

Artificial Intelligence in Radiology: A Qualitative Study of Clinical Decision-Making, Professional Autonomy, and Implementation Experiences

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Abstract

Background

This study investigates the impact of artificial intelligence (AI) implementation in radiology on physicians' perceptions of professional power, autonomy, and authority.

Methods

A qualitative research design was employed, involving semi-structured interviews with 19 radiology specialists across different regions of Turkey. Data were analyzed using Braun and Clarke's six-phase thematic analysis framework with the support of MAXQDA software to ensure systematic coding and theme development.

Results

Six major themes emerged: Professional Autonomy and Authority, Physicians' Decision-Making Process, Ethical and Legal Dimensions, Contributions of AI, Implementation Experiences, and Future Perspective. Most participants perceived AI as a supportive 'second eye' that supports diagnostic decision-making and operational efficiency. Contrary to the "replacement" narrative, radiologists predominantly viewed AI as a strategic partner that reinforces professional autonomy and provides opportunities for role transformation. However, significant concerns were identified regarding algorithmic errors, legal liability in cases of misdiagnosis, and data security.

Conclusions

Among participating radiologists, AI was predominantly perceived as a professional opportunity and supportive decision aid rather than as a threat to medical authority. The successful integration of these systems depends on expanding AI literacy among clinicians and establishing clear legal frameworks to address liability and ethical uncertainties.

Background

Health plays a vital role in the development of the social, political, and economic structures of societies. With the technological advancements of the last century, significant progress has been made in the diagnosis and treatment of diseases, as well as in the development of new pharmaceuticals. In this context, the delivery models of healthcare services have continuously evolved, leading to new discoveries and innovations regarding the role of medicine in various diseases [1], [2]. These technological developments in healthcare have the potential to increase healthcare workforce efficiency, provide higher quality service delivery, and achieve better health outcomes. Technologies that operate in

harmony with the functioning of health systems make robust contributions to objectives such as creating a high-performance workforce, developing effective information systems, and ensuring the cost-effective use of medical products, vaccines, and health technologies.

In this context, the most striking element of digital transformation in healthcare delivery is artificial intelligence (AI) technologies. AI has increasingly been used in the field of radiology, particularly because of its ability to process large volumes of imaging data [3]. Radiologists view AI as a supportive tool, especially for routine and repetitive tasks. AI used in simple cases allows radiologists to devote more time to complex cases and patient interactions. In this regard, the perspective of radiologists can be summarized as integrating AI tools into the system while preserving the core values of the profession, using the technology under their own authority, and aligning the profession with AI [4].

The integration of AI tools into radiological processes contributes to enhancing performance in imaging-based diagnosis and the evaluation of complications. Nevertheless, the impact of AI on clinical decision-making processes and decision dynamics are debated from various perspectives. While studies in the literature demonstrate that AI offers high potential for accuracy and efficiency in imaging-based applications, it is observed that results obtained in daily clinical practice are predominantly compared with human expert performance. Furthermore, existing evidence suggests that AI should be viewed as complementary to, rather than a complete substitute for, human clinical reasoning [5], [6].

In contemporary clinical applications, the integration of AI into the field of radiology creates a bidirectional transformation that significantly affects both clinical processes and professional dynamics. From a technological perspective, this innovation yields highly positive results in improving diagnostic accuracy, particularly in high-volume imaging tasks such as mammography and chest X-rays interpretation. Indeed, advanced AI tools such as GMIC (Globally-Aware Multiple Instance Classifier) and GLAM (Global-Local Activation Maps) appear to have a significant impact on improving diagnostic processes by detecting subtle signs that the human eye might overlook [7]. Alongside this technical success, the advantage of AI in reducing the workload associated with mundane tasks in physicians' daily routines creates high expectations. A vast majority of radiologists anticipate that their reporting burden will be alleviated through this integration [8].

Conversely, this technological advancement entails complex effects in terms of the sociology of professions. Although it is believed that AI tools do not disruptively limit the clinical decision-making autonomy of radiologists, there are serious concerns that they may undermine physicians' professional prestige and traditional authority in the long term [9]. Therefore, it has become a critical necessity to examine the role of AI in radiology not only through clinical performance criteria but also from a holistic perspective, including these socio-technical effects on medical authority and professional identity.

The primary objective of this study is to examine the impact of AI technologies on the perceptions of professional power, autonomy, and authority among physicians working within radiology. Among medical disciplines, radiology stands out as one of the specialties where AI is integrated most rapidly and extensively due to the intensity of imaging-based decision processes. In this context, radiologists are not

only direct users of clinical decision support systems but also precursors of a potential transformation in their professional roles. Consequently, an in-depth examination of the experiences and perceptions of radiologists through a qualitative approach constitutes a critical case for understanding the effects of AI on the fundamental elements of the medical profession, such as authority, independent decision-making, and specialized power. Through these in-depth physician perspectives obtained via interview forms, the study aims to contribute to predicting the effects of AI on the medical profession not only specifically in radiology but also in the field of medicine in general.

