Integrating Artificial Intelligence into Vascular and Endovascular Interventions: A Technological Frontier For Enhanced Patient Care

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Abstract

At the vanguard of a revolution in healthcare is the use of artificial intelligence (AI) into vascular and endovascular procedures. This study presents a thorough analysis of the possible implications of artificial intelligence (AI) for improved patient care as it investigates the technical frontier where vascular medicine meets AI. For measuring the research study used smart PLS software included smart PLS Algorihtm Model related to the variables. the descriptive statistic, correlation coefficient, describe overall research. Artificial Intelligence provides a comprehensive approach to optimizing the precision, personalization, and preventative elements of vascular procedures, ranging from sophisticated image analysis and personalized treatment planning to real-time decision assistance and post-operative monitoring. The study explores the difficulties and factors involved in this integration, stressing the significance of patient privacy, data security, and continuing education for medical staff. The integration of AI emerges as a potent supplement to human knowledge through multidisciplinary cooperation and prudent deployment, pointing to a future where vascular therapies are not only successful but also incredibly compassionate and customized to each patient's requirements. The overall study founded that direct link between integrating Artificial Intelligence into Vascular and Endovascular Interventions. The main ideas and conclusions covered in the extensive exchange on the relationship between artificial intelligence and vascular medicine are summarized in this study.

Keywords

integrating Artificial Intelligence (IAI), Vascular (VV), Endovascular interventions (EI), Technological Frontier (TF), Enhanced Patent Care (EPC), smart PLS Algorithm

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We are living in that scientific era in which human has been called "human sapiens" and the entire world has been transformed into a "network globe" because of advancement made by use of science and technology. Science which is defined as knowledge gained through experience, has enabled us to communicate in effective way in nanoseconds and also enabled us to cross the boundaries of earth and space. The artificial intelligence is also evidence of importance of science and technology in human daily life.

The Artificial intelligence which is abbreviated as AI has replaced human intelligence in different aspects of life such as industry, medicine, health, communication, entertainment and others. This study overviewed that how artificial intelligence can be used for vascular and intra vascularity aspects of medicinal science [1]. There are many benefits of artificial intelligence in every aspect of life such as in the industrial aspect, health, medicinal aspect, personalized care, finance, management, investment, and many others.

This study focuses on the use of artificial intelligence for vascular and Endovascular Interventions which can be used for Enhanced care of patients as well. There are many benefits of artificial intelligence in the Healthcare aspect such as swift and accurate diagnosis of disease, discovery and the process of development of various drugs, to improve the way and means of communication between physician and patient, maintaining medical records in the form of electronic data, to store and translate medical documents and many others as well[2]. Nowadays, cardiovascular disease has been tremendously unceasing and increasing worldwide.

A new chapter in healthcare history is being ushered in by the technical frontier of artificial intelligence (AI) in vascular and endovascular procedures, which has the potential to completely transform patient care. The convergence of artificial intelligence (AI) and vascular therapies presents a world of opportunities that might significantly improve patient outcomes, treatment planning, and diagnostic accuracy at the junction of cutting-edge technology and medical innovation. Vascular and endovascular interventions have historically depended on the experience of qualified medical practitioners.

They comprise a broad spectrum of operations intended to address problems of the cardiovascular and vascular systems. But the arrival of AI in this area has brought about a paradigm change, providing a mutually beneficial alliance between machine learning algorithms and human intellect. This collaboration has the capacity to completely transform these treatments' effectiveness as well as the accuracy with which they are carried out. There are many types of cardiovascular diseases such as atherosclerosis, different aneurysms, disorders like ischemic, and others.

Although these diseases were treated by high-risk interventions such as open heart surgeries, or the use and implantation of synthetic materials which can increase the risk of rejection, less durability, need for long-lasting medication, and others[3]. Nowadays vascular bioengineering has been used that is a development of artificial intelligence. This study overview that how artificial intelligence can be used for the treatment of vascular diseases. Four major sub-fields of artificial intelligence are applied and used in the medicinal and surgical aspects of healthcare. The main aspect of vascular surgery is the analytical study of diagnostic imaging and the collecting of large amounts of patient data in electronic form[4].

