice of the JZU "Health Center Brčko", considering the positive perception of the majority of health workers about the possibilities that this technology provides.

The majority of respondents see the potential of this technology to improve the efficiency, precision and speed of radiological services, and support its integration into work practice, which will have a positive impact on the quality of health care and patient treatment processes.

Education and training of healthcare workers are key factors in the successful acceptance and use of artificial intelligence in radiology, and therefore it is necessary to invest in these activities to ensure the optimal use of this technology.

The majority of respondents do not believe in job cuts in radiology due to automation caused by artificial intelligence. This positive perception indicates the view that artificial intelligence will support healthcare workers, facilitating their work and improving results in radiological practice.

CT, MR technologies and their combination rated as the most suitable for application in the field of artificial intelligence according to the respondents' perception. This indicates a high level of confidence in advanced imaging technologies that provide accurate and detailed information.

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