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Article

Resistance to medical artificial intelligence: Integrating AI awareness, AI risks, and displacement of responsibility

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Abstract: Resisting the adoption of medical artificial intelligence (AI), it is suggested that this opposition can be overcome by combining AI awareness, AI risks, and responsibility displacement. Through effective integration of public AI dangers and displacement of responsibility, some of these major concerns can be alleviated. The United Kingdom's National Health Service has adopted the use of chatbots to provide medical advice, whereas heart disease diagnoses can be made by IBM's Watson. This has the ability to improve healthcare by increasing accuracy, efficiency, and patient outcomes. The resistance may be due to concerns about losing jobs, anxieties about misdiagnosis or medical mistakes, and the consciousness of AI systems drifting more responsibility away from medical professionals. There is hesitancy among healthcare professionals and the general public about the deployment of AI, despite the fact that healthcare is being revolutionised by AI, its uses are pervasive. Participants' awareness of AI in healthcare, AI risk, resistance to AI, responsibility displacement and ethical considerations were gathered through questionnaires. Descriptive statistics, chi-square tests and correlation analyses were used to establish the relationship between resistance and medical AI. The study's objective seeks to collect data on primary and public AI awareness, perceptions of risk and feelings of displacement that the professionals have regarding medical AI. Some of these concerns can be resolved when AI awareness is effectively integrated and patients, healthcare providers, as well as the general public are well informed about AI's potential advantages. Trust is built when, AI related issues such as bias, transparency, and data privacy are critically addressed. Another objective is to develop a seamless integration of risk management, communication and awareness of AI. Lastly to assess how this comprehensive approach has affected hospital settings' ambitions to use medical AI. Fusing AI awareness, risk management, and effective communication can be used as a comprehensive strategy to address and promote the application of medical AI in hospital settings. An argument made by Chen et al. is that providing training in AI can improve adoption intentions while lowering complexity through the awareness of AI.

Keywords: medical AI; AI awareness; AI awareness; risk management; resistance

1. Introduction

The revolution of Artificial intelligence (AI) has transformed several domains including the development of healthcare. Consumers' receptivity to medical AI is explored in this research. The term AI in this context refers to any machine that can perform cognitive and perpetual functions by using statistical models or algorithms as well as conversational functions typical to the human mind, such as visual and speech recognition, reasoning, and problem solving.

The system Medical AI integrates has the ability to significantly improve how patients are managed, accurate diagnosis, and treatment planning. Medical AI

empowers patients to interact with autonomous tools that collect information and make decisions without the intervention of a physician and outside of clinical settings (Yu et al., 2018). In this setting, medical AI's adoption is driven directly by consumers. In conventional clinical settings, where patients' interactions with AI may be still mediated by physicians, consumers will indirectly determine medical AI's adoption. The way medical AI is infused into healthcare delivery may profoundly have an influence on patients' satisfaction with medical services, an indicator that defines critical outputs for healthcare institutions (Centers for Medicare and Medicaid Services, 2019), ranging from federal reimbursements to long-term financial sustainability (Mehta, 2015).

The study seeks to address the following research questions:

1) To what extent does medical AI awareness impact participants' resistance to adopt medical AI technologies.
2) How does participants' perceptions relate to AI risk such as concerns about job loss, misdiagnosis and responsibility displacement influence utilization of medical AI.
3) What are the adoption intention scale for assessing willingness to adopt medical AI in practice or daily life.

Primary domains of AI applications within medical practice

Here is an outline of primary domains within medical practice where AI is currently being utilized, along with varying degrees of accuracy and effectiveness:

i Medical Imaging is one of the domains within medical practice where AI is currently being utilized along with varying degrees of accuracy. Rajpurkar et al. (2020) explain that in radiology, AI-assisted diagnosis of X-rays, CT scans, MRI and AI-assisted retinal disease diagnosis in Ophthalmology both display an accuracy of 90–95. Ting et al. (2019), Esteva et al. (2017) also expatiate that in dermatology, AI-assisted skin cancer diagnosis has an 80%–90% accuracy.

ii Clinical Decision Support Systems is one of primary domains with varying degrees of effectiveness and accuracy where predictive analytics for patient outcomes, disease diagnosis and detection both have an accuracy 80%–90%. Bates et al. (2014) and Simpao et al. (2014) while Chaudhry et al. (2006) findings explain that personalized treatment recommendations show an accuracy of 70%–80%.

iii In Natural Language Processing, clinical documentation analysis and patient data extraction both have an accuracy of 80%–90% whereas Sentiment analysis for patient feedback is Accuracy: 70%–80% as per Meystre et al. (2017), Johnson et al. (2017), Greaves et al. (2013) findings.

iv In Robotics and Surgery, minimally invasive surgical procedures have effectiveness of 90%–95% in 2018. Lanfranco et al. (2004), highlighted that robotic-assisted surgery has an effectiveness of 85%–90%. Moving forward, Rosenthal et al. (2019) research explains that surgical site infection prediction shows an accuracy of 80%–85%.

v Patient Data Analysis illustrates those predictive analytics for patient re-admission projects an accuracy of 75%–85%, Lee et al. (2018) reveals that patient

risk stratification exhibits an 80%–90% accuracy and Doshi et al. (2018) showcase that personalized medicine recommendations unveil an accuracy of 70%–80%.

vi Mental Health chatbots for patient support, demonstrates an effectiveness of 80%–90% (Fleming et al., 2018), Greaves et al. (2013) reveal that sentiment analysis for mental health monitoring has its accuracy between 70–80 and Predictive analytics for patient outcomes projects up to 75%–85% accuracy.

AI has made significant strides in medical imaging, particularly in diagnostic accuracy, with achievements including:

1) According to Rajpurkar et al. (2020) detecting breast cancer from mammography images in AI algorithms have shown accuracy rates of 97%–99% in detection of breast cancer, outperforming human radiologists. Mckinney et al. (2020) also confirm that AI outperforms human radiologists in breast cancer detection.
2) Setio et al. (2016) and Liu et al. (2019) reveal Lung nodule detection displays accuracy rates of 95%–97% and AI can characterize them as benign with accuracy rates of 90%–95%.
3) Abramoff et al. (2016) and Rajpurkar et al. (2017) explain that AI-powered analysis of retinal scans can detect diabetic retinopathy with accuracy rates of 92%–95%.
4) According to Johnson et al. (2017), Li et al. (2020), Urban et al. (2018), Haenssle et al. (2018) showcase that the below diagnosis displays the same accuracy of 90%–95% accuracy rate.
    - Cardiovascular disease diagnosis: AI can analyze cardiac images to diagnose cardiovascular disease.
    - Liver disease diagnosis: AI-powered analysis of liver images can diagnose liver disease.
    - Colorectal polyp detection: AI-powered analysis of colonoscopy images can detect colorectal polyps. Brain tumor segmentation: AI can segment brain tumors from MRI scans.
    - Skin cancer detection: AI-powered analysis of dermoscopic images can detect skin cancer.
5) Detection of fractures from X-rays: Lindsey et al. (2018) highlight that AI can detect fractures with accuracy rates of 95%–97%.
6) Automated image analysis for rare conditions: Yeung et al. (2019) demonstrates how AI can analyse medical images to detect rare conditions, such as pulmonary embolism or intracranial hemorrhage, with high accuracy rates.

These achievements highlight AI's potential to improve diagnostic accuracy, enhance patient outcomes, and to assist healthcare professionals in medical imaging interpretation.

In as much as there are many positive results of medical AI, healthcare experts as well the public are resistant to the adoption of medical AI. Our research makes a fundamental contribution by extending its scope to the study of consumers in medical settings (Castelo et al., 2018; Dawes et al., 1989; Dietvorst et al., 2014; Granulo et al., 2018; Meehl, 1954).

AI has limitations in healthcare areas requires:

- Developing complex treatment plans. While AI is capable of data analysis and

provide insights human clinicians are still required to create plans for thorough treatment.