The characteristic ability of artificial intelligence to collect, analyze, and store data to draw conclusions has mostly surpassed human capacity and has proved to be a beneficial way for the treatment of vascular diseases. Artificial intelligence can be used for the diagnosis of vascular diseases because it can analyze data in the form of bulk amounts. It can use imaging platforms for early diagnosis of diseases that are related to vascular aspects[5]. Artificial intelligence (AI) has the potential to be a useful tool for healthcare providers by analyzing patient data and making customized therapy recommendations.

This breaks from the one-size-fits-all approach that has characterised several elements of medical practice and guarantees that therapies are not only effective but also optimised for the unique needs of each patient. The severity of pathology can also be accurately checked by artificial intelligence. Artificial intelligence uses deep learning technology to analyze data related to vascular diseases. At the same time, artificial intelligence is also the best tool for interpreting and analyzing abdominal aortic aneurysm imaging, abbreviated as AAA. Meanwhile, artificial intelligence can be used by surgeons for preoperative planning[6].

This artificial intelligence can also be used to estimate the possible outcomes of postoperative aspects of vascular surgery. Not only this, but artificial intelligence can also be used for decision-making related to different types of surgical treatments which are mostly used for vascular surgery[7].

In the case of aortic aneurysms and peripheral aneurysms, artificial intelligence can help describe the location of that aneurysm along with its dimensions. Artificial Intelligence can also help understand the centerline tracing, the sealing zone, the segmentation in the lumen, the presence or absence of collateral, the load of thrombus, the distance from the renal artery and other arteries, the sensitivity of lumber, calcification, and also the Endovascular aspect of it[8].

Personalised medicine is also a possibility now that artificial intelligence is being used in vascular and endovascular procedures. Customizing treatment programmes to fit each patient's anatomy and medical history is a difficult process because every patient has different needs and concerns. The different tools of artificial intelligence that are mostly used in vascular surgeries are computer-aided diagnosis abbreviated as CAD, clinical decision support system, deep learning, magnetic imaging system, and electronic data mining. But it also needs input from the field of radiology as well. The imaging techniques of artificial intelligence are highly accurate and can be used to describe the location and position of a thrombus in the body for preoperative measures. These imaging techniques can also be helpful to get an idea about thrombus to decide that whether surgery is recommended or not. The other benefit of artificial intelligence is that it can store large amounts of data for a long time[9].

Artificial intelligence has the potential to advance significantly in another field: predictive modeling. AI systems can spot patterns and trends that would escape the notice of more conventional analytical techniques by using huge datasets and sophisticated algorithms. This predictive capacity has enormous promise for predicting outcomes or problems from vascular procedures. With the use of AI-driven insights, clinicians may anticipate possible obstacles and modify their strategies to improve patient outcomes.

Preventive medicine's guiding principles are well aligned with this forward-looking component of AI, which aims to solve problems before they worsen. One area where AI can demonstrate its ability to improve accuracy and lower error margins is integrating robotics and automation with vascular and endovascular procedures. AI-guided robotic-assisted treatments have the potential to improve the precision of catheter navigation and intervention performance. Combining human knowledge with AI-driven robotic devices produces a formidable partnership that might completely alter the expectations for procedural accuracy in vascular procedures.

This data can be converted into electronic data, which is mostly easily stored and analyzed. In traditional means of storing data physically, there was a great risk of data loss, but by using computer-based systems in artificial intelligence, this risk has been minimized to a great extent. Secondly, all the data is analyzed with the help of computers, so there is less chance for error in analyzing. The third benefit of artificial intelligence is that it can store data and analyze in a few minutes, saving time that can be used for treatment later. Moreover, physicians' results may be biased, but the results taken by using artificial intelligence will be accurate and reliable with a minor chance of being biased[10].

Although artificial intelligence has many benefits in collecting, storing, and analyzing data for vascular surgery, there are also some negative aspects. Firstly, artificial intelligence-based systems are highly costly these days, so the masses cannot afford this method of treatment in this era of inflation. Secondly, artificial intelligence uses high-quality complex software and hardware machinery that need to be updated occasionally for effective and accurate results, but this upgrade also increases the cost of treatment by artificial intelligence.

Thirdly, the use of artificial intelligence increases the risk of unemployment across the world because artificial intelligence has reduced the value of human skills, so the level and value of human labor have been decreasing day by day.

Moreover, it is creating a society in which humans are more dependent on machines for different tasks, which is indirectly decreasing human beings' level of social capital. Artificial intelligence can prove effective in alleviating the increasing level of vascular diseases if these negative aspects are considered and evaluated thoroughly[11]. An essential component of AI integration is real-time decision assistance, especially for intricate medical operations. Artificial intelligence (AI) devices can act as a virtual assistant in the operating room by giving medical personnel quick insights and recommendations.

