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Research Article

"Knowledge and Attitude regarding Artificial Intelligence in Health Care among Nursing Students"

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Abstract

Background of Study

The earliest research into thinking machines was inspired by a confluence of ideas that became prevalent in the late 1930s, 1940s, and early 1950s.The idea of "artificial intelligence" goes back thousands of years, to ancient philosophers considering questions of life and death. In ancient times, inventors made things called "automatons" which were mechanical and moved independently of human intervention. The field of "artificial intelligence research" was founded as an academic discipline in 1956.

AI plays a crucial and vital role in healthcare because it can significantly improve diagnostic accuracy, personalize treatment plans, streamline administrative tasks, enable remote patient monitoring, identify high-risk populations, accelerate drug discovery, and ultimately enhance patient care quality while potentially reducing costs by optimizing resource allocation, all by leveraging its ability to analyse vast amounts of medical data rapidly and efficiently. AI in the health care system helps not only in expediting diagnosis and management but also injudicious resource all location.

Researches on artificial intelligence (AI) in healthcare are essential because it can greatly enhance the knowledge and skills of health care workers and improve patient outcomes by facilitating early disease detection, personalized treatment plans, faster and more accurate diagnoses, effective drug discovery, and optimized healthcare management which will eventually result in better preventative and curative intervention

Developing countries like India are lagging in the implementation of AI-based solutions in healthcare. There is a need of educational interventions, researches on AI to bridge the knowledge gaps and develop a favourable attitude among healthcare professionals regarding AI in health care.

Research Objectives

1) To assess the knowledge and Attitude regarding Artificial Intelligence in healthcare.
2) To find out a correlation between knowledge & attitude regarding Artificial Intelligence in health care.
3) To find out the association between knowledge score regarding Artificial Intelligence in health care with selected socio demographic variables.
4) To find out the association between Attitude regarding Artificial Intelligence in health care with selected socio demographic variables.

Methods

The research approach adopted for the study was a quantitative survey approach. Research design was Nonexperimental, Descriptive Correlational research design. By using probability stratified random sampling technique 120 nursing students studying in D. Y. Patil College of Nursing were selected for the study. Structured knowledge questionnaire and Structured attitude scale was used to assess the knowledge and attitude of nursing students regarding Artificial Intelligence in Healthcare. The reliability of the tool was tested by using Karl Pearson's Correlation coefficient. The reliability computed was r = 0.81.

Data was analysed by using mean, median, mode, range, standard deviation, paired 't' test & chi square test.

Results:

The findings of the study revealed thatmajority of the subjects 73 (60.83%) had good knowledge, 46 (38.33%) had average knowledge and minimum 01 (0.83%) had poor knowledge**.**In attitude majority of the subjects 111 (92.50%) had positive attitude and minimum 9 (7.50%) had negative attitude.

Thecalculatedcorrelation value of knowledge and attitude was (t_{cal}=0.132) greater than 0, which shows a weakly positive relationship. This indicated that there was a strongly positive correlation between knowledge and attitude which was statistically significant at p <0.05 level, regarding artificial intelligence in healthcare.

There was no any significant association between knowledge scores and selected socio-demographic variables. The calculated Chi-square values was lesser than tabulated value at p< 0.05 level of significance. This indicated that there was no any significant association between knowledge scores with their selected socio-demographic variables at p< 0.05 level of significance.

There was no any significant association between attitude scores and selected socio-demographic variables. The calculated Chi-square values was lesser than tabulated value at p< 0.05 level of significance. This indicated that there was no any significant association between knowledge scores with their selected socio-demographic variables at p< 0.05 level of significance.

Interpretation and Conclusion:

The overall finding shows that majority of nursing students had good knowledge and positive attitude regarding artificial intelligence in health care and there was no any significant association between knowledge and attitude regarding artificial intelligence in healthcare with their socio demographic variables.

Keywords: Knowledge, Attitude, Artificial Intelligence, Nursing Students, Health Care.