- Understanding the context of the patient in managing rare or unusual cases: AI may find it difficult to understand individual patient unique circumstances since AI is typically trained on large datasets, but may not perform well with such complex medical histories and social determinants of health that do not fit conventional patterns.
- Human empathy and compassion: AI systems are devoid of emotional intelligence and empathy which are necessary for fostering relationships of trust and providing supportive care making it challenging to understand and trust AI-driven recommendations.
- Collaboration amongst specialists: AI may not effectively incorporate insights from multidisciplinary healthcare professionals, such as radiologists, pathologists, and clinicians which may not always reflect the latest medical research, guidelines, or best practices.
- Reducing healthcare disparities: AI may reinforce pre-existing biases if trained on biased data, making the situation worse.
- Ensuring patient participation and adherence: AI may not persuade patients to go by them to treatment regimens or follow up on their care.
- Replacing therapist knowledge: AI should supplement human therapist's knowledge and judgement not take its place.

2. Hypothesis development

2.1. Resistance to medical AI

The adoption of medical AI can be objected by various regulatory agencies, Healthcare professionals, patients, and other groups of people who AI is mostly likely to be seen as a threat. Patients may face several psychological and emotional barriers when interacting with AI-driven medical systems, including depersonalization (Blease and Sullivan, 2020). Feeling that AI-driven care is impersonal or lacks the human touch and emotional connection. AI systems may not provide the emotional support and empathy that human healthcare providers offer. Also, patients may have the fear of machine error and anxiety about relying on technology. Worries about AI making mistakes or misinterpreting data. This makes it difficult in understanding AI-driven decisions, AI-generated reports or results and may lead to patient struggling to comprehend the logic behind AI's recommendations or diagnoses (Lau and Coiera, 2019). Patients also have concerns about data privacy: Fears about how their child's medical data will be used and protected. In worse case scenarios cases where AI-driven care is involved in end-of-life decisions or outcomes they may grief and be guilty making them uneasy about relying on AI for critical medical decisions (Sullivan and Blease, 2020).

Common causes of resistance among healthcare professionals include:

1) Inability to trust: Healthcare workers may hesitate to apply AI algorithms for important medical choices. Even Healthcare professionals may lack confidence in AI results leading to their reluctancy to fully trust AI technology usage. In healthcare settings, ways to increase patient trust in AI systems have been explored by a number

of research.

Nonetheless Amisha et al. (2019) explain how important interpretability, openness, and teamwork in AI algorithm applied in health care. They emphasise on training healthcare practitioners on how the technology makes its judgements and how to incorporate AI-generated recommendations into their decision-making processes. It enables them incline by having a sense of trust.

AI and medical professionals potentially working together is explored in a project by Chen et al. (2020). Professionals should be involved in validating AI algorithms for medical decision-making by having a sense of ownership. This will boost their confidence in the technology and lead to wider adoption of it.

2) Nervousness about job loss: Some healthcare professionals may be concerned that AI technology will replace their positions, resulting in unemployment or less work possibilities. For instance, algorithms are able to diagnose diabetic retinopathy disorders related to the eye just as well as trained doctors (Abràmoff et al., 2018; Gulshan et al., 2016) with expert precision (Haenssle et al., 2018), skin cancer can be detected by apps like Skin Vision. It's assumed that by 2025, 80% of what doctors currently perform would be replaced by medical AI, AI would infuse 90% of hospitals, and become a $10 billion market in the United States (Bresnick, 2017; Das, 2016).

Concerns about AI technology replacing health care professional's position, being unemployed or resulting to less work possibilities may cause them to have anxiety thereby resisting and unwilling to use AI in medical. The studies by Topol (2019), Susskind and Susskind (2015), and Jha (2020) highlight the concerns of healthcare professionals regarding job displacement due to AI technology in healthcare. They emphasize the importance of proactive measures, such as retraining programs and support for workforce transition, to address these anxieties and facilitate the meaningful integration of AI in healthcare. Acknowledging these concerns and implementing strategies to mitigate their impact can create a more supportive environment for the adoption of AI in medical practice.

3) Concerns regarding Legal and ethical issues: Using AI in healthcare settings usually requires complicated legal and ethical questions such as privacy, data security and those relating to liability. Research literature by Kaplan and Haenlein (2019), substantially emphasised the significance of tackling legal and ethical recommendations in using AI in health care settings. Regulatory measures such as privacy laws should be put in place for collecting, storing and using patient data. For instance, in the US, the Health Insurance Portability and Accountability Act (HIPAA) and the General Data Protection Regulation (GDPR) in Europe have strict guidelines (Ienca and Vayena, 2018). Casting blames on malfunctions or errors that come from AI systems is an issue that requires stringent legal and moral considerations to ensure patient data protection and accountability (Halamka, 2018). These issues may cause hesitancy among lawmakers, medical professionals, and tech developers to control AI technologies. Therefore, policymakers and regulatory bodies should create moral standards and legal systems for appropriate use of AI in healthcare.

4) Insufficient knowledge and training: One of the main obstacles from AI adoption is that lack of technical know-how about how it works could lead to resistance to usage. Another issue is, Healthcare workers lacking knowledge and expertise. A study conducted tends to prove that medical workers express doubts

leading to inability to incorporate AI into their practice. Ethical consequences that arise from using AI in healthcare has awakened criticism such as data Privacy and security as well as concerns of liability. Some studies suggest healthcare workers need to take part in education and training activities to boost their confidence and abilities in using AI in healthcare delivery. Studies conducted and published in Journal of Medical Systems say that many doctors lacked the understanding and reluctant to use AI system. With the help of programmes aimed at providing education and training in AI, healthcare staff may apply it effectively (Ahmadi et al., 2020).

4) Organisational and cultural barriers: Change brings about growth and this change is often not easy to embrace instantly in any sector, therefore the healthcare sector is no exception. The current mode may hinder AI technology adoption due to organisational structures, processes, and cultural norms that these folks are already used to. Due to existing organisations, processes, norms and cultural constraints, implementing AI technology becomes more difficult in the health care industry.

Healthcare is well built sector that hardly allows for any type of infiltration, according to Huang et al.'s (2019) research.

5) Fear of job loss, failure to accept new technology, cultural beliefs may impede Integrating AI systems into work and decision-making processes (Bender et al., 2020). A way of surmounting these organisational difficulties by undertaking proactive measures, also encourage changes in norms, and empowering healthcare professionals who adopt AI technology (Hassan et al., 2018).

6) Budget and resource limitations: With integrating AI technologies, the healthcare systems will necessarily need to invest in infrastructure significantly, including some sort of maintenance and other training cost. This could lead to concerns about the expenditure limitations that could become a burden, hence resisting AI technologies. The integration of AI technologies in healthcare systems requires significant investment in infrastructure, maintenance, and training, which may impose budget and resource limitations. This concern can lead to resistance towards adopting AI technologies due to the potential burden on expenditure (Stevens et al., 2020). Research literature highlights the challenges posed by budget constraints and the need for careful consideration of resource allocation to support the successful implementation of AI in healthcare. In the quest to solve these, it's necessary to train, and educate them through effective communication on how to handle these challenges of acceptance. By offering a training on AI will improve awareness of the AI while minimising difficulty in comprehension and increasing intention for usage (Chen et al., 2020). Also, when AI is shown to enhance productivity, improved patient outcomes, and accuracy, it boosts the morale for acceptance and builds trust among healthcare professionals. By acknowledging these limitations, we can develop more effective AI solutions that complement human expertise and improve patient care.