The overarching objective of guaranteeing complete patient well-being outside the boundaries of the intervention itself is in line with this proactive approach to post-operative care.

RESEARCH OBJECTIVE:

The main objective of this study is to understand the relationship between using artificial intelligence in vascular and Endovascular Interventions to enhance the level of treatment for patients. This study has also effectively explained the role of artificial intelligence in collecting data and analyzing it for diagnosis, treatment, and prevention of vascular diseases. This study has also overviewed a few negative aspects of using artificial intelligence for the treatment of vascular diseases as well. The research study determines that integrating Artificial Intelligence into Vascular and Endovascular Interventions.

This research is divided into five specific chapters. The first section represents the introduction related to the indicators. This portion describes the objective and aim of the research study. The second section describes the literature review, and the third section represents the research methods, including the data collection process. The last section describes the result and its descriptions. The last section summarizes the overall research study and presents some future recommendations about integrating Artificial Intelligence into Vascular and Endovascular Interventions.

LITERATURE REVIEW:

Researchers claim that advancements in technology provide tremendous applications in the health sector. The quality of treatment procedures offered by the advanced health sectors improves as well, and the quality of patient life is enhanced. vascular bioengineering is a modern technique used for treating diseases related to the vascular system. this bioengineering-based treatment technique provides the patient with personalized medicine to treat their disease's severity.

Biomaterials have been made using advanced technology to treat defects in the vascular system[10].studies show that incorporating AI into the medical field for synthesizing vascular biomaterials has resulted in the medical revolution. The development of new therapeutic medications against vascular disorders is used in the surgery of vascular defects[9].Studies reveal that advancement in AI-based technologies has improved neurosurgical procedures. Improvements in neurosurgical methodologies result from using augmented or virtual reality technology[7].

These real-time decision support systems enhance the ability of medical personnel to make decisions by proposing appropriate catheter motions, adjusting dosages, or warning of possible consequences. As a consequence, treatments are approached dynamically and responsively, with AI serving as a watchful partner to improve procedure safety and efficacy overall. AI can potentially improve patient care in yet another area: post-operative monitoring. AI-powered monitoring devices may continually analyse physiological indicators and vital signs to follow patients' recovery in real-time. Continuous monitoring guarantees the rapid identification of any deviations from the anticipated recovery trajectory, hence facilitating timely intervention and modification of post-operative care plans.

Studies explain that a lot of deaths recorded worldwide are due to stroke. many people suffer from disability due to stroke condition. Arterial occlusion causes a severe form of stroke condition known as ischemic stroke. AI methodologies are employed in the medical treatment process[12].studies suggest that the efficiency of the treatment process in health sectors improves through the potential applications of AI in the pharmaceutical sector. using AI for developing drugs reduces the cost of drugs and makes drugs affordable for patients. These affordable drugs then help the patient to recover speedily from their disease[5].studies predict that recovery of patients after stroke condition is a critical process and requires effective medication-based procedures.

Efficient interventions provided to the stroke-affected patient. The use of nanodrugs for treating stroke conditions holds immense importance for treating stroke-related disorders[13]. Moreover, the increase in the rate of deaths due to ischemic stroke conditions is because of the inefficiency of the treatment process against this disorder type. Machine learning-based technology is used in medical treatment processes to improve treatment efficiency. machine learning provides effective ways to treat stroke conditions by explaining the complexity behind every stroke condition a patient faces[14] Also, the prevalence of ischemic stroke among all cardiovascular strokes is high.

The high prevalence rate of ischemic stroke makes it the most complex form of stroke condition that is difficult to treat through ordinary medications. using AI-based methods to assess the ischemic stroke complexity and then to make effective drugs is the only workable treatment process against ischemic stroke. most the ischemic stroke conditions are acute and impact the overall health of the patient. timely management of stroke conditions and treating them through innovative treatment methods is a very critical process.

The treatment process against most stroke conditions starts by assessing the symptoms behind the stroke type. The severity of the symptoms determines the type of stroke condition a patient is affected with[15]. Collaboration between physicians, academics, and technology developers becomes critical as we set out on this road to integrate AI into vascular and endovascular procedures. The smooth integration of AI technology into clinical operations is made possible by interdisciplinary collaboration, which guarantees that the advantages result in noticeable enhancements to patient care. Healthcare is at the vanguard of a digital revolution that can revolutionize patient care standards because of the synergistic interaction between medical competence and technological innovation.