BACKGROUND OF STUDY

The earliest research into thinking machines was inspired by a confluence of ideas that became prevalent in the late 1930s, 1940s, and early 1950s. In the 1940s and 50s, a handful of scientists from a variety of fields (mathematics, psychology, engineering, economics and political science) explored several research directions that would be vital to later AI research. Alan Turing was among the first people to seriously investigate the theoretical possibility of "machine intelligence". The field of "artificial intelligence research" was founded as an academic discipline in 1956.[1]

Artificial intelligence is the ability of a computer to "think" like a human, but with far more power than our brains were ever capable of. The term was first coined in 1956 by computer scientist John McCarthy. Artificial intelligence (AI) has since gone through many changes and has been applied to many different fields, from robotics to medicine.[2]

Artificial intelligence is a specialty within computer science that is concerned with creating systems that can replicate human intelligence and problem-solving abilities. They do this by taking in a myriad of data, processing it, and learning from their past in order to streamline and improve in the future. A normal computer program would need human interference in order to fix bugs and improve processes. The idea of "artificial intelligence" goes back thousands of years, to ancient philosophers considering questions of life and death. In ancient times, inventors made things called "automatons" which were mechanical and moved independently of human intervention. The word "automaton" comes from ancient Greek, and means "acting of one's own will." One of the earliest records of an automaton comes from 400 BCE and refers to a mechanical pigeon created by a friend of the philosopher Plato. Many years later, one of the most famous automatons was created by Leonardo da Vinci around the year 1495. So while the idea of a machine being able to function on its own is ancient, for the purposes of this article, we're going to focus on the 20th century, when engineers and scientists began to make strides toward our modern-day AI.[3]The history of artificial intelligence (AI) began in antiquity, with myths, stories, and rumours of artificial beings endowed with intelligence or consciousness by master craftsmen.[4]

NEED FOR THE STUDY

There is a need to incorporate AI in the health system which may help not only in expediting diagnosis and management but also injudicious resource all location. Hence it is necessary for the upcoming nurses to work with these technologies in order to provide holistic care with the advancements in healthcare. It is also necessary for the nursing students to have a positive or favourable knowledge and attitude towards artificial intelligence in their care.[5]

Artificial intelligence (AI) has already started playing a major role in our lives. Today, more than before, it has become easy to spot the portions of our modern life where artificial intelligence has penetrated. Understanding the role of AI in our lives can throw light on its need in society, businesses, and regular day-to-day life. Human efficiency, activity, and capabilities are highly improvised and augmented when coupled with intelligent machines. Earth has already witnessed three industrial revolutions. The fourth one is presumed to be driven by artificial intelligence and its capabilities. AI can help to provide one of the best interactive customer care services, take the best marketing initiatives and decisions for your business and improvise working operations Artificial Intelligence is improving our lifestyles. But researchers are seeking prospects where AI can save lives. Research is being conducted on how AI can be advantageous to the healthcare system by various technical association.[6]

It is crucial in healthcare because it can significantly improve diagnostic accuracy, personalize treatment plans, streamline administrative tasks, enable remote patient monitoring, identify high-risk populations, accelerate drug discovery, and ultimately enhance patient care quality while potentially reducing costs by optimizing resource allocation, all by leveraging its ability to analyse vast amounts of medical data rapidly and efficiently.

According to the World Economic Forum (WEF), the future of AI in healthcare will dramatically change between now and 2030 in the following three ways:

1. Connected care - AI in healthcare will help detect patterns and connect systems. This will allow for a network of seamless sharing of data, to anywhere, from anywhere. This shared data and information will create life-saving connectivity across the globe.
2. Better AI-powered predictive care - Improved data will evaluate the probability and risk of an individual developing a disease in the future.
3. Improved patient and staff experiences - As AI evolves, it will continue to improve patient and provider experiences, including reducing wait times for patients and improved overall efficiency in hospitals and health systems and with cortex, hospitals are harnessing AI to do work uniquely suited to automation – and making time for humans to do the work they are uniquely suited to providing exceptional patient care.[7]