Methods

Study design and setting

As is the case globally, the use of technological tools aimed at improving diagnostic and therapeutic processes is becoming increasingly widespread within the Turkish healthcare system. Today, the most tangible example of this shift is the integration of algorithmic decision support systems and AI applications into clinical routines, particularly in radiology. While AI-based systems carry the potential to increase efficiency, they also bring about structural changes in the traditional work practices and professional roles of physicians. This study aims to explore the impact of AI technologies on radiologists' perceptions of professional power, autonomy, and authority. In line with this objective, a qualitative research design was selected. The choice of this method was driven by the importance of obtaining rich and in-depth information directly from specialists working in the field regarding the effects of this technological transformation on professional processes and the structural changes it induces.

Study population and sample

The population of this study comprises radiology specialists working in public and private healthcare institutions in Turkey. It aims to reveal the impact of AI technologies on the perceptions of professional power, autonomy, and authority in radiology.

A purposive sampling method was utilized to select the sample group. In qualitative research, the sample size is typically small, and the number of participants to be included depends on data saturation. Accordingly, 19 radiology specialists, who have experience with AI technologies in their professional practices and possess the level of expertise to provide insights on this subject, were included in the study. The scope of the research is limited solely to physicians in radiology and does not involve other medical disciplines.

Data collection and procedure

The research was designed with a qualitative research pattern. A semi-structured interview form, developed based on a literature review [4], [9], [10], [11], [12], [13], [14], [15], [16], was used to obtain

expert opinions. The interview questions were structured to reveal the physicians' experiences regarding AI use, their perceptions of professional power and autonomy, and the indirect reflections on the patient-physician relationship. The interview form included the following questions:

1. How many years have you been working in the field of radiology?
2. Do you use any AI-based applications or systems in your daily practice? If so, could you briefly provide examples?
3. How do you evaluate the contributions of AI to the field of radiology? Have you experienced any challenges or limitations regarding the use of AI? In your opinion, what kinds of advantages does AI provide to radiologists in terms of diagnostic accuracy and workload?
4. Do you think AI applications affect your professional decision-making processes? How?
5. Do you think AI increases or decreases your professional autonomy?
6. How do you observe the impact of AI use on physician authority in terms of patients or colleagues?
7. How do you anticipate that AI will change the role of radiology specialists in the coming years?
8. In your opinion, what will be the long-term effects of AI on the professional power of physicians?
9. Do you have any ethical concerns regarding AI (e.g., patient safety, data privacy, sharing of responsibility)?
10. Overall, do you consider AI to be a threat or an opportunity in your profession?

To initiate the study, ethical committee approval was obtained from the Hacettepe University Social Sciences and Humanities Research Ethics Committee with the letter dated 23.01.2026 and numbered E-66777842-300-00004704141.

The interviews were conducted by the researchers and scheduled to take place between February 2026 and April 2026, either face-to-face or via Zoom connection. It was ensured that the interviews were conducted without any interruptions. Prior to the interviews, participants were briefly informed about the study. They were notified that the sessions would be recorded and that personal information would be kept confidential, and subsequently, they signed an informed consent form or provided verbal consent. During the interviews, additional probing questions were asked to obtain more in-depth information based on the respondents' answers. The interviews lasted between 25 and 35 minutes on average.

Data analysis

The data collected within the scope of the study were transcribed into Word documents separately for each participant. MAXQDA software was utilized for the analysis of the data. The six-phase thematic analysis framework developed by Braun and Clarke was employed during the analysis process. This process was managed as follows [17]:

- **Familiarization with the Data:** At the onset of the analysis, audio recordings were listened to, and the transcribed texts were read in-depth to gain a general perspective on the raw data and ensure familiarity with the data set.

- **Generating Initial Codes:** In the second step, the interview transcripts were scanned line by line. Initial draft codes were structured by focusing on the core meanings emphasized by the participants.
- **Searching for Themes:** The obtained codes were brought together to form common clusters of meaning, thereby identifying potential main themes.
- **Reviewing and Revising Themes:** In the fourth step, the created themes were checked for coherence and consistency. At this stage, similar expressions were merged, and themes were refined to become more distinct.
- **Defining and Naming Themes:** In the fifth phase of the analysis, the scope of each theme was clarified, finalized, and named with titles that reflect the essence of the study.
- **Reporting:** The process concluded with the transcription of the findings and the completion of the report.

Furthermore, a multiple coding system was implemented to increase the internal validity of the research. In this context, three independent researchers participated in the coding process, and discussions regarding codes with discrepancies were conducted by two additional independent researchers to ensure the reorganization of codes and themes.