Studies highlight that the use of AI has increased in various industries because of its tremendous application in numerous fields. using AI in neurosurgery-based processes improves surgical treatment procedures[16]. Studies elaborate that doctors carrying out vascular surgeries face the risk of getting exposed to serious radiation. these radiations are harmful to doctors. Research is made on the use of surgery robots for carrying out vascular surgery to provide intervention to doctors to save them from the radiation[17].

Certain studies reveal that EVT is a type of modern therapy provided to sever form of stroke affected patients. technology based tools are used for assessing the process of providing EVT to ischemic stroke patients[18]. Also, the effectiveness of EVT make sit most suitable therapy used for treating the endovascular stroke. For the embolization process of endovascular aneurysms the use of micro Cather shaping techniques are employed in the treatment[19].Scholarly studies have comprehended that the use of NLS in the health sector is increasing as it provides tremendous applications. For extracting information regarding the health sector, the use of NLS is made. For carrying out vascular surgery, the NLS technology is widely used for enhancing the efficacy of surgery-based treatment[20].

Furthermore, the treatment methods in the health care sector have been changed due to the advancement of health sector technology. The increased availability of platforms for endovascular-based intervention has decreased the risk of severity of vascular disorders[21]. Studies of scholars on stroke predicts that almost seven billion death around the globe are caused because of stroke condition.to identify the real reason for stroke onset, a large number of research studies have been carried out on various stroke types.

To understand the complex features associated with Stroke, the use Machine learning algorithms are used by researchers studying the stroke types. The ML algorithm provides detailed data related to the endovascular stroke that then helps treat this disorder[22]. Although using AI in vascular and endovascular procedures has many potential advantages, it is crucial to address the issues and concerns related to this cutting-edge technology. In this digital healthcare era, patient privacy and data security become critical issues. Sophisticated security procedures that guarantee patient data integrity and confidentiality must be put in place to protect sensitive medical information. Properly implementing these technologies in healthcare settings requires striking a balance between the transformational promise of AI and the ethical concerns around patient privacy.

Furthermore, healthcare personnel must continue their education and training in order to integrate AI. Because AI technologies are always evolving, it's important to continuously remain up to date on the newest advancements and hone the skills required for a smooth incorporation into clinical practice. In this sense, AI-powered simulation and training platforms may be extremely helpful tools, giving medical practitioners a risk-free setting in which to practice and become accustomed to AI-assisted treatments. scholars highlight that autoML is widely used in a large number of industries because of the application it offers in various industries. The adoption of autoML in clinical settings helps predict the endovascular thrombectomy in patients facing acute stroke [23]. Also, serious complications have been observed after the EVAR. These complications and the severity of the endovascular disease after EVAr is predicted using the AI. The probability of complications associated with EVAR explained using artificial intelligence-based tools determines the percentage of people that need post-operative surveillance[24]. Using AI in the neuroscience field provides great treatment opportunities. the decision-making ability of medical professionals improving the AI based approach. efficient decision making is necessary to carry out neurosurgical procedures. Also, AI development and use in clinical sciences have increased over the last few decades[25]. Studies claim that robotics-based technologies are used in most surgical-based treatments in plastic surgery. The use of robotics at the micro level is a highly complex process. Thereby, its use in plastic surgery requires great care. By using AI and other approaches, the use of robotics can be made in the field of plastic surgery[26].scholars suggest that in AIS-LVO conditions, MT therapy plays a significant role. the therapeutic ability of MT makes it better for treating acute ischemic stroke forms.

Various advanced technology-based techniques are recently used for assessing the impact of MT on ischemic stroke affected patients. The use of ML models helps in predicting the effect of MT more efficiently than any other technology based model[27]. Healthcare firms are embracing AI to increase the efficiency of many types of activities, from back-office chores to patient care. According to the research study the following are some examples of how AI might be utilised to assist staff and patients:

ADMINISTRATIVE WORKFLOW:

Healthcare staff devote a significant quantity of time on paperwork and other administrative responsibilities. AI and automation might help holder many of those ordinary tasks, acquittal up staff time for other activities and giving them more face-to-face contact with patients.