A study was conducted by Mushtaq Karim Khan Ronny Heliyon et al on "Healthcare worker's knowledge and attitudes regarding artificial intelligence adoption in healthcare". The primary objective of study was to investigate the knowledge and attitudes of healthcare. A cross-sectional design was used. The study was conducted on random employee in professional healthcare Dhaka city, Bangladesh. A cross-sectional research design was used with dual method approach. Samples were selected using random convenience sampling technique the data was collected through using exploratory factor's analysis and identified robust underlying factor validity and reliability was ensured t through (Cronbach's alpha- 0.85). Data was analysed through descriptive and inferential statistics including fishers extract test and Pearson correlation analysis using STATA software. I the result of study revealed that age was a significant factor, with individuals aged 18-25 and 26-35 having higher odds of good knowledge and positive attitudes. The study concluded that there is critical need for targeted educational interventions to bridge the knowledge gaps among healthcare professionals regarding AI and the need of researches on AI.[8]

Morever, researches on artificial intelligence (AI) in healthcare are essential because it can greatly enhance the knowledge and skills of health care workers and improve patient outcomes by facilitating early disease detection, personalized treatment plans, faster and more accurate diagnoses, effective drug discovery, and optimized healthcare management which will eventually result in better preventative and curative intervention.[9]

Hence the researcher wants to assessthe Knowledge and Attitude regarding Artificial Intelligence in Health Care Among Nursing Students of D. Y. Patil College of Nursing, Kolhapur

METHODS

A quantitative survey approach was used with Nonexperimental, Descriptive Correlational research design. By using probability stratified random sampling technique 120 nursing students studying in D. Y. Patil College of Nursing were selected for the study. Structured knowledge questionnaire and Structured attitude scale was used to assess the knowledge and attitude of nursing students regarding Artificial Intelligence in Healthcare. The reliability of the tool was tested by using Karl Pearson's Correlation coefficient. The reliability computed was r = 0.81. Data was analysed by using mean, median, mode, range, standard deviation, paired 't' test & chi square test.

RESULTS

Section I: Findings related to frequency and percentagedistribution of subjects according to their socio-demographic variables.

n=120

Sr. No.	Variables	Age Group	Frequency *(f)*	Percentage (%)
1.	Age (in years)	18-19	29	24.17%
		20-21	16	13.33%
		22-23	15	12.50%
		24 and above	60	50.00%
2.	Gender	Male	53	44.17%
		Female	67	55.83%
3.	Programme	B.Sc. Nursing	48	40.00%
		P.B.B.Sc. Nursing	48	40.00%
		M.Sc. Nursing	24	20.00%
4.	Year of study	1st	70	58.33%
		2nd	38	31.67%
		3rd	8	6.67%
		4th	4	3.33%
5.	Religion	Hindu	98	81.67%
		Muslim	2	1.67%
		Christian	20	16.67%
6.	Types of Family	Joint	84	70.00%
		Nuclear	36	30.00%

Table No.1: Indicates that

1) Majority of subject 60 (50%) belonged to the Age group of 24 and above years and minimum 15 (12.50%) belonged to 22-23 years of age group.

2) Majority of subject 67 (55.83%) belonged to Gender Female and minimum 53 (44.17%) belonged to Gender Male.

3) Majority of subject 48 (40%) belonged to P.B.B.Sc. Nursing and B.Sc. Nursing & minimum 24 (20%) belonged to M.Sc. Nursing.

4) Majority of subject 70 (58.33%) belonged to 1st year and minimum 4 (3.33%) belonged to 4th year.

5) Majority of subject 98 (81.67%) belonged to Hindu religion where minimum 2 (1.67%) belonged to Muslim religion.

6) Majority of subject 84 (70%) belonged to joint family while minimum 3 (30%) belonged to nuclear family.

Section II: Findings related to frequency and percentage distribution of knowledge score of subjects regarding artificial intelligence in healthcare.

n=120

Level of Knowledge	Frequency (*f*)	Percentage (%)
Poor (1 to 7)	01	0.83%
Average (8 to 14)	46	38.33%
Good (15 to 21)	73	60.83%

Table 2: Indicates that
Majority of the subjects 73 (60.83%) had good knowledge, 46 (38.33%) had average knowledgeand minimum01 (0.83%) had poor knowledge.