Limitations and assumptions

Within the scope of this study, interviews were conducted with participants located in different regions; interviews with stakeholders outside the city were carried out via the Zoom application. During the interviews, the process did not proceed with participants who were unable to answer the second question—*“Do you use any AI-based applications or systems in your daily practice? If so, could you briefly provide examples?”*—and these individuals were excluded from the study. This research evaluated the views of the relevant participants; therefore, the results cannot be generalized to all stakeholders.

Results

A total of 19 radiology specialists were interviewed to explore the influence of AI technologies on professional power, autonomy, and authority perceptions. To ensure maximum diversity, the sample included at least one specialist from each of the seven geographical regions in Turkey. The cohort comprised 63.2% (n = 12) males and 36.8% (n = 7) females, with an average of 18 years of professional experience.

Following thematic coding and theme development, a word cloud was generated as a descriptive visualization of frequently occurring concepts within the interview transcripts. Six themes and their associated sub-codes were identified through the thematic analysis. The themes and sub-codes are presented in Fig. 1, with bold lines indicating the most frequently co-occurring codes within each theme.

Professional Autonomy and Authority

This theme explains the power of the participants interviewed within the scope of the research to make their own decisions and manage clinical processes in conjunction with the use of AI. The vast majority of the participants expressed the potential of AI for increased autonomy. However, they also stated that risks such as loss of skills and invisible labor should not be overlooked. For instance, R3 expressed their view on this matter by stating, *"I believe that the use of AI will increase autonomy and that a good doctor will not be negatively affected in any way"*; while R4 noted, *"A treatment plan is created for the patient based on the results of the examinations, and it is thought that AI could take the physician's place at this point; however, interpreting the results remains with the physician, and this cannot be taken away from them."* Furthermore, although some participants view technology as an authority enhancer, they warn about a negative shift in the clinician-patient relationship and identify such situations as risks. For example, R1 stated regarding this issue, *"There used to be a patient group we called 'Google patients'; now 'ChatGPT patients' have emerged. They reach a conclusion by sharing their scans with this tool and come to us with that result. This is a truly negative situation for us"*; while R6 expressed, *"Most of the time, patients come to us with answers to questions they have asked AI. While this increases our workload on one hand, it also emerges as a factor that undermines authority."*

Physicians' Decision-Making Process

This theme reveals how the participants interviewed within the scope of the research position AI while forming their clinical judgments. A vast majority of the participants attributed a supportive role to AI. They stated that decision-making processes have accelerated with AI, errors in the process have decreased, and the element of confidence in the decision-making process has increased. In this context, R7 expressed their thoughts by stating, *"AI can provide support as a 'second eye' in terms of whether the radiologist has missed anything"*; while R2 noted, *"Diagnosing with AI will now make the work of radiologists much easier in terms of being able to utilize a large database."*

Ethical and Legal Dimensions

The thoughts and concerns of the participants regarding the ethical and legal aspects that may arise from the use of AI are explained under this theme. Accordingly, the majority of participants expressed concerns regarding problems that may arise particularly as a result of algorithmic errors. For example, R12 stated, *"The training data of the model is not local; population differences affect performance"*; while R19 noted, *"Sometimes there is a mismatch between the findings suggested by the system and the clinical reality, which can be confusing."* Furthermore, they focused on data security issues and the distribution of responsibility in the event of an error during the process. For instance, R17 shared their view, saying, *"My biggest concern is who will be held responsible for incorrect results"*; while R9 expressed, *"...there will be programs protecting these AI-based systems, but I certainly have concerns regarding data security. This data could also be used for malicious purposes"*; and R16 added, *"The risk of using data for training purposes without consent or authorization is concerning."* Additionally, the shift of patient trust from the physician to technology during the decision-making process emerged as a fundamental source of

concern. In this scope, R8 expressed their thoughts on the subject, stating, *"Patients share their imaging results—which we have already reviewed—with AI just to be sure; they do not trust us alone."*

Contributions of Artificial Intelligence

This theme reveals the views of the participants interviewed within the scope of the research regarding the benefits to be provided in radiology through the use of AI. The vast majority of participants stated that, along with the contribution to the diagnostic process, AI use would reduce workloads and, accordingly, ensure efficiency in business processes. For instance, R10 noted, *"It will greatly assist the physician by providing faster access to information and reducing errors,"* while R18 stated, *"It lightens the workload by prioritizing cases."* Furthermore, they mentioned the transformative effects AI would have on the educational process. Regarding this, R16 expressed their thoughts, stating, *"Data science and AI literacy will be mandatory in educational curricula."*