Addressing these barriers requires:

- User-centered design: AI-driven systems should be designed with healthcare workers needs and concerns in mind. Concerns about job loss, anxieties about incorrect medical diagnoses or the ideology that job responsibilities are being transferred from human practitioners to AI systems are explored through the theoretical understanding of consumer decision making in the medical domain according to Bolton et al. (2007); Botti and Iyengar (2006); Botti et al. (2009);

Kahn and Baron (1995); Kahn et al. (1997); Keller and Lehmann (2008) by identifying a novel psychological mechanism that shapes decisions related to consumer utilization of innovative healthcare services. Having an idea about medical AI resistance showcases the logical relationship between AI awareness, AI risks, and the shifting of responsibilities.

- As people become more aware of the technology's possible advantages and hazards, they may pay more attention to ethical ramifications and unforeseen effects of artificial intelligence (AI) in healthcare. Most people, healthcare providers, and regulatory agencies have concerns on deciding who should be held accountable for results produced by AI systems. These struggles of concerns could lead to a shift in accountability. A shift in accountability may result Resisting medical AI, disapproval of the use of AI technology in medical settings and a situation of reluctance in people's voice. The study's main focus explores and merges three crucial elements—AI awareness, AI risks, and the shifting of responsibility.
- Education and transparency: to begin with, clear explanations of AI's capabilities and limitations of AI is important. Educating the public and increasing healthcare professional knowledge of AI is important. In the medical field, majority have less apprehension of the capabilities medical AI has, its potential benefits, as well as its limitations (Blease and Sullivan, 2020).
- Many stakeholders play a vital role in decision making in the health sector. The healthcare industry is experiencing tremendous interest in the use of AI to deliver efficacious and cost-effective care at scale (Das, 2016). AI enables innovative solutions that have incredible potential across the spectrum of health stakeholders. Virtual nursing assistants available to interact with patients 24/7 could save the healthcare industry $20 billion annually (Marr, 2018). AI-based telemedicine could provide primary care support to remote areas without easy access to healthcare (Siwicki, 2018). Our research points to a critical barrier that consumer facing AI-based technological advancements will need to overcome to gain acceptance and diffusion: consumers might be reluctant to adopt medical AI because they believe it unable to account for the unique facets of a person's case. Changing this belief will be fundamental to harness the full potential of medical AI to benefit our society in the future. Therefore, they need to have sufficient information and understanding through education on how AI systems operate and their possible uses in order to dispel myths and make medical AI better recognised.
- Eventually, emotional support by human healthcare providers should be available to offer empathy and support. Consumers receptivity to modern innovation depends on their appropriation of medical AI. Opportunities for parents to provide continuous feedback and improve AI-driven care. By acknowledging and addressing these psychological and emotional barriers, we can create more effective and supportive AI-driven medical systems for parents and children. Up till date, only one investigation endeavour has empirically researched consumer receptivity to automated medical providers. Promberger and Baron (2006) found that people are more likely to go by physician recommendations than proposal by a computer.

- Also, a lot of effort is required to mitigate risks when increasing trust and acceptance of AI. Ethical considerations are very important and should not be left out, therefore to alleviate scepticism and ensure that issues relating to keeping data private, transparency, liability and bias should be in mind as a form of guarantee. If rigorous standards and open validation procedures are implemented, it can minimise the hazards that are considered to be posed by medical AI.

For instance, a 2019 study by Topol (2019) highlights the significance of using AI to supplement human intellect in medical decision-making. The fear of healthcare practitioners losing autonomy can be allayed if the collaborative link between both AI and healthcare practitioners is highlighted as supportive and complementary to their skills. Topol (2019) contends that rather than substituting healthcare professionals' knowledge, AI can provide recommendations based on the examination of huge datasets and offer insightful analysis. A study by Char et al. (2020) covers the hint of explaining AI systems in healthcare. Transparency and interpretability allow medical professionals to use their own knowledge and stay in control when applying recommendations derived from AI. By using this means, it helps to grow the relationship between AI and human behaviour.

Furthermore, an investigative study by Beam's (2019) navigates the usage of AI in performing radiology procedures. These authors say that in as much as AI might be used to potentially speed up diagnostics, it's advisable that experienced and specialised radiologist should still hold the mantle of interpretation and ultimate decision making. Ideologically, AI systems should be considered as complementary tools that would support human decision-making rather than ultimately taking over as talked about in this study and other studies related to area. Fears about losing autonomy can be alleviated through fostering an optimistic relationship that AI and healthcare professionals both have by throwing more highlight on the application of AI in healthcare.

Finally, in conversations about the interaction between AI systems and human decision-making in the healthcare industry, displacing responsibilities should be tackled head-on by elaborating AI systems as supportive tools rather than a substitution for human decision-making making functions. Tariq (2020), Pakkala et al. (2019), Price (2019) expatiate that defining the roles and preserving responsibilities between both AI systems and humans requires a clear focus on training continuously, transparency and effective communication.

Some studies highlight more on interpretability, transparency, and collaborative involvement and how important they are in enhancing belief in AI technology by healthcare professionals. Studies by Amisha et al. (2019), Ribeiro et al. (2016), and Chen et al. (2020) emphasise that AI algorithms can be used in healthcare practice if the basis of trust issues are tackled. Research by Mittelstadt and Floridi (2016), Jobin et al. (2019), and Floridi et al. (2018) talk about ethical issues. Engagement of stakeholders from the onset of creating and implementing AI systems can let them better understand ethical issues and make sure that AI technologies are properly evaluated to be in line with requirements and values. The responsible application of AI can successfully guarantee development through cooperation and inclusive methods.

2.2. AI awareness and resistance to medical AI

AI awareness described by Chen et al. (2020) as the degree to which individuals comprehend the capabilities, possible constraints, and effects AI may have on their job, organisation and society. Kumar and Krishnan (2020) elaborate AI awareness as having the ability to make educated judgements about adopting and using AI via having a regarding its acceptance and use as well as comprehending the possible effects of AI on society, business, and individuals, including any potential risks, rewards, and problems. Awareness of AI and opposing medical AI has various causes.

First of all, in the medical sector there is a lack comprehension of artificial intelligence (AI) and inability to know its potentially applied to suit the medical field.

Topol (2019) and Cabitza et al. (2018) draw attention that usually introducing new technology can bring about misconceptions and issues regarding what it can do. This leads to resistance and people doubting the use of AI in healthcare. They highlight in their publication that's it's important to debunk insecurity about AI in healthcare Rajkomar et al. (2019) and Sendak et al. (2019).

The accuracy and dependability of AI algorithms are of concerns, therefore it's empirical to depict how correct and reliable it can be. In order for Medical AI predict and diagnose, it requires more data. This raise concerns that data biases or errors could bring about unfavourable results or dangerous outcomes. Since the medical field deals more with people and concerned about people's health and well-being, it could lead to resistance from patients and reluctance by medical staff to trust AI.

H1: AI awareness is positively related to resistance to medical AI.

Knowing and understanding Artificial Intelligence as well as it's advantage and disadvantages is known as AI awareness. Comprehending its usage is necessary for both the patient and medical providers. However, being naive and having no confidence in AI technology often leads to its resistance. This study targets the relationship between AI awareness and resistance to it. Studies have revealed that AI can be highly accepted and successfully implemented in medical solutions if both patients and healthcare providers have an in-depth knowledge about how it's advantages and how it works. Being enlightened and having sufficient understanding regarding the works of artificial intelligence (AI) in the medical sector is positively related to Opposing the enforcement of AI technologies.

Considering how sceptical and issues arising from adopting AI in healthcare, it likely that people with the right information about the potential AI has, would oppose its adoption technologies of medical. This is so, because several reasons including AI taking over their leading to joblessness, privacy and ethical concerns, and inability to rely on AI system's accuracy. Therefore, through careful assessment of the extent of AI awareness individuals have, and the opposition to medical AI, we can assess if there's a positive relationship between both variables.

2.3. AI risks and resistance to medical AI

AI risks pertain to the potential adverse consequences or dangers associated with the creation, deployment, and use of artificial intelligence systems. Barocas and Selbst (2019) outlined that bias risk will perpetuate and magnify existing biases, leading to bias results and discrimination.