Section III: Findings related to frequency and percentage distribution of attitude score of subjects regarding artificial intelligence in healthcare.

n=120

Attitude	Frequency*(f)*	Percentage (%)
Positive	111	92.50%
Negative	9	7.50%

Table No. 3: Indicates that
Majority of the subjects 111 (92.50%) had positive attitude and minimum 09 (7.50%) had negative attitude.

Section IV: Findings related to Mean, Median, Mode and Standard deviation of knowledge and attitude score of subjects regarding artificial intelligence in healthcare.

n =120

Variables	Mean	Median	Mode	SD
Knowledge	15.08	15	15	2.73
Attitude	43.88	43	39	5.69

Table No. 4: Indicates that
In knowledge the calculated value of the Mean was 15.08, Median was 15, Mode was 15 and Standard deviation was 2.73. In attitude the calculated value of the Mean was 43.88, Median was 43, Mode was 39 and Standard deviation was 5.69.

Section V: Findings related to correlation between the knowledge and attitude score of subjects regarding artificial intelligence in healthcare

n =120

Variable	Correlation Coefficient	P-value
Attitude Knowledge	0.132	0.15

Table 5: Indicates that,
Thecalculatedcorrelation value of knowledge and attitude was(t_{cal}=0.132), which is greater than 0, which indicates a weakly positive relationshipbetween knowledge and attitude. Hence, $H_1$was accepted. Therefore, the findings revealed that knowledge and attitude were correlated with each other.

SECTION VI: Finding related to association between knowledge score with sociodemographic variables.

n= 120

Variables	Categories	Good	Average	Poor	Chi-Square	D.F	P-value	Significance
Age in Years	18-19	17	12	0	1.087	6	0.982	Not Significant
	20-21	10	6	0				
	22-23	9	6	0				
	24 and above	36	23	1				

Gender	Male	33	19	1	1.612	2	0.447	Not Significant
	Female	39	28	0				
Programme	B.Sc. Nursing	29	19	0	4.679	4	0.322	Not Significant
	P.B.B.Sc. Nursing	25	22	1				
	M.Sc. Nursing	18	6	0				
Year of Study	1st	44	26	0	4.497	6	0.61	Not Significant
	2nd	22	15	1				
	3rd	3	5	0				
	4th	3	1	0				
Religion	Hindu	58	39	1	0.511	4	0.972	Not Significant
	Muslim	1	1	0				
	Christian	13	7	0				
Type of Family	Joint	50	34	0	0.267	2	0.291	Not Significant
	Nuclear	22	13	1				

Table No. 6: Indicates That

There was no any significant association between knowledge score and socio-demographic variables like age in years [χ2cal= 1.087, χ2tab= 0.982], gender [χ2cal= 1.612, χ2tab= 0.447], programme [χ2cal= 4.679, χ2tab= 0.322], year of study [χ2cal=4.497, χ2tab= 0.61], religion [χ2cal= 0.511, χ2tab= 0.972], type of family [χ2cal= 0.267, χ2tab= 0.291] .The calculated Chi-square values was lesser than tabulated value at $p< 0.05$ level of significance. Hence H_2 was rejected. This indicated that there was no any significant association between knowledge score with their socio-demographic variables i.e Age, Gender, Programme, Year of study, Religion and Type of family at $p< 0.05$ level of significance.

SECTION VII: Finding related to association between attitude with socio demographic variables.

n= 120

Variables	Categories	Negative	Positive	Chi-Square	D.F	P-value	Significance
Age in Years	18-19	2	27	4.03	3	0.258	Not significant
	20-21	0	16				
	22-23	0	15				
	24 and above	7	53				
Gender	Male	3	50	0.463	1	0.496	Not Significant
	Female	6	61				
Programme	B.Sc. Nursing	2	46	1.381	2	0.501	Not Significant
	P.B.B.Sc. Nursing	5	43				
	M.Sc. Nursing	2	22				
Year of Study	1st	7	63	1.878	3	0.598	Not Significant
	2nd	2	36				
	3rd	0	8				
	4th	0	4				
Religion	Hindu	8	90	0.404	2	0.817	Not Significant
	Muslim	0	2				
	Christian	1	19				
Type of Family	Joint	7	77	0.28	1	0.597	Not Significant
	Nuclear	2	34				