Implementation Experiences

The experiences of the participants interviewed regarding the use of AI and the practical counterparts in the field are expressed under the theme of Implementation Experiences. The majority of participants mentioned usage limitations because it has not yet found a wide area of application, as well as integration problems concerning the workflow process that cause these limitations. For example, R4 stated, *"We have not had the opportunity for wide usage; we did not have such a workspace,"* while R1 noted, *"The data we can introduce to an AI-based system is quite limited. Therefore, this situation causes limitations at the point of use."*

Future Perspective

This theme covers the future orientations in the profession mentioned by the participants in relation to AI use. Referencing the positive effects mentioned in other themes, a large majority of participants described AI use significantly as an opportunity. They stated that these positive effects would enhance professional power and provide a positive transformation in professional roles. However, they expressed that for this positive change to occur, AI literacy will emerge as a mandatory competency for the future. In this regard, R7 expressed their thoughts, stating, *"This will pose a problem for a physician who does not know AI or cannot use that technology,"* while R6 noted, *"I believe everyone should learn how to use AI effectively and efficiently."* Although limited to a few participants, there are also those who perceive the transformation brought by AI as a threat. They stated that this transformation would cause a negative trend in their professional roles, reduce their professional power, and even result in a risk of de-skilling in their profession. Regarding this, R9 expressed, *"I think that AI could be used very actively in both radiology and other medical branches in the future, and this situation could make us passive professionally."*

The Code Co-occurrence Model (Fig. 2), generated as a result of the analyses, clarify the impact of AI on physicians' perceptions of professional power, autonomy, and authority through six main themes and the interaction network among them. In the model, the thickness of the lines represents the frequency of the

relationship between themes and codes, while the dashed lines represent the interaction between themes. Codes connected by dashed lines represent those that frequently co-occurred within participants' accounts. While constructing the code co-occurrence model, only high-frequency codes were included under each theme on the map to ensure a clearer observation of the relationships between the codes.

Examination of the Code Co-occurrence Model showed that the code "supportive role" frequently co-occurred with diagnostic contribution, workload and efficiency, opportunities, and accelerating effect. These patterns indicate that participants commonly associated AI with support for clinical decision-making and workflow efficiency. The observed relationships represent patterns of co-occurrence within participants' accounts and should not be interpreted as evidence of causal relationships or objectively measured clinical effects.

Within participants' accounts, increased autonomy was more frequently associated with AI than diminished autonomy, while AI use was predominantly framed as an opportunity. The co-occurrence between future perspective and opportunity further suggests that many participants viewed AI-related transformation of radiological practice positively. These findings indicate that, from the participants' perspective, AI may support diagnostic processes and professional development when used as an assistive rather than substitutive technology.

Figure 3 presents the code map created to more clearly observe the relationships between the codes under each theme. The analysis, which shows the frequency of interaction among codes and their centrality within the network, reveals that the impact of AI on physicians' perceptions of professional power, autonomy, and authority exhibits a multidimensional and interactive structure rather than a linear one.

Each circle on the map represents a code. The size of the circle denotes the frequency of that code within the dataset. Upon examining the code map, the prominence of the circles for supportive role and opportunities indicates that these concepts are the most dominant and central themes that link other elements in the physicians' perspectives. Smaller nodes, on the other hand, represent more specific or less frequently mentioned details.

The lines between two circles illustrate how frequently those two concepts were co-mentioned by the participants. The thickness of the line represents the strength of the relationship. The thickness of the line between supportive role and workload and efficiency demonstrates that a radiologist who considers AI use to be professionally supportive also identifies it as a tool that reduces workload and provides efficiency.

The proximity of the circles and the clusters they form represent the conceptual framework in the minds of the physicians. An analysis of the code map reveals a clustering in the left and right regions. The left region forms a benefit-oriented cluster; the close proximity of codes such as supportive role, accelerating effect, workload efficiency, and increased autonomy suggests that participants frequently

associated AI with professional support, workflow efficiency, and enhanced professional capability. In the lower-right region, a more risk-oriented cluster has formed. The positioning of codes such as threats, risks, diminished autonomy, and negative shift in professional role—which diverge from the main body with thinner lines—indicates that current anxieties do not overshadow the primary perception of benefit provided by AI. However, the connection of this cluster to algorithmic issues and legal framework suggests that participants viewed legal and regulatory safeguards as important conditions for the responsible future integration of AI into radiological practice.

Overall, the code map suggests that most participants perceived AI less as a threat to clinician authority and more as a strategic support tool that could reinforce their sense of professional capability and autonomy.

Discussion

This study aimed to examine the impact of AI technologies on the perceptions of professional power, autonomy, and authority among radiologists. In line with this objective, the analysis yielded findings regarding participants' evaluations of how AI use in radiology influences perceptions of professional autonomy and authority, its effects on decision-making processes, the nature and extent of its contributions to professional procedures, practical implementation experiences in the field, thoughts and concerns regarding ethical and legal dimensions, and the future impact of AI use.