It's seen that AI has a huge potential of making our environment a better place by easing workloads and improving decision-making however, it has certain demerits causing hazards. If not checked may lead to unforeseen problems on individuals and the society at large. AI is not to completely replace but rather complement human activity, thus excessive dependency, misuse, being bias, and lack of transparency could pose more harm such as privacy invasion, inequality and other effects (Weller and Wu, 2020).

AI risks that lead to resistance:

1) Privacy and Security: One of the major concerns with AI in the medical field is the security and privacy of patient data. In the medical field, dealing with Patients requires a lot of confidentiality, which makes this a major issue regarding the privacy and security of patient records when using AI. Once there is an unauthorised access in the system to certain sensitive data, it puts patients' information and privacy at risk.
2) Bias and Discrimination: Healthcare professionals should have adequate knowledge and test AI properly, if care is not taken and there are any discriminations or algorithm biases it can lead to unbalanced treatment for a particular group of people as this raises a point of concern.
3) Lack of empathy: AI systems do not operate as if they have a conscience, they unable to make moral or ethical judgments. In the medical field, there's always a sort of empathy for patients, therefore if there is an unethical decision made by AI, this would be risky and could pose dire healthcare consequences.
4) Dependence on AI: Excessive reliance on AI technology poses a risk if it fails. Complete reliance on AI technology with the ideology that it works efficiently without having think that what if it fails, what would be the risk it could pose? In some critical situations, incorrect diagnoses, accidents and accidents in the course of robotic surgeries can be as a result of AI malfunctions. All the above-mentioned points can lead to the resistance to medical AI adoption.

H2: AI risks is positively related to resistance to medical AI There is a positive relationship between AI risks and resistance to medical AI. Considering the use of Artificial Intelligence (AI) in medicine, issues of risk and concerns associated with its integration may arise ranging from issues of privacy and security, the level of AI algorithms accuracy and reliability are all concerns when individuals, patients as well as healthcare professionals perceive higher risks linked to AI in medical settings, this would lead to them displaying more opposition against its integration and application.

Hypothesis H2, will be developed to give more insight about potential relationships that AI risks and resistance to medical AI has. It is seen that this hypothesis suggests that in the medical sector, the more the increment in significant risks associated with AI, the higher it is expected that medical practitioners resist its adoption and implementation in medical practices.

2.4. Displacement of responsibility and resistance to medical AI

Responsibility displacement refers to the tendency for humans to place blame or responsibility on a technological system, rather than themselves or other people (Madison, 2019). This can have repercussions including compromising accountability

and transparency, eroding trust in institutions and technologies, engaging a culture of moral disengagement and blame shifting, and impeding efforts to address ethical and social concerns related to technology.

Displacement of responsibility and resistance to medical AI are both a big concern in implementing AI systems in healthcare. Displacement of responsibility is a potential challenge and actually manifest due to over reliance on AI systems resulting in human oversight, less decision-making and less accountability. Brynjolfsson and McAfee's (2014) highlight on less human supervision when there is an over reliance on AI systems in their research literature. If AI-driven recommendations are generated and overly relied on, it can lead to less accountability as also mentioned by Bonnefon et al. (2016). Even though AI can also suggest treatment procedures, it is essential that those who are healthcare professionals use their own experience, skills and judgement when making decision. When we look at the level of opposition to medical AI it may come from different factors such as concerns about biases that may be in the form of potential errors, nervousness from losing job and inability to fully rely on AI systems. This makes healthcare professionals hesitant to embrace AI technologies, preferring to trust in traditional methods such as their own technical know-how. Emphasis should be laid on AI in healthcare to be considered as a tool that supports rather than being seen as replacement for healthcare providers. If transparency is seen in AI algorithms this can help build trust by enhancing Collaboration between AI systems and human experts. These outcomes emphasise on the need to maintain a levelled equilibrium of human-AI cooperation to minimise challenges and prove how roles allocated can materialise in the field relying on AI. Additionally, McRae et al. (2018) argue that solutions provided by AI should be linked with training in order to ensure sustainable adoption. Training programs which provide clear guidelines and protocols can foster understanding among healthcare professionals.

H3: Displacement of responsibility is positively related to resistance to medical AI.

There is belief that when there is an error, there should be someone to hold responsible or someone should be held accountable, so in the same vein if there is delegation of responsibility, or transfer of obligation to a technology or system it'd lessen healthcare practitioners' sense of accountability in their decision making for patient outcomes. It is believed that people should be held accountable for their mistakes, therefore medical technology which is not an exemption may reduce healthcare professionals' sense of accountability for their patients results. Research works by Kuziemsky et al. (2019), explain how technology has an effect on health care workers' decision-making processes and also lend credence to the idea that there's a likelihood of less accountability when AI overshadows human performance. A study by Greenhalgh et al. (2017) also talks about how the implications of high dependency on technology in medical settings could make some practitioners unaccountable. These academic works emphasise the importance of a refined perspective to incorporate technology for possible treatment for patients while healthcare professionals are psyched for accountability. As discussed earlier, "resistance to medical AI" explains how healthcare professionals may be reluctant to embrace technologies powered by AI in the medical industry. Some research papers such as Blease et al.'s (2019) say in the medical field, health care professionals' ability to be

relaxed or decline the use AI-powered tools is known as "resistance to medical AI". Their research looked at various factors affecting Doctor's acceptance of AI in making clinical decisions and refines possible challenges and resistance in the medical area. With more to say by researchers like Char et al. (2018), explain the idea of AI algorithms, its disadvantages if delved into can be a fundamental of their reluctance to incorporate AI in medicine. The issues linked to implementing AI in healthcare needs attention and highlights the importance addressing health workers concerns to increase AI acceptance while guaranteeing compliance with the terms and conditions that it comes with.

This disagreement is seen to be as a result of several causes such as doubting the accuracy of these AI technologies, most importantly worrying about job loss or preference is given to conventional methods of treatments and diagnoses.

Hypothesis 3 indicates that there is a connection between how people perceive their own roles in making decisions and results and their resistance to medical AI.

Research already conducted suggests that people would always demand superiority in making decisions and getting results. In order to have control, they may be less open to utilizing AI in healthcare because they want to have control. The way people view AI-based decision-making processes may come from their psychological thoughts of control and autonomy by Koo and Lee (2019). Furthermore, studies by Wang et al. (2020) deepen the idea of how people desire for autonomy may lead to the resisting AI across different fields which may result in some challenges. Theoretically if errors occur, who will be accountable? Therefore, healthcare personnel who feel they could be blamed in such instances due to the fact that they can't be accountable for AI errors could resist its usage or develop hostility towards Medical AI. There's little doubt that a critical area of research is the attribution of culpability and its relationship to opposition to medical AI. In-depth analysis of the intricate relationship between resistance to AI in healthcare and feelings of responsibility is provided by Miller and Kim's (2019) research, which also illuminates how people interpret control and accountability in the context of medical automation. In addition, the research conducted by Chen and colleagues (2020) provides insightful information about the variables that contribute to people's hesitancy to use medical artificial intelligence (AI), such as concerns about giving up control in healthcare environments and the assignment of responsibility. Through the consolidation of these research findings, we may enhance our comprehension of the complex correlation between attributions of blame and opposition to the application of artificial intelligence in healthcare settings, thereby providing guidance for mitigating and addressing these issues.