Table No.7: Indicates That

There was no any significant association between attitude score and socio-demographic

variables like age in years [χ2cal= 4.03, χ2tab= 0.258], gender [χ2cal= 0.463, χ2tab= 0.496], programme [χ2cal= 1.381, χ2tab= 0.501], year of study [χ2cal=1.878, χ2tab= 0.598], religion [χ2cal= 0.404, χ2tab= 0.817], type of family [χ2cal= 0.28, χ2tab= 0.597]. The calculated Chi-square value was lesser than tabulated value at $p< 0.05$ level of significance. Hence H_3 was rejected. This indicated that there was no any significant association between Attitude score with their socio-demographic variables i.e Age, Gender, Programme, Year of study, Religion and Type of family at $p< 0.05$ level of significance.

DISCUSSION -

1) Findings Related To Distribution Of Frequency And Percentage Of Subjects According To Their Selected Socio-Demographic Variables.

1) Majority of subjects 60 (50%) belonged to the Age group of 24 and above years and minimum 15 (12.50%) belonged to 22-23 years of age group.

2) Majority of subjects 67 (55.83%) belonged to Gender Female and minimum 53 (44.17%) belonged to Gender Male.

3) Majority of subjects 48 (40%) belonged to P.B.B.Sc. Nursing, 48 (40%) B.Sc. Nursing & minimum 24 (20%) belonged to M.Sc. Nursing.

4) Majority of subjects 70 (58.33%) belonged to 1st year and minimum 04 (3.33%) belonged to 4th year.

5) Majority of subjects 98 (81.67%) belonged to Hindu religion and minimum 02 (1.67%) belonged to Muslim religion.

6) Majority of subjects 84 (70%) belonged to joint family while minimum 36 (30%) belonged to nuclear family.

2) Findings Related To Frequency And Percentage Distribution Of Knowledge Of Subjects Regarding Artificial Intelligence In Healthcare.

Majority of the subjects 73 (60.83%) had good knowledge, 46 (38.33%) had average knowledge and minimum 01 (0.83%) had poor knowledge regarding artificial intelligence in healthcare

3) Findings Related To Frequency And Percentage Distribution Of Attitude Score Of Subjects Regarding Artificial Intelligence In Healthcare.

Majority of the subjects 111 (92.50%) had positive attitude and minimum 09 (7.50%) had negative attitude regarding artificial intelligence in healthcare.

4) Findings Related To Mean, Median, Mode And Standard Deviation Of Knowledge And Attitude Score Of Subjects Regarding Artificial Intelligence In Healthcare.

In knowledge the calculated value of the Mean was 15.08, Median was 15, Mode was 15 and Standard deviation was 2.73. In attitude the calculated value of the Mean was 43.88, Median was 43, Mode was 39 and Standard deviation was 5.69.

5) Findings Related To Correlation Between Knowledge And Attitude Score Of Subjects Regarding Artificial Intelligence In Healthcare.

Thecalculatedcorrelation value of knowledge and attitude was(t_{cal}=0.132) which is greater than 0, which indicates a weakly positive relationshipbetween knowledge and attitude. Hence, $H_1$was accepted. Therefore, the findings revealed that knowledge and attitude were correlated with each other

6) Finding Related To Association Between Knowledge Score With Sociodemographic Variables.

There was no any significant association between knowledge score and socio-demographic variables like age in years [χ2cal= 1.087, χ2tab= 0.982], gender [χ2cal= 1.612, χ2tab= 0.447], programme [χ2cal= 4.679, χ2tab= 0.322], year of study [χ2cal=4.497, χ2tab= 0.61], religion [χ2cal= 0.511, χ2tab= 0.972], type of family [χ2cal= 0.267, χ2tab= 0.291] .The calculated Chi-square values was lesser than tabulated value at $p< 0.05$ level of significance. Hence H_2 was rejected. This indicated that there was no any significant association between knowledge score with their socio-demographic variables i.e. Age, Gender, Programme, Year of study, Religion and Type of family at $p< 0.05$ level of significance.

7) Finding Related To Association Between Attitudes With Sociodemographic Variables.