Professional autonomy and authority theme

According to the study findings, the vast majority of participants emphasized that the use of AI would enhance autonomy and authority in their professional processes. Research in the literature consistently demonstrates that radiologists generally do not perceive AI as a direct threat to their decision-making autonomy. AI technologies are increasingly being integrated into radiology based on the premise that AI can augment clinical work rather than completely replacing clinicians' judgments. Branellec and Hadoussa [18] argue that AI is integrated across healthcare specialties, including radiology, and enhances the capacities of clinicians instead of replacing them. In a qualitative study conducted with radiologists and radiography technicians in the UK National Health Service, Chen et al. [11] found that radiologists believed AI could take over more repetitive tasks, allowing them to focus on more interesting and challenging work, and were less concerned that AI technology might restrict their professional roles and autonomy. In their study involving a large-scale survey across 54 countries, Huisman et al. [19] found that radiologists were more concerned about practical implementation challenges rather than AI usurping their professional roles and autonomy. Practical experience also shapes how radiologists evaluate AI in routine clinical work. In a European Society of Radiology survey involving radiologists with direct clinical experience of AI-based tools, most users considered diagnostic algorithms generally reliable, although only a minority reported a substantial reduction in workload [8].

Physicians' decision-making process theme

According to the study findings, the vast majority of participants emphasized that AI assumes a supportive role in the decision-making process. Similarly, Choy et al. [12] identify existing AI applications for assisting in case classification, maximizing image quality, automatically detecting and interpreting findings, and performing automated treatment-related processes. They state that these applications can support treatment personalization through predictive analytics by facilitating planning. In another study based on 12 in-depth interviews with radiologists, Lombi and Rossero [9] found that AI generally does not affect the decision-making autonomy of radiologists; participants argued that their expertise extends far beyond image interpretation to include clinical context, patient history, and integrative reasoning that AI cannot replicate. In the study by Neri et al. [20], the prevailing view is that AI acts as a decision support system or a second opinion rather than replacing the radiologists' decision-making processes, thereby shaping but not eliminating the physician's autonomy.

Ethical and legal dimensions theme

According to the study findings, the vast majority of participants expressed concerns regarding ethical and legal dimensions, highlighting issues such as algorithmic problems, data security, and the distribution of responsibility in the use of AI in radiology. Similar concerns are echoed in the literature. Neri et al. [20] argue that radiologists are responsible for diagnostic results generated by AI and must be trained to use AI as they remain liable for machine-assisted actions; they also discuss the risks associated with uncertainties during the AI use process and the need to define professional responsibility in regulatory terms. Aldhafeeri [21] examined the ethical, legal, and regulatory frameworks arising from AI use in radiology and highlighted concerns regarding the ambiguity of liability in cases of AI failure. Analyzing practices in Romania, Ungureanu et al. [22] drew attention to discussions on medico-legal responsibility, stating that while responsibility usually lies with the radiologist for the use of non-autonomous AI, the debate intensifies when AI systems act autonomously. Accordingly, they called for clearer legal regulations and quality standards.

Contributions of artificial intelligence theme

According to the study findings, the vast majority of participants positively evaluated the contributions of AI by emphasizing its supportive role in professional processes. In this context, Taylor et al. [23], in their study investigating the potential of AI to reduce diagnostic errors in emergency medicine through information gathering, decision support, and feedback loops, revealed that AI can reduce cognitive load and assist in differential diagnosis, thereby potentially lowering error rates in emergency radiology contexts as part of clinical decision support systems and workflow optimization. Choy et al. [12] described AI applications across multiple stages of radiological practice, including image acquisition, processing, interpretation, and clinical decision support, highlighting their potential to improve workflow efficiency and support diagnostic performance. Similarly, Jalal et al. [24] draw attention to AI's potential to alleviate the workload of radiologists while maintaining diagnostic quality in high-volume

environments, explaining its role in improving workflow and supporting 24/7 service delivery in emergency and trauma radiology.

Implementation experiences theme

According to the study findings, although the vast majority of participants view AI use from a positive perspective, they mentioned inadequacies in practical implementation experiences in the field. When the literature is examined, although there is evidence that AI use and implementation experiences in the medical community are gradually increasing, studies regarding the disruptions and problems encountered in this process have also been identified. Strohm et al. [14] state that the use of AI in radiology in the Netherlands faces barriers such as inconsistent technical performance results, unstructured implementation processes, and uncertain added value, underscoring the need for structured deployment and evidence of clinical added value. Nciki and Hlabangana [25] noted that trainees and radiologists in South Africa exhibit positive attitudes toward AI but underline the need for training and hands-on AI experience, reflecting the lack of daily practice with AI tools.