For example, reproductive AI may assist clinicians with note-taking and content summaries, allowing for more thorough medical records. AI might also help with precise coding, information flow between departments, and billing.

VIRTUAL NURSING ASSISTANTS (VNAS):

According to one research, 64% of patients were pleased with the usage of AI for around-the-clock access to responses that help nurses deliver. AI virtual nursing assistants, which are AI-powered chatbots, apps, or other interfaces, can help answer drug-related questions, transfer reports to physicians or surgeons, and support patients in development a visit with a physician. These categories of routine tasks can help take work off the hands of healthcare experts, permitting them to spend more time straight on patient care, where human judgement and trace are most important.

QUANTITY ERROR REDUCTION:

Artificial intelligence might be used to detect errors in how a patient self-administers medications. One example is a study published in Nature Medicine that found that up to 70% of individuals do not take insulin as prearranged. An AI-powered device that runs in the background of the patient (similar to a Wi-Fi router) might be used to detect errors in how the user manages an insulin pen or nebulizer.

LESS INVASIVE SURGERIES:

Another example is less invasive surgeries according to this AI-enabled robots might be used to operate around sensitive organs and tissues, reducing blood loss, infection risk, and post-surgery discomfort.

FRAUD PREVENTION:

At $380 billion a year, fraud in the healthcare industry raises the cost of consumers' medical premiums and out-of-pocket expenditures. Implementing AI can assist in recognizing unusual or suspicious patterns in insurance claims, such as billing for costly services or procedures that were not performed, unbundling (billing for individual steps of a procedure as if they were separate procedures), and performing unnecessary tests in order to take advantage of insurance payments.

DESCRIPTIVE STATISTIC:

Table 1

Name	No.	Mean	Median	Scale min	Scale max	Standard deviation	Excess kurtosis	Skewness	Cramér-von Mises p value
IAI1	0	1.776	2.000	1.000	4.000	0.736	0.273	0.709	0.000
IAI2	1	1.429	1.000	1.000	3.000	0.571	-0.006	0.967	0.000
IAI3	2	1.531	1.000	1.000	3.000	0.610	-0.404	0.716	0.000
VV1	3	1.551	1.000	1.000	3.000	0.608	-0.484	0.641	0.000
VV2	4	1.633	2.000	1.000	3.000	0.629	-0.603	0.490	0.000
VV3	5	1.633	2.000	1.000	3.000	0.629	-0.603	0.490	0.000
VV4	6	1.551	1.000	1.000	3.000	0.641	-0.403	0.763	0.000
EI1	7	1.429	1.000	1.000	3.000	0.571	-0.006	0.967	0.000
EI2	8	1.347	1.000	1.000	3.000	0.517	0.185	1.114	0.000
EI3	9	1.469	1.000	1.000	4.000	0.642	3.377	1.549	0.000
EI4	10	1.592	1.000	1.000	4.000	0.697	1.499	1.149	0.000

The above result describes that descriptive statistic analysis results demonstrate that mean values, median rates, scale minimum values, and maximum values also explain the standard deviation of each indicator. The IAI1, IAI2, and IAI3 represent that mean values are 1.776, 1.429, and 1.531, showing that the positive average value of the mean, the standard deviation rates are 73%, 57%, and 61%, deviating from the mean. The overall probability value is 0.000, which shows that there is a 100% significant probability related to them. the overall minimum value is 1.000, the maximum value is 3.000, and the median rate is 1.000, respectively.

The results describe that VV1, VV2, VV3, and VV4 are mediator indicator results representing that mean values are 1.551, 1.633, and 1.551. These represent the positive average value of the mean. The result also represents that standard deviation rates are 62%, and 64% positive deviate from the mean. The skewness value shows positive rates of each indicator. Similarly, EI1, EI2, EI3, and EI4 are all considered dependent indicators. Its present. That mean values are 1.429, 1.347, 1.469, also that 1.592, these are all shows the positive average value of the mean. To sum up, the incorporation of artificial intelligence into endovascular and vascular procedures is a promising technical advancement that might lead to improved patient outcomes. Artificial intelligence (AI) offers a comprehensive solution to the problems associated with vascular healthcare, from providing real-time decision assistance and post-operative monitoring to revolutionizing diagnostic accuracy and treatment planning.