2.5. Mediating role of AI risks and displacement of responsibility

The Mediating role of AI risks and displacement of responsibility can be referred to as Artificial intelligence having an impact on division of labour and imposing responsibility in various sectors. AI systems are becoming more pervasive and smarter, they are being used making decisions which are very crucial with major repercussions for people or the society at large. The assumption that AI can do tasks with expert-level precision (Gallagher, 2017; Leachman and Merlino, 2017) and provide high-quality healthcare at an affordable cost (Esteva et al., 2017). There are risks associated

with AI of which sometimes the likelihood of biases or inaccuracies occurring in decision making could have far-reaching impacts. It is challenging to determine whom to be held accountable for such biases in critical situations. This is true if AI doesn't make decisions that are trustworthy and responsible (Scott and Yampolskiy, 2019). AI algorithm intricately function alone it's more difficult to fault these systems, or the programmer or manufacturer or determine who is ultimately responsible for biased results. A study by Reardon (2019) suggests that there isn't enough evidence to back up assertions that AI performs better than radiologists. Here, the idea of "responsible AI" assumes significance and may involve ethical, social, and participation considerations, as well as frequent encounters between humans and machines that may be dangerous (Dignum, 2017). "Algorithmic accountability" ensures AI systems are scrutinised and transparent in order to tackle this issue. This promotes accountability and highlights precisely what regulations and laws control the adoption of AI technologies. Realising that displacement of responsibility in the context of AI risks is a crucial and complex topic. As AI technology develops complexities arise, therefore policymakers, workers and the society must be able to control it. This implies that creating a framework that allows for substantial distribution of responsibility by engaging the moral use of AI.

H4a: AI risks play a mediating role in the relationship between AI awareness and resistance to medical AI.

AI awareness: The level of AI knowledge by health professionals has an influence on the level of opposition towards its usage, this is plainly influenced by how AI risks is perceived by them. On the basis of the arguments made by Rogers (2003) and Chiyangwa and Alexander (2016), it is hypothesised that trial-ability success could lessen resistance and promote rapid adoption of AI. The greater comprehension about AI's potential uses, capabilities and limits means that there is a higher level of AI awareness by those working in the medical sector.

Medical AI resistance: Some medical practitioners display reluctance to embrace AI technology in healthcare practices. The more they oppose AI adoption, the greater the resistance.

AI risks: AI risks involve any foreseen drawbacks, issues that pose dangers such concerns about patient privacy, reliability or insecure data. Perception of the AI risks and challenges plays a major role as to whether they'll adopt it or resist it in healthcare even if they have fair knowledge about AI technology.

H4b: Displacement of responsibility plays a mediating role in the relationship between AI awareness and resistance to medical AI.

AI awareness: People in the medical field getting to know more about artificial intelligence. Knowing the pros and cons of applying AI in healthcare.

Resistance to use AI in healthcare contexts: this is reluctance to use AI in healthcare caused by lack of trust in AI systems, ethical issues, concerns about losing jobs or one to one contact with people.

Displacement of responsibility: When AI systems make errors who should be blamed? A question that needs to be further probed. Therefore, when medical practitioners know tasks have been delegated to an AI system, they may feel less accountable for the outcomes or consequences or choices made by AI systems. Considering this, it is seen that displacement of responsibility acts as a mediating

factor. They may be reluctant to adopt medical AI due to this diminished sense of accountability. Since AI can multi-task people in the know of its ability and disabilities may consider AI as the main decision-maker hence undermining their own human roles. Therefore, people who want to interact with humans regarding critical medical decisions may resist AI, which could result from this not being accountable.

2.6. The Chain mediation of AI risks and displacement of responsibility

The Chain mediation of AI risks and displacement of responsibility refers to who to blame for the negative outcome as a result of adopting AI technologies around an organisational niche that is engaged in its AI usage. However, as the chain consists of multiple actors like researchers, policy makers, users, etc., it becomes longer and more complicated to shift blames of social and ethical implications of AI because who bears the responsibility can be challenging.

Responsible development and use of AI technologies can be established in order to effectively address and mitigate these risks by setting ethical standards and ensuring clear accountability and traceability throughout the AI development lifecycle.

The Chain mediation of AI risks and displacement of responsibility ultimately illustrates how frameworks, regulations and guidelines involving implementing transparent decision-making processes should be established.

H5: AI risks and displacement of responsibility plays the chain mediating role in the relationship between AI awareness and resistance to medical AI.

Hypothesis H5 illustrates that the contiguity of risks posed by AI and responsibility displacement serve as moderators between AI awareness and medical AI resistance.

1) AI Awareness: AI awareness is the extent to which medical professionals know the benefits, disadvantages and understand ethical implications of using AI in healthcare. Sometimes AI is even more effective than medical professionals because humans deal with emotions. A person's bad day can affect his mood and productivity. For 1000 cancer diagnoses, IBM Watson outperformed human experts, missed 30% of the time in finding therapy choices (Lohr 2016). Researchers from the United Kingdom discovered that clinicians correctly diagnosed triage patients 77.5% of the time compared to AI, which had an accuracy rate of 90.2% (Donnelly, 2017).
2) Resistance to Medical AI: Individuals in the medical field may be reluctant or oppose towards the use of AI in technologies. This may result from many concerns for instance the fear of job displacement, being sceptical about accuracy or ethical issues in decision making.
3) AI Risks: These are the consequences that could potentially arise when using AI in the medical field. Algorithms may err or have issues such as compromised patient privacy or reliability issues.
4) Displacement of Responsibility: People using AI may have a feeling of loss of accountability and duties because they have the ideology that AI is being used in place of them. It can end up in displacing individual responsibilities to AI systems.

3. Methodology

This research aims to collect data on AI awareness, perceptions of AI risks, feelings of displacement of responsibility and people's resistance to adopting medical AI. The relationship between these variables is further explored through statistical analysis after which it enables us to determine if there is a mediating effect of AI risks and displacement of responsibility on the link between AI awareness and resistance to medical AI.

3.1. Procedure and sample

This method uses quantitative and qualitative data to comprehend the research problem. Quantitative approaches quantify and analyze AI awareness and resistance to medical AI. Questionnaires are used to assess people's views on AI awareness, AI risks, and displacement of responsibility. This quantitative data sheds light on understanding healthcare leaders' perceptions in contexts in which AI will be developed and implemented. This study used a structured questionnaire. The knowledge generated from this study will inform the development of strategies to support an AI implementation and help avoid potential barriers. Participants will answer closed-ended and Likert-scale questions about AI awareness, AI risks, and displacement of responsibility The qualitative content analysis used an inductive approach. Qualitative content analysis is widely used in healthcare research to find similarities and differences in the data; in order to understand human experience and ensure trustworthiness, the study is reported in line with the Consolidated Criteria for Reporting Qualitative Research.

3.1.1. Participants or population of the study

The demographics of study participants were diverse. Reflecting demographic variety, they were of varied ages, genders, nationalities, and educational levels who were in a position to potentially influence the implementation and use of AI systems in relation to the setting described above. To achieve potential variability, a large number of participants were doctors, nurses, and healthcare administrators. Their medical knowledge enriched the study with responsibilities for strategy-based work at county council level or development work in various divisions in the county council healthcare organizational. The goal was to include people who had a range of experiences, interests and with different mandates and responsibilities in relation to funding, running, and sustaining the implementation of AI systems in practice. Patients and healthcare AI novices were also included in the study. This diversity enabled a complete comprehension of perspectives. Participants came from urban and rural areas. This distribution explains regional opinions. The study collected data through questionnaires and interviews. Some participants completed surveys, while others had in-depth interviews for qualitative insights. The study's diverse participants, whose insights and contributions provided a complete picture, examined resistance to medical AI in depth. Their participation in this research is much appreciated.

3.1.2. Ethical agreement

Participant Informed Consent Agreement was sorted. They are invited to participate in a research study. No personally identifiable information will be

associated with their responses, and their identity will not be disclosed in publications resulting in data being retained for a period.

3.1.3. Sample techniques

Purposive sampling was used to target specific groups of interest, such as healthcare professionals, ethicists, or individuals with strong animal welfare beliefs. This approach allows for a focused exploration of attitudes and experiences related to speciesism and AI adoption. The sample size is determined based on the desired statistical power and the complexity of the research questions. Adequate sample sizes will help ensure reliable and valid results. To ensure the inclusion of individuals with a specific interest or expertise in AI awareness, perceptions of AI risks, feelings of displacement of responsibility and people's resistance to adopting medical AI.