Future perspective theme

According to the study findings, a vast majority of participants stated that they perceive the use of AI as an opportunity when evaluating it from a future perspective. In this scope, Chen et al. [11] provided valuable insights regarding the potential future use of AI in radiology and healthcare in general. Notably, they revealed a significant finding regarding the impact of AI on the future risk of de-skilling among professional groups. A large-scale study conducted among French radiologists demonstrated a positive outlook toward the integration of AI; while the majority views AI as a future asset that will enhance diagnostic processes and subspecialty practice, they also advocate for AI training in specialty education and continuous education to maximize its benefits [15]. Nciki and Hlabangana [25] similarly reported generally positive attitudes toward AI among trainee and qualified radiologists in South Africa, together with strong interest in AI education and its future integration into radiology practice.

Conclusions

Artificial intelligence is increasingly being integrated into radiology, yet its professional implications extend beyond technical performance to clinical decision-making, workflow, responsibility, and professional autonomy. In this qualitative study, participating radiologists predominantly described AI as a supportive decision aid and professional opportunity rather than as a replacement for physician judgment. They associated AI with faster workflows, reduced routine workload, greater diagnostic confidence, and support for clinical decision-making, while emphasizing that final interpretation and professional responsibility should remain with the clinician.

These findings reflect the experiences and perceptions of the participating radiologists and should not be interpreted as objective evidence of improved diagnostic accuracy, reduced workload, or increased professional autonomy. Concerns regarding algorithmic errors, data privacy, medico-legal responsibility, workflow integration, and potential de-skilling indicate that the successful integration of AI into

radiological practice will depend on appropriate human oversight, improved AI literacy among clinicians, and clear ethical and legal governance frameworks. Future studies should evaluate these perceptions alongside objectively measured clinical and organizational outcomes across different healthcare settings.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki and received ethical approval from the Hacettepe University Social Sciences and Humanities Research Ethics Committee (23.01.2026; E-66777842-300-00004704141). Informed consent was obtained from the participants; no directly identifying information was collected in the analysis dataset, and the data was stored with restricted access.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Author Contribution

Study design, BY, BT, OI; data collection, BY, BT, GT, MK; data analysis: BY, BT, OI; study supervision, OI, BY, BT; manuscript writing, BY, BT, GT, MK, OI; critical revision for important intellectual content, BY, BT, GT, MK, OI. All authors read and approved the final manuscript.

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Data Availability

The qualitative interview data generated and analysed during the current study are not publicly available due to participant confidentiality and privacy considerations. Anonymized quotations supporting the findings are presented within the article. Requests for access to additional de-identified data may be directed to the corresponding author and will be considered subject to applicable ethical and institutional requirements.