The standard deviation describes that 57%, 51%, 64%, and 69% deviate from the mean. We have the ability to rewrite the rules for precision, customization, and preventative care in vascular procedures as we negotiate this junction of human inventiveness and technical innovation. A new age of excellence in vascular and endovascular patient care is anticipated with the incorporation of AI through responsible deployment, continuous education, and collaborative innovation.

CORRELATION COEFFICIENT:

Table 2

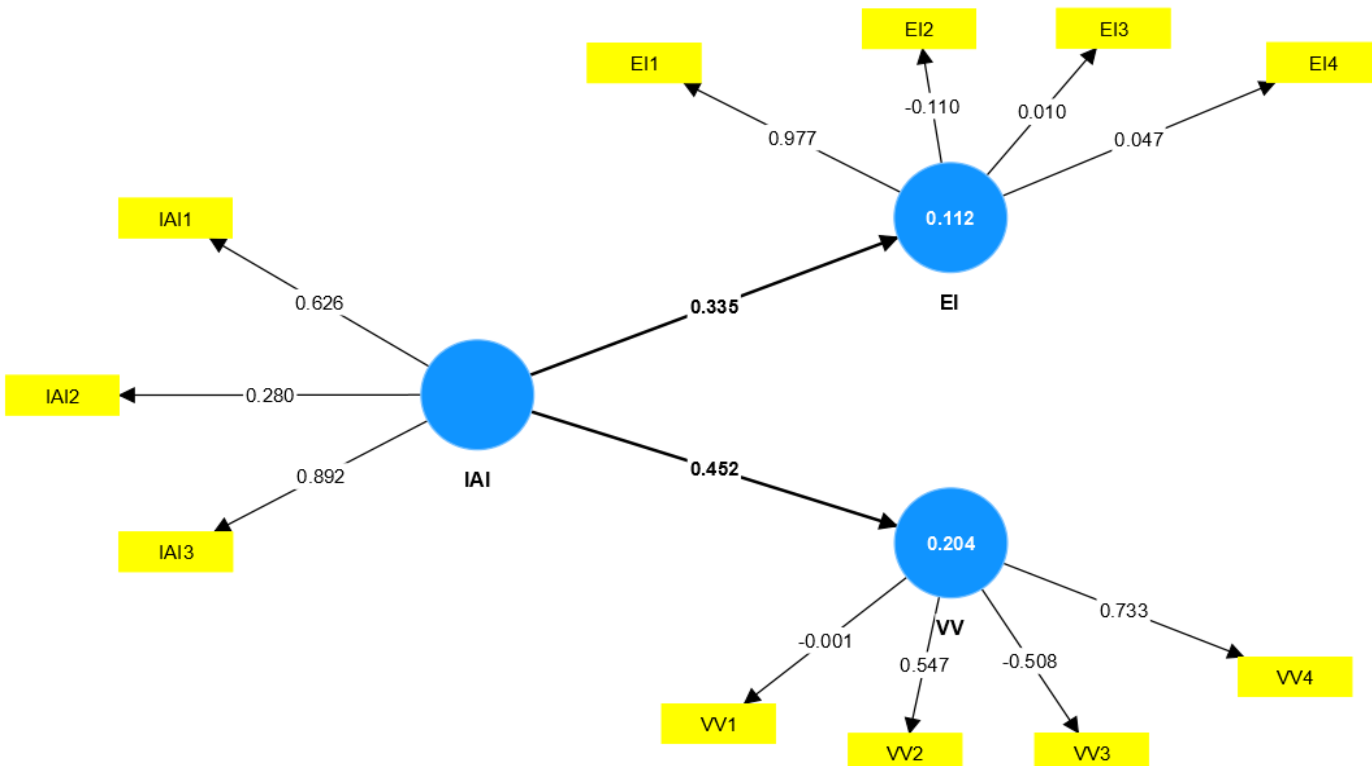
	IAI1	IAI2	IAI3	VV1	VV2	VV3	VV4	EI1	EI2	EI3	EI4
EI1	0.083	0.125	0.343	-0.210	0.154	-0.07	0.303	1.000	0.000	0.000	0.000
EI2	-0.224	0.049	0.063	0.106	-0.173	0.204	-0.084	0.049	1.000	0.000	0.000
EI3	0.007	0.064	0.042	0.017	0.073	-0.331	0.066	-0.159	-0.245	1.000	0.000
EI4	0.020	-0.073	-0.019	-0.143	0.309	0.030	-0.136	0.132	0.166	-0.165	1.000
IAI1	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IAI2	0.326	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IAI3	0.220	0.050	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
VV1	0.185	-0.034	-0.073	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
VV2	0.130	-0.016	0.242	-0.111	1.000	0.000	0.000	0.000	0.000	0.000	0.000
VV3	-0.046	0.041	-0.237	0.316	-0.135	1.000	0.000	0.000	0.000	0.000	0.000
VV4	0.262	0.024	0.296	0.216	-0.004	-0.055	1.000	0.000	0.000	0.000	0.000