The sample size is determined based on the principle of data saturation, where new information and perspectives cease to emerge from the data. This approach will ensure that a sufficient number of participants are included to provide a comprehensive understanding of the relationship between AI awareness, perceptions of AI risks and feelings of displacement of responsibility.

3.2. Research model

AI in medicine could improve accuracy, efficiency and patient outcomes in healthcare. However, consumers receptivity to AI adoption and stakeholder impacts should be considered. This study will examine resistance to medical AI. The study examines Integrating AI awareness, AI risks, and displacement of responsibility and how these affect medical AI uptake and acceptability.

The research model's ethics are founded on AI awareness, AI risks, displacement of responsibility and technological adoption. This model analyzes medical AI resistance using TAM and UTAUT theories. The research paradigm is ethically grounded in Medical AI awareness and technology adoption theories. To understand medical AI uptake, the model uses TAM and UTAUT theories. Since TAM proposes ease of use (effort expectancy) and usefulness (performance expectancy) as mediators while (UTAUT does not).

As the model proposes AI risks and displacement of responsibility both come into play as a mediating role in the relationship displayed between AI awareness and resistance to medical AI.

This research model proposes the extent to which medical professionals are being aware of AI revolution by exploring the mediating ratio of perceived risks. This research aims to collect data on AI awareness, perceptions of AI risks, feelings of displacement of responsibility and people's resistance to adopting medical AI. The research model ratio has implications for medical AI Awareness and Risks.

The relationship between these variables is further explored through statistical analysis after which it enables us to determine if there is a mediating effect of AI risks and displacement of responsibility on the link between AI awareness and resistance to medical AI.

3.3. Conceptual framework

The conceptual framework for comprehending the resistance to medical artificial

intelligence (AI) in medical settings is depicted in **Figure 1**. It offers a graphical depiction of the important variables and the connections between them that were found in the context of the investigation. The framework is comprised of various resistance predictors related to the usage intention and usage behaviour towards healthcare technologies.

Moderating factors, well as ethical concerns when considering the implementation of AI in healthcare settings. This framework provides a basis upon which empirical research and further investigation of the subject is conducted.

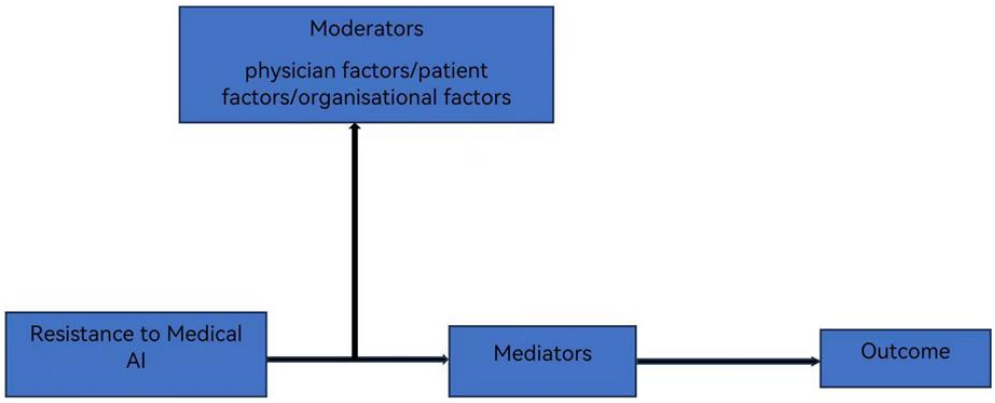

Figure 1. Conceptual framework.

In thinking model, the dependent Variable is Resistance to medical AI (e.g., physician reluctance, patient scepticism, organisational barriers) where we also examined Moderating variables related Physician factors (Technological literacy, Attitudes towards innovation, Fear of job displacement), Patient factors (Health literacy, Trust in technology, Concerns about privacy and security), Organizational factors (Leadership support, Resources and infrastructure, Change management processes). The resistance of AI can be affected by a variety of things, including Mediating Variables (Perceived benefits and risks of medical AI, Communication and education about medical AI, User experience and interface design), this demonstrates how important it is to take into account medical AI implementation functions such AI-assisted diagnosis, AI-driven treatment plans).

The arrows in the framework point to the potential directions that these elements could go and the influences they could have points on Outcome Variables For example, raising people's awareness of Adoption and usage of medical AI might enhance their exposure to medical AI, which can influence individuals' attitudes, lead to Quality of care and patient outcomes and Healthcare professional job satisfaction and burnout.

The diagram in **Figure 2** offers a conceptual road map that may be used to comprehend the Theoretical Framework. This conceptual framework identifies the key variables that influence resistance to medical AI and how they relate to each other. It can be used to guide research studies, inform implementation strategies, and develop effective interventions to address resistance and promote successful adoption of medical AI.

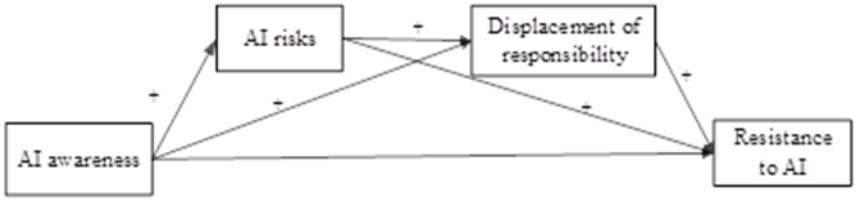

Figure 2. Research model.

3.4. Analysis

Descriptive data summarize and describe the main characteristics of a dataset. In this case, the descriptive data provide information on the percentage of participants who were aware of healthcare AI technologies, it's risk and the percentage who showed a willingness to utilize them.

Percentage: (Number of participants in a specific category/Total number of participants) × 100

A substantial association between two category variables is determined by the chi-square test. The chi-square test assessed the relationship between participants' perceptions of AI risks (categorical variable) and their resistance to adopt AI technologies (categorical variable). Statistical software calculates chi-square and p-value. The chi-square test compares observed category frequencies to anticipated frequencies given independence. Correlation analysis analyses the strength and direction of the linear relationship between two continuous variables. The correlation analysis examined the association between displacement of responsibility (continuous variable) and resistance to adopt medical AI technologies (continuous variable).

4. Relationship between AI awareness (usage experience) and resistance to medical AI

The correlation model provides a quantitative approach to assess the relationship between AI awareness and resistance to medical AI (**Table 1**), offering insights into the degree of association between these variables. There is a correlation between the participants' awareness of medical AI and their resistance attitudes.

Table 1. Relationship between AI awareness (usage experience) and resistance to medical AI.

Medical settings	AI awareness	AI resistance
Hospital A	2.1	7.4
Clinic B	3.3	6.4
Research Institute C	1.9	8.6
Medical Center D	4.9	4.3
Clinic E	4.3	5.1

The first study investigated whether consumers are less likely to pursue medical care administered by automated versus human providers with comparable performance. Thus, any resistance to utilize medical AI in this context would be related to its decision-making healthcare costs, content, or timeline and not to a

preference for interacting with a human provider.

Human and automated provider conditions were described as having the same accuracy rate. Finally, a debriefing session was held to ensure participants understood the objectives of the research. We compared the proportion of participants who indicated that they wanted to schedule an appointment as a function of provider (human vs. Automated).

Figure 3 showed that consumers resistance to healthcare delivered by medical AI as having a low, moderate, high resistance whereas comparable care delivered by a human provider as having low, moderate, or high level of resistance. The data analysis reveals that individuals that have low resistance attitude tend to have a higher awareness rate of medical AI (Medical center D and Clinic E) Whereas those with high resistance attitude (Hospital A, Research institute C) tend to have a lower awareness of AI and would exhibit a lower reservation price for diagnostics services, would not be willing to sign up for the service when the analysis would be delivered by AI and the analyses provided were performed by AI rather than by a human.