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Figures

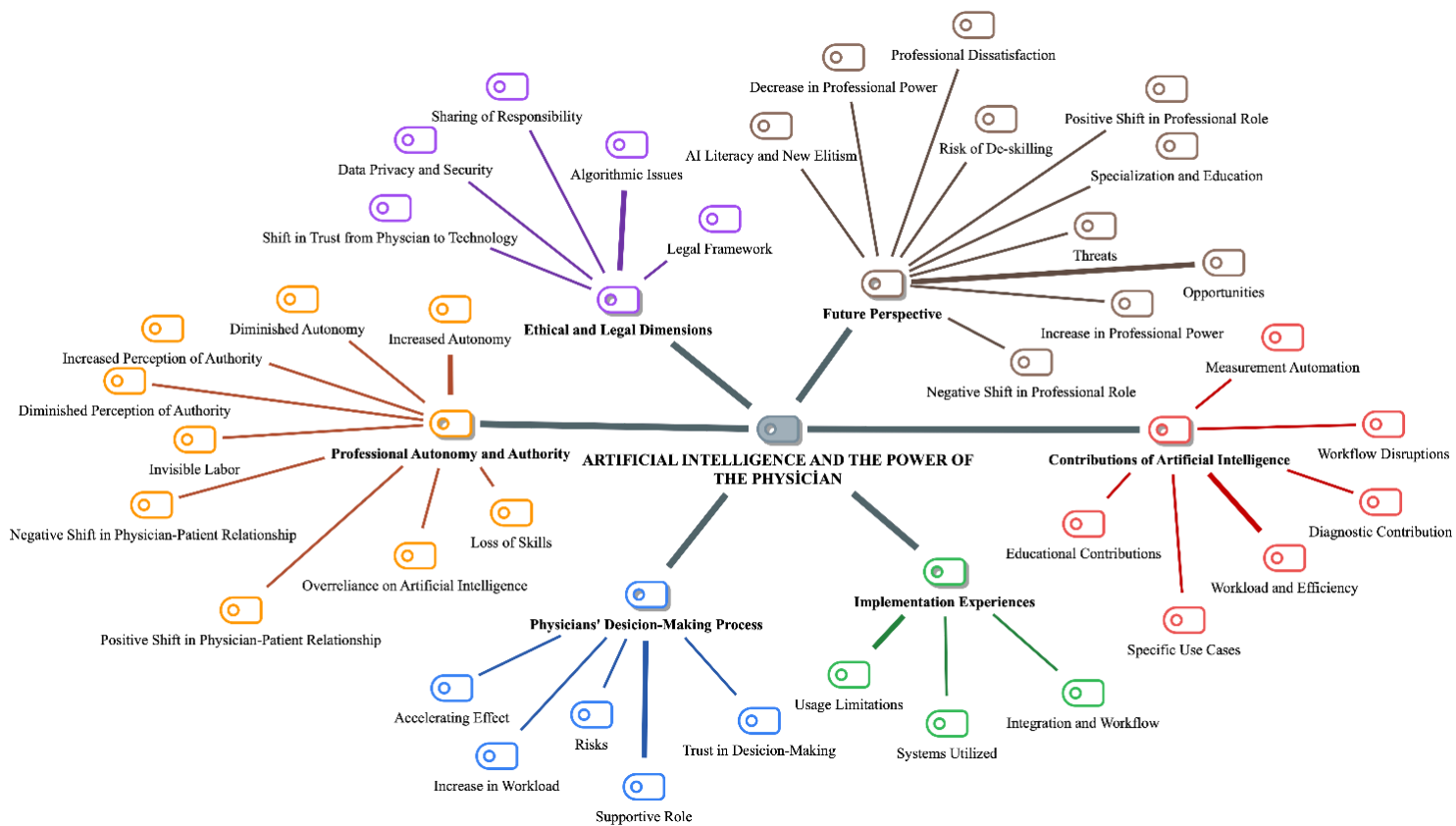


Figure 1

Themes and Codes