The above result describes that correlation analysis results present some positive and some negative correlations between them. Integrating artificial intelligence in healthcare can revolutionise patient care and consequences. based on artificial intelligence predictive analytics can increase the accuracy, efficiency, and cost-effectiveness of disease diagnosis and clinical laboratory testing.

Additionally, AI may aid in population health management and subsequent guidelines, offering real-time, trustworthy information and enhancing medication options. AI integration in virtual health and mental health help has shown the potential to enhance patient care. To allow equitable and successful usage of AI, it is important to tackle challenges such as prejudice and a lack of customization.

A number of decisions must be made to guarantee AI's appropriate and successful application in healthcare. Comprehensive cybersecurity policies and severe security measures should be designed and executed to secure patient data and vital healthcare activities. Collaboration is crucial for creating norms and standards for AI algorithms and their usage in clinical decision-making among healthcare organizations, AI researchers, and regulatory agencies. Investment in research and development is also important for enhancing AI technology customized to meet healthcare challenges. AI algorithms may continually examine population demographics, illness frequency, and geographic dispersion. This can assist identify people who are at a higher risk of getting specific diseases, which can aid in prevention or therapy. Edge analytics may also identify abnormalities and forecast impending heath occurrences, ensuring that resources like immunizations are accessible where they are most needed.

Smart PLS Algorithm:



The above model describe that smart PLS Algorithm model between the IAI and EI also that VV according to the model the IAI shows 62%, 28% and 89% positive link with each factors of IAI. The IAI shows a 33% positive and significant link with EI. According to the analysis, the EI shows 97%, -0.110, and 0.047 negative and positive link with them. the VV shows that -0.001, 0.547, -0.508, and 0.733, some negative and some positive links between them. 5.

Conclusion and future Direction:

The proper and useful deployment of AI to satisfy clinical demands ultimately depends on human experience and engagement, and the absence of this expertise may hinder the implementation of AI in practice. To discourse these problems and provide pertinent solutions, a multidisciplinary approach, innovative data explanation tools, and the development of more rigorous AI models and procedures will be required. If computer scientists and healthcare experts worked well, it would be possible to produce technology that is cooperative, implementable, and successful. By merging current best practices for ethical inclusion, software development, implementation science, and human-computer communication, the AI community will be able to create an combined best practice framework for implementation and maintenance. Furthermore, for AI to be successful in clinical practice, collaboration between various health care settings is required to share data, ensure data quality, and validate analysis results. Another recommendation is to provide appropriate training and education that begins at the undergraduate level for all health care practitioners and continues with continuing development and improvement for practitioners working in current practice to ensure proper version that results in the best patient care and prevent any ethical or legal issues, as well as misinterpretation of the results without verifying the results. It is recommended that medical schools integrate artificial intelligence teachings in their curricula. According to a survey of radiology residents, 86% believe AI will revolutionise and improve their industry, and up to 71% believe medical schools should educate AI to promote comprehension and application. Through this integration, it is ensured that aspiring healthcare professionals are well-versed in AI and its applications from the outset of their studies. For measuring the research study used smart PLS software and generate result included descriptive statistic, correlation coefficient also that smart PLS Algorithm model between them. Public perception of AI in healthcare varies, with consumers demonstrating a willingness to use AI for health purposes but still preferring human practitioners in tough situations. Building trust and educating patients are critical for effectively incorporating AI into healthcare practice. Overcoming issues like as data quality, privacy, bias, and the need for human understanding is critical for ethical and successful AI integration. Overall, the study revealed that there is a direct and substantial relationship between two indicators, dependent and independent. Stakeholder collaboration is essential for effective AI systems, ethical guidelines, and patient and provider trust. To realise the full potential of AI in healthcare, more research, innovation, and multidisciplinary collaboration are necessary. AI is expected to impact healthcare by improving patient outcomes, increasing efficiency, and providing greater access to personalised therapy and quality care with effective integration.

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