There was no any significant association between attitude score and socio-demographic variables like age in years [χ2cal= 4.03, χ2tab= 0.258], gender [χ2cal= 0.463, χ2tab= 0.496], programme [χ2cal= 1.381, χ2tab= 0.501], year

of study [χ2cal=1.878, χ2tab= 0.598], religion [χ2cal= 0.404, χ2tab= 0.817], type of family [χ2cal= 0.28, χ2tab= 0.597] .The calculated Chi-square value was lesser than tabulated value at $p< 0.05$ level of significance. Hence H_3 was rejected. This indicated that there was no any significant association between Attitude score with their socio-demographic variables i.e. Age, Gender, Programme, Year of study, Religion and Type of family at $p< 0.05$ level of significance.

CONCLUSION

A descriptive correlational study was conducted at D. Y. Patil College of Nursing, Kolhapur city to assess the knowledge and attitude regarding artificial intelligence in healthcare among nursing students. The data was collected on 07/05/2025 from 120 nursing students by using structured knowledge questionnaire and structured attitude scale. The subjects were selected by probability stratified random sampling technique. The collected data was tabulated and analysed.

The study results concluded that there is need to improve the knowledge among nursing students regarding artificial intelligence in healthcare.

Implications of the Study

The findings of the study have several implications in different areas which are discussed in following area,

1. Nursing Education
2. Nursing Practice
3. Nursing Administration
4. Nursing Research.

1) Nursing Education:

- The teachers can organize workshops, seminars, or training programs focused on AI applications in healthcare.
- AI topics can be added in nursing curriculum to increase the knowledge regarding AI in health care
- It promotes awareness among faculty and administrators of the need to update educational resources and simulations to reflect current trends in healthcare technology.

2) Nursing Practice.

- Workshops and seminars can be conducted on AI in hospitals for nurses
- AI can assist students in designing targeted training programs that enhance readiness for AI-assisted patient care.
- AI-powered chatbots and virtual assistants will support nurses by answering routine questions and monitoring patients remotely.
- AI will help nurses by analyzing patient data and suggesting evidence-based interventions, improving decision-making

3. Nursing Administration:

- AI tools can be used to track staff performance, patient outcomes, and workflow efficiency, supporting quality improvement initiatives.
- Nursing administrators can collaborate with technology experts to enhance student preparedness for AI-integrated healthcare systems.
- It will help the administration to analyze large volumes of healthcare data to support administrative decisions and policy development.
- Nursing administrators should upgrade the AI knowledge as it will assist in managing hospital resources such as beds, equipment, and supplies, leading to efficient utilization.

4) Nursing Research

- Nurses can be motivated to conduct such research studies that can assist increasing knowledge on AI in health care.
- The study will provide significant reference material for future researches
- It motivate the nurses to conduct AI related researches as it creates awarness regarding importance of AI in healthcare.

LIMITAIONS

1. The study lacked control group.
2. No broad generalizations could be made due to small size of subjects and limited area of research setting.

Recommendations of the Study

1) A nearly equivalent study can be done on a large size of population for better precision of the results.
2) A study can be conducted to assess students perceptions towards AI in health care.
3) A similar study can be conducted to create awareness among nursing staffs regarding AI in health care.

4) A study can be conducted to assess the impact of AI in health care.

BIBLIOGRAPHY

1) Wikipedia, the free encyclopaedia," History of artificial intelligence". Available at- https://en.wikipedia.org/wiki/History_of_artificial_intelligence

2) JosiasMontag, docdrive by lunaweb "Artificial Intelligence - History, Uses, Types". Available at- https://www.docdroid.net/TWj9ES4/artificial-intelligence-history-uses-types-pdf.

3) Varapolsanthdalkolkam,Tableu from salesforce," What is the history of artificial intelligence (AI)?"
Available at -https://www.tableau.com/data-insights/ai/history

4) Charles T Gillingham, Wikipedia, "History of artificial intelligence".
Available at - https://en.m.wikipedia.org/wiki/History_of_artificial_intelligence.