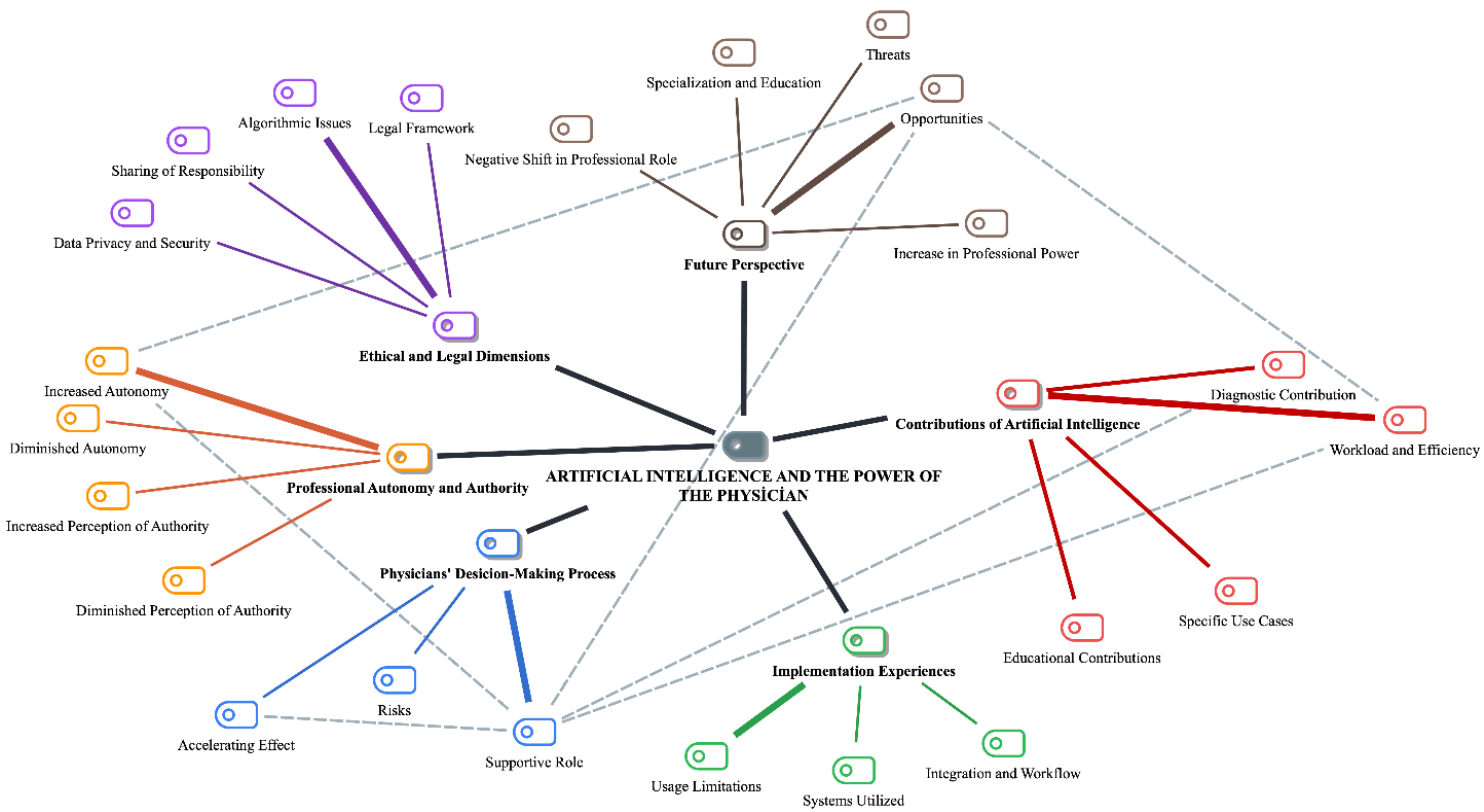


Figure 2

Code Co-occurrence model

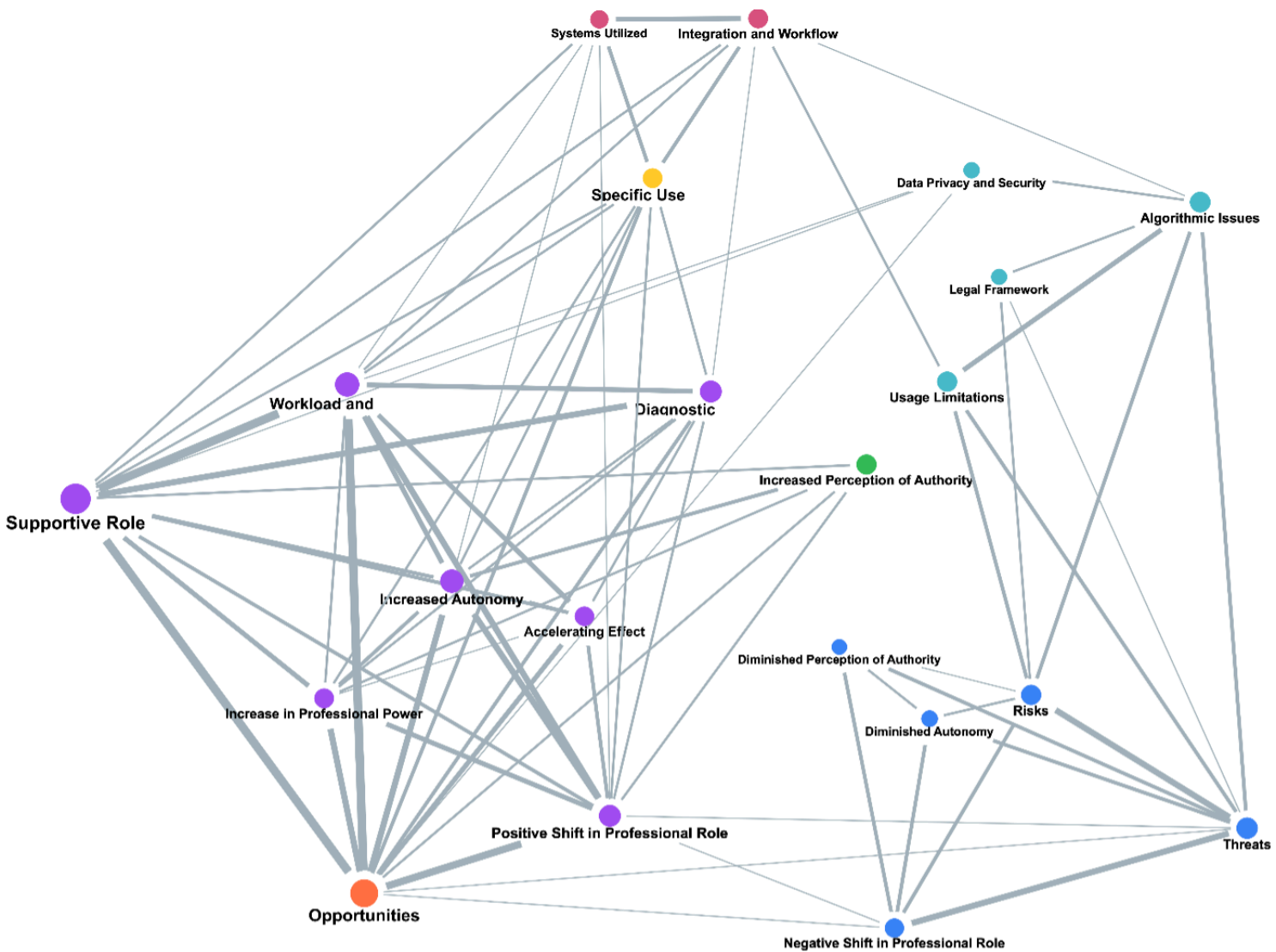


Figure 3

Code Map