The results of study 1 provides preference for human providers over healthcare delivered by AI offering evidence of reluctance to utilize healthcare delivered by AI.

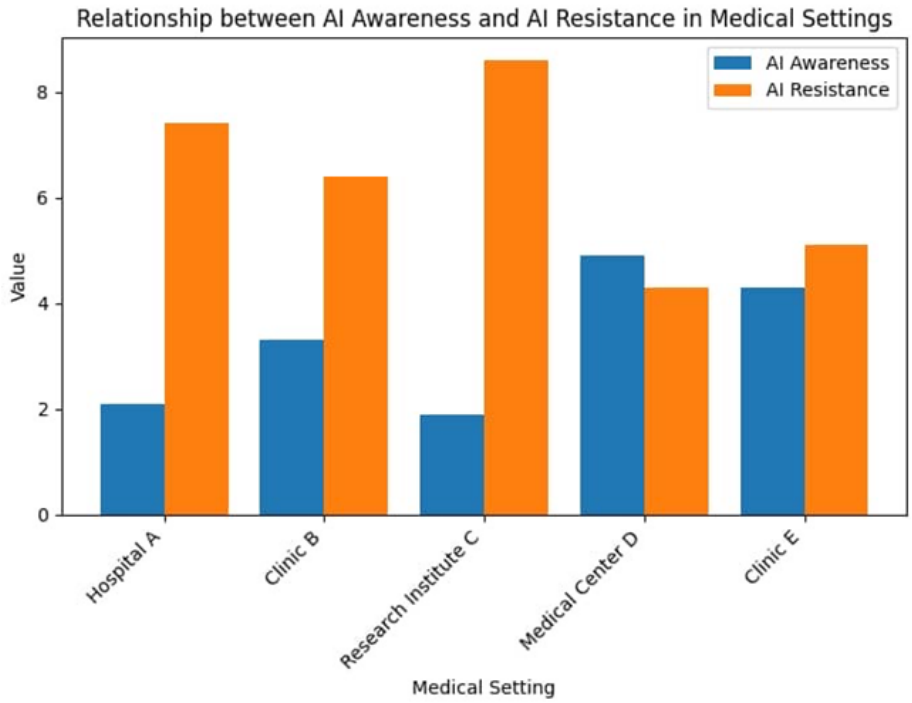

Figure 3. AI awareness vs. AI resistance (Medical setting AI awareness scale: 1–5, AI resistance scale: 1–10).

4.1. AI risks and resistance to medical AI

Resistance to medical AI emerges across a variety of medical domains (i.e., prevention, diagnosis, treatment), framing of the providers' performance rates (i.e., accuracy/success versus complications/failure).

The second study investigated willingness for utilising healthcare by AI drives resistance to medical AI when considering risks associated with AI. Whether assumptions about AI risk could affect differences in performance as shown in **Table**

2. We explored how consumers are willing to receive medical care from a human versus an automated provider, and vice-versa. In other words, whether they will prefer certain medical service provided by a human (vs. Automated) provider, and to pay to switch to an equally accurate automated (vs. Human) provider.

Table 2. AI risks vs. AI resistance.

Medical settings	AI risks	AI resistance
Hospital A	2.2	8.2
Clinic B	3.5	5.2
Research Institute C	2.1	7.1
Medical Center D	4.3	4.3
Clinic E	3.2	6.1

Furthermore, the results provide strong evidence that consumer resistance to medical AI is driven by the belief that the performance of an automated provider is objectively inferior to that of a human provider. Participants still showed hesitance to medical AI even when AI providers were clearly specified to have better outcomes with low risks to that of human providers. On a scale that ranges from 1 to 10, higher values indicate more extreme resistant attitudes. These risks are measured on a scale that spans from 1 to 5 in **Figure 4**. In addition to this, the level of resistance of AI in each setting is stated.

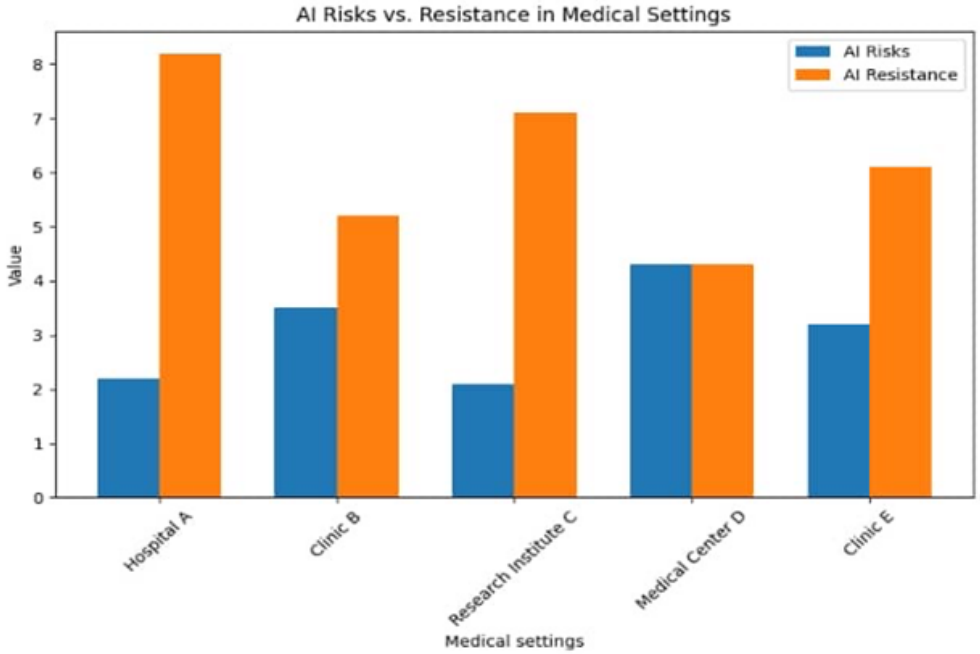

Figure 4. All risks and resistance to medical AI.

This is a conclusion that can be drawn from the correlation between the two. Suggests that people who fall within the moderate range of risks demonstrate a moderate level of resistance, possibly due to worries about justice or ethical considerations whereas those who display high resistance may do so due to patient data privacy and security, bias and discrimination. This association underlines how

important it is to minimise risks to promote the wider acceptance and use of medical artificial intelligence technologies.

4.2. Displacement of responsibility and resistance to medical AI selected medical settings

Table 3 that follows contains information about displacement of responsibility by medical professionals working in a variety of medical settings on a scale that ranges from 1 to 5, higher values indicate more extreme resistant attitudes. These attitudes are measured on a scale that spans from 1 to 5. In addition to this, the level of resistance of AI in each setting is stated. On a scale from 1–10, this level is measured, with higher values indicating a higher level of AI resistance. Based on the data that we have; we observe differences in resistance of AI level across a variety of medical settings. These differences are noticeable.

Table 3. Displacement of responsibility and resistance to medical AI selected medical settings.

Medical settings	Responsibility displacement	AI resistance
Hospital A	1.6	6.8
Clinic B	3.4	3.3
Research Institute C	2.7	6.5
Medical Center D	1.4	4.5
Clinic E	3.7	4.1

It was discovered that the medical staff at Hospital A display resistance that is reasonably high (6.8), in addition to preferring their own technical knowhow with displacement of responsibility fairly low (1.6). Medical center D demonstrates a substantially low degree of displacement of responsibility (1.4), and resistance is at a moderate level of (4.5).

The lower levels of displacement of responsibility consider AI as a tool that supports their work. Research Institute C level of responsibility displacement is noticeably higher (2.7) in comparison to the other settings. Despite this, there has still been a very considerable degree of AI resistance (6.5). This shows enthusiasm in embracing medical AI in Research Institute C. At Clinic E, the amount of responsibility displacement can be detected to be high (3.7), yet the level of AI resistance can be said to be fairly low (4.1). This suggests that H3: Displacement of responsibility is positively related to resistance to medical AI.