5) Shuroug A. Alowais, Sahar S. Alghamdi, Nada Alsuhebany et al, BMC Medical Education, "Revolutionizing healthcare: the role of artificial intelligence in clinical practice. Article number: 689 (2023) ,Published: 22 September 2023.
Available at - https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-023-04698-z

6) prafulla@queppelintech.com, Queppelin, "What Is The Need for Artificial Intelligence (AI)?", February 11, 2021
Available at - https://www.queppelin.com/why-do-we-need-artificial-intelligence/

7) AI in medical diagnostics [GetIndigo; 2024 [cited 2025 Jun 3].
Available at: https://www.getindigo.com/blog/ai-in-medical-diagnostics#:~:text=AI%20is%20transforming%20healthcare%20by%20streamlining%20the%20diagnostic,faster%20and%20more%20reliable%20detection%20of%20medical%20conditions.

8) Moustaq Karim Khan Rony [1], Khadiza Akter [2] "Healthcare workers knowledge and attitudes regarding artificial intelligence adoption in healthcare" PMID: 39691199
PMCID: PMC11650294,
DOI: 10.1016/j.heliyon.2024.e4077
Available at https://pubmed.ncbi.nlm.nih.gov/39691199/

9) Junaid Bajwa , Usman Munir , National Library of Medicene,Artificial intelligence in healthcare: transforming the practice of medicine, 2021 July PMCID: PMC8285156 PMID: 34286183
Available at- https://pmc.ncbi.nlm.nih.gov/articles/PMC8285156/

10) Sharma.KS. Textbook of Nursingresearchandstatistics.Elsevier publication. Haryana. 2011

11) Deniz Yigit [1], Ayfer Acikgoz [2], Pubmed ," Evaluation of future nurses' knowledge, attitudes and anxiety levels about artificial intelligence applications",2024 Oct;30(7):1319-1326,PMID: 38894635, DOI: 10.1111/jep.14062
Available at- https://pubmed.ncbi.nlm.nih.gov/38894635/

12) Xiaoyan Wang , Fangqin Fei, Pubmed,front public health, "Knowledge and attitudes toward artificial intelligence in nursing among various categories of professionals in China: a cross-sectional study", PMID: **39015390**, PMCID: PMC11250283, DOI: 2024.
Available at- https://pubmed.ncbi.nlm.nih.gov/39015390/.

13) Moustaq Karim Khan Rony [1], Khadiza Akter [2], Pubmed, "Healthcare workers' knowledge and attitudes regarding artificial intelligence adoption in healthcare: A cross-sectional study",2024 Dec 15, PMID: 39691199PMCID: PMC11650294, DOI: 10.1016/j.heliyon.2024.e4077
Available at- https://pubmed.ncbi.nlm.nih.gov/39691199/

14) EbtsamAlyAbouHashish,Pubmed, "Digital proficiency: assessing knowledge, attitudes, and skills in digital transformation, health literacy, and artificial intelligence among university nursing students", PMID: **38715005**, PMCID: PMC11077799, DOI: 10.1186/s12909-024-05482-3, May 2024.
Available at- https://pubmed.ncbi.nlm.nih.gov/38715005/

15) Aylin AkcaSumengen, Damla Özçevik Subaşi, Research Gate,"Nursing students' attitudes and literacy toward artificial intelligence: a cross-sectional study",November 2024,Teaching and Learning in Nursing 20(1), DOI:10.1016/j.teln.2024.10.022
Available at- https://www.researchgate.net/publication/386055098_Nursing_students'_attitudes_and_literac