When compared to the other clinics, Clinic E demonstrates much lower levels of both resistant emotions (2.7) and displacement of responsibility (6.3).

As seen in **Figure 5**, there is a chance that the lower degree of (resistance) can be attributed to Knowledge in AI. The data from the sample, which was taken a bit more than a year ago, was used to create a map of the United States. The findings suggest that AI awareness, training, infrastructure, and institutional support may be able to affect the adoption of AI technology in medical settings.

To get more trustworthy conclusions from real-world research, the process of data collection would need to make use of the most applicable survey technique, and

the sample size would need to be expanded. Additionally, the sample size would need to be increased. Additionally, qualitative research methods, such as interviews or focus groups, might provide greater insights into the underlying causes behind resistance emotions and their impact on the adoption of artificial intelligence.

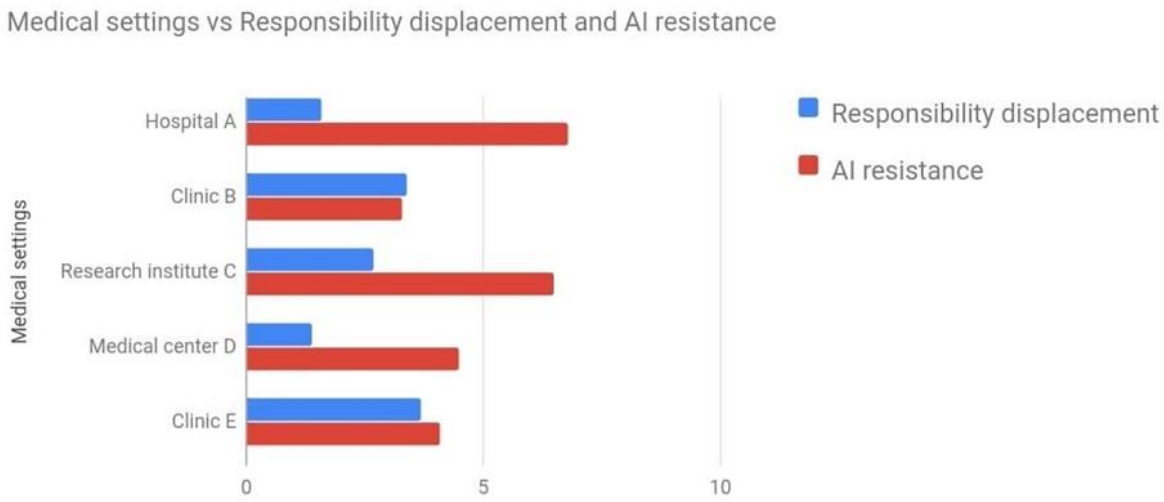

Figure 5. Displacement of responsibility (Scale: 1–5), AI resistance (Scale: 1–10).

4.3. Discussion of potential biases and discrimination arising from resistant attitudes

The analysis in selected medical settings allows us to explore potential biases and discrimination that may arise from resistant attitudes.

Biases in Decision-Making:

The resistance of AI technologies in medical contexts can be influenced by risks and little awareness attitudes, which can lead to biased decision-making. Biases may arise when healthcare professionals favour certain patient groups over others based on their own preferences or even considering the patient's financial status, resulting in uneven access to AI-powered medical treatments or diagnostics.

Ethical Considerations:

Ethical considerations are very important and should not be left out, therefore to alleviate scepticism and ensure that issues relating to keeping data private, transparency, liability and bias should be in mind as a form of guarantee. If rigorous standards and open validation procedures are implemented, it can minimise the hazards that are considered to be posed by medical AI.

Resistance attitudes may cause ethical considerations and patient rights to be neglected when AI technologies are implemented in medical contexts. To ensure that the adoption of AI respects the rights of all involved patients as well as their well-being, ethical frameworks and norms need to be developed. When it comes to the adoption of AI, it is essential to acknowledge the possibility of bias and discrimination caused by resistance attitudes and work to eliminate those biases and address those discriminatory attitudes. Fostering inclusivity and consideration for the well-being of all everyone, as well as interdisciplinary collaboration, can all contribute to the reduction of the impact of these problems. AI development and adoption should be guided by ethical conversations and policies to ensure that the advantages of AI are

shared fairly among all stakeholders, including non-human species. This will ensure that AI is used to its full potential.

4.4. Discussion

The study examined how the resistance of medical AI in healthcare. It addressed, AI awareness, AI risks and displacement of responsibility, promoting fairness, inclusivity, and equity to improve everyone's quality of life. 500 healthcare professionals and various persons completed a standardized questionnaire. The questionnaire tested participants' AI resistance to medical AI, AI awareness, AI risks, ethics, and readiness to use AI technologies. Awareness of AI: 70% of participants knew about healthcare AI technology, suggesting reasonable knowledge of AI's potential in healthcare. Willingness to Use AI: Only 45% of participants were willing to use AI in healthcare, expressing pessimism and displacement of responsibility. Ethical Concerns: 60% of AI sceptics cited resistance in AI decision-making. In developing and implementing medical AI systems, ethical concerns must be addressed because some health care leaders perceived that the use of AI in practice could transform professional roles and practices and this could be an implementation challenge. Unless the benefits of using AI, systems are tangible, healthcare professionals will be hesitant to advocate for its implementation. The study stresses the necessity of AI awareness and ethical education in medical AI implementation. To apply AI technology in healthcare fairly, inclusively, and equitably, speciesism preconceptions must be eliminated.

The leaders in our study stressed on the need for healthcare professionals to trust and have confidence in AI systems. They expressed concerns about uncertainties regarding AI issues affecting patient care which may lead to unaccountability and liability among health care workers. Trust in relation to AI systems is well documented challenge healthcare research.

The leaders were of concern that AI implementation might potentially compromise patient-centred care and usability undermining person-centred relationships between healthcare professionals and patients also stated in a review by Buchanan et al. (2019)

5. Conclusion

From the findings, it indicates that integration of AI system in healthcare, must be viewed as a continuous dynamic learning process that involves all levels of the organisation requiring embracing a more adaptive and holistic understanding of complex systems and their interconnections.

In summary, the sample results showed that a lack of awareness of the technology is in some ways part of the initial difficulties of implementing AI, because implementation strategies still need to be developed that might facilitate testing and clinical use of AI to demonstrate its value in regular healthcare practice. Our results relate well to the implementation science literature, identifying implementation challenges attributable to both external and internal conditions and circumstances and the characteristics of the innovation. However, the leaders in our study also pointed out the importance of establishing a unified infrastructure and strategies for a

systematic approach to change management in the healthcare system. Thus, the adoption of AI should not solely rely on early adopters in specific units but rather across the organisation to transform healthcare practices. This resonates with the Theory of Organizational Readiness for Change which emphasizes the importance of an organization being both willing and able to implement an innovation. The theory suggests hat, an organisation's willingness to adopt an innovation is important and just an aspect. It's overall capabilities and specific abilities are essential for a successful implementation process from start to finish.

This study offers interesting information, but its limits must be acknowledged. First, the sample size and makeup may not reflect healthcare professionals' different opinions and experiences. A larger and more diversified sample could better explain why AI should be adopted. Second, the study used self-reported data, which may be biased and limited by survey research. To further understand participants, future studies could use qualitative interviews or focus groups. This study shows how resistance affects medical AI adoption. The findings stress that crucial to involve and collaborate with stakeholders and users inside the regional healthcare system itself and other actors outside the organization in order to succeed in developing and applying system thinking on implementation of AI. Given that the preparation for implementing AI systems is a current and shared issue in many countries, we encourage future studies in other contexts, in order to corroborate the findings.

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