y_toward_artificial_intelligence_a_cross-sectional_study
16) Leodoro J Labrague [1], Rheajane Aguilar-Rosales,"Factors influencing student nurses' readiness to adopt artificial intelligence (AI) in their studies and their perceived barriers to accessing AI technology: A cross-sectional study", 2023 Nov:130:105945, PMID: 37625351,DOI: 10.1016/j.nedt.2023.105945
Available at- https://pubmed.ncbi.nlm.nih.gov/37625351/
17) Majed Mowanes Alruwaili [1], Fuad H Abuadas, Pubmed, "Exploring nurses' awareness and attitudes toward artificial intelligence: Implications for nursing practice", 2024 Aug 6:10:20552076241271803,PMID: 39114115,PMCID: PMC11304479,
DOI: 10.1177/20552076241271803 , Available at- https://pubmed.ncbi.nlm.nih.gov/39114115/
18) Leodoro J Labrague [1], Rheajane Aguilar-Rosales, Pubmed, "Student nurses' attitudes, perceived utilization, and intention to adopt artificial intelligence (AI) technology in nursing practice: A cross-sectional study",2023 Nov:73:103815, PMID: 37922736, DOI: 10.1016/j.nepr.2023.103815 Available at- https://pubmed.ncbi.nlm.nih.gov/37922736/
19) O Al Omari, BMC Medical Education, "Demographic factors, knowledge, attitude and perception and their association with nursing students' intention to use artificial intelligence (AI): a multicentre survey across 10 Arab countries", volume 24, Article number: 1456 (2024).
Available at- https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-024-06452-
20) Mohammed Rawdhan Al-Sabawy, Research Gate, "Artificial Intelligence in Nursing: A study on Nurses' Perceptions and Readiness", January 2023.
Available- https://www.researchgate.net/publication/375073829_Artificial_Intelligence_in_Nursing_A_study_on_Nurses'_Perceptions_and_Readiness.
21) Sally Mohammed Farghaly Abdelaliem [1,*], Wireen Leila Tanggawohn Dator, Healthcare MDPI, "The Relationship between Nursing Students' Smart Devices Addiction and Their Perception of Artificial Intelligence",2022 Dec 30, PMCID: PMC9819298 PMID: 36611570
Available at- https://pmc.ncbi.nlm.nih.gov/articles/PMC9819298/
22) Kyong Ah Cho, Yon Hee Se, Researchgate,Dual mediating effects of anxiety to use and acceptance attitude of artificial intelligence technology on the relationship between nursing students' perception of and intention to use them: a descriptive study March 2024, BMC Nursing 23(1):212, DOI:10.1186/s12912-024-01887-z,
Available at- https://www.researchgate.net/publication/379367987_Dual_mediating_effects_of_anxiety_to_use_and_acceptance_attitude_of_artificial_intelligence_technology_on_the_relationship_between_nursing_students'_perception_of_and_intention_to_use_them_a_descripti
23) Gihan Mohamed Mohamed Salem, Heba Emad El-Gazar, Journal of nursing management, "Nursing Students' Personality Traits and Their Attitude toward Artificial Intelligence: A Multicenter Cross-Sectional Study", 02 August 2024 Available at- https://doi.org/10.1155/2024/6992824
24) Hamidreza Amiri, Samira Peiravi,, BMC Medical Education,"Medical, dental, and nursing students' attitudes and knowledge towards artificial intelligence: a systematic review and meta-analysis", *BMC Medical Education* volume 24,
Article number: 412 (2024) Available at- https://bmcmededuc.biomedcentral.com/articles/10.1186/s12909-024-05406-1
25)Yeunhee Kwak, Jung-Won Ahn & Yon Hee Seo, BMC, "Influence of AI ethics awareness, attitude, anxiety, and self-efficacy on nursing students' behavioral intentions",30 September 2022, *BMC Nursing* volume 21, Article number: 267 (2022) Available at- https://bmcnurs.biomedcentral.com/articles/10.1186/s12912-022-01048-0
26) Moh"d Khair Migdadi [1], Islam Ali Oweidat [2], , Pubmed , "The association of artificial intelligence ethical awareness, attitudes, anxiety, and intention-to-use artificial intelligence technology among nursing students", 2024 Dec 19:10:20552076241301958, PMID: 39711746, PMCID: PMC11660361, DOI: 10.1177/20552076241301958
Available at- https://pubmed.ncbi.nlm.nih.gov/39711746/
27) Divya Sreekumar, Paperpal, "What is Research Methodology? Definition, Types, and Examples", August 28, 2023

Available at- https://paperpal.com/blog/academic-writing-guides/what-is-research-methodology
28) Eileen Piggot-Irvine, Research gate, "Introduction: What is evaluation of action research?:, January 2008, In book: Evaluating action research (pp.9-52), Chapter: 1,Publisher: NZCER, Editors: E. Piggot-Irvine and B. Bartlett Available at- https://www.researchgate.net/publication/259932819_Introduction_What_is_evaluation_of_action_research