

## Assessment knowledge of Nursing Students Regarding Artificial Intelligence and its Impact on Practical Training at the Faculty of Nursing Beni- Suef University

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### ABSTRACT

**Background:** Integrating generative Artificial Intelligence (AI) technology into practical training of nursing students represents a notable evolution in nursing education. **Aim:** to assess knowledge of nursing students regarding artificial intelligence and its impact on practical training at the faculty of nursing Beni-suef university. **Research design:** A descriptive research design was applied in this study **Setting:** This study was conducted in Faculty of Nursing at Beni- Suef city, Egypt. **Sample:** simple random sample was equal 255 nursing students at fourth year students at Faculty of Nursing at Beni -Suef city. **Tools for Data Collection:**. One tool used to achieve the aim of this study: Interviewing Questionnaire Sheet. It contained four parts: personal characteristic ,family data ,knowledge of nursing students regarding AI and Impact of using Artificial intelligence on practical training **Result:**. The study showed that 48.6% of the studied students had a good level of knowledge regarding artificial intelligence and 63.1% of them had high perceived impact of artificial intelligence on practical training. **Conclusion:** there was highly statistically significant positive association between the studied participants' total AI knowledge score and their perceived impact of artificial intelligence on practical training. and there was a highly statistical significant relation between total AI knowledge and their age , mother education , number of family member , monthly family income, and there was a highly statistical significant relation between total perceived impact of artificial intelligence on practical training and their mother's education . **Recommendation:** Regular training program for university students to improve their knowledge about artificial intelligence.

➤ **Keywords:** Artificial Intelligence, Knowledge of Nursing student, Practical Training.

### INTRODUCTION

Artificial Intelligence (AI) is increasingly significant for university nursing students as it shapes modern health care and supports their education in several ways (enhance learning and practical training, support them in clinical decision making and enhancing access to education). education

during this period that has come under the influence of artificial intelligence. This period is characterized by key developmental tasks that allow the nursing student to participate in self-exploration to cultivate a personal identity and belief system, gaining independence and autonomy (Djokic et al., 2024).

Artificial Intelligence is a technology that enables machines to mimic various complex human skills. It refers to the simulation of human intelligence by computers. AI involves the ability of a computer or a computer-controlled robot to perform tasks typically associated with human intellectual processes. While no AI currently matches the full flexibility of human intelligence across diverse domains or tasks requiring extensive everyday knowledge, some AI systems are capable of performing specific tasks at a level comparable to humans (Sheikh et al., 2023).

Artificial Intelligence is quickly revolutionizing the world of nursing education; AI is creating new methods for learning that are challenging conventional methods of teaching and learning. Integrating AI within educational institutions offers unprecedented opportunities to tailor the learning environment, increasing student engagement as well as enhancing learning outcomes. One of the most important effects of AI in education is personalized learning. AI tools are able to evaluate the students' patterns of learning along with their weaknesses and strengths so that they can adapt the curriculum as well as its pace according to particular preferences (Muhammad Azeem et al., 2024).

Benefits of AI in the education field, the primary benefit of AI in education is its ability to facilitate learning with greater flexibility and convenience for learners. AI can also enhance accessibility to education by enabling more students to access quality educational resources, regardless of their economic background or geographic location. This advantage significantly contributes to achieving universal access to education. Additionally, AI supports communication among learners, helps solve real-world problems, fosters the development of ideas, and enhances student performance (Muhammed Tahir et al., 2024).

Artificial Intelligence applications in education include adaptive learning platforms, intelligent tutoring systems, personalized learning, natural language process and virtual simulations. Through the use of artificial intelligence educators have the ability to construct dynamic and interactive learning environments that accommodate the various learning styles and capabilities of students. Intelligent tutoring systems focus on using artificial intelligence to transform educational processes and adapt to students' individual needs. A personalized approach supports skills development, strengthens students' motivation, and promotes more effective knowledge acquisition (Majewska-Pyrkosz, 2023).

Simulation training is effective in developing technical and non-technical skills such as situational awareness, cooperation, decision-making, and communication in emergency situations. The effectiveness of simulation is maximized when the simulation is closely aligned with clinical situations. Alignment of simulation to clinical situations can promote practical or concrete learning in which learners get real experience. Simulation as “activities that mimic the reality of a clinical environment and designed to demonstrate procedures, decision making, and critical thinking through techniques such as role-playing and the use of devices (Komasawa et al 2023).

Community Health Nurses (CHN) play important role in utilizing AI within the health care field .they use AI-driven tools to analyze health data, enhance the efficiency of clinical workflows and processes, thereby shortening consultation and treatment wait time, increasing the speed of diagnosis and increasing the accuracy of risk and outcome predictions, allows nurses more time to engage in quality nurse–patient interactions to better understand their preferences and needs, improve nursing care quality through higher productivity and efficiency of healthcare delivery at a lower cost ( Ng Pamela et al.,2022 ).

### **Significance of the study**

Artificial intelligence (AI) is fueling a new revolution in medicine, nursing and the healthcare sector, primarily for image analysis and disease modeling, but its impact on people's health remains limited, according to a new study by the Universidad Politécnica de Valencia and the World Health Organization (WHO). In the International Journal of Medical Informatics, AI is already playing a role in diagnosis, clinical care, drug development, disease surveillance, outbreak response and health system management (WHO,2024).

Globally, healthcare progress is being transformed by AI technologies; AI technologies in healthcare, both in education and application, are expected to grow by 1,700% by 2030 compared to 2021. This rapid growth reflects the significant increase in the use of AI in healthcare delivery at an unprecedented pace. Currently, around a fifth of healthcare organizations and medical and nursing educational institutions are adopting AI models in their healthcare solutions, highlighting the vital and growing role of this technology in improving and advancing healthcare and nursing education worldwide (WHO,2024).

In 2023, in the medical field, an application using AI was implemented in diabetes, and adherence to diabetes was distinguished by more than 95% in Egypt, and the Genomic Knowledge Unit at 57357 Hospital began using AI technologies in the field of scientific research, and the use of AI in higher education institutions, including medical and nursing colleges, has increased rapidly over the past five years, especially in simulation laboratories used by students. Egypt's global AI index has become 68.7, higher than Brazil and Israel. In 2024, Egypt's ranking in the Government Readiness Index advances 3 places, reaching 62nd place compared to 65th place in 2022 (CAPMAS 2024).

Therefore, this study was conducted to assess knowledge of nursing students regarding artificial intelligence and its impact on practical training at the faculty of nursing, Beni- Suef university .

### **AIM OF THE STUDY**

The Aim of the study was to assess knowledge of nursing students regarding artificial intelligence and its impact on practical training at the Faculty of Nursing, Beni-Suef University

#### **Research questions**

- 1- What is the level of knowledge of nursing student regarding artificial intelligence?
2. What is the impact of artificial intelligence on practical training of nursing students?
3. Is there relationship between personal characteristics and knowledge of nursing students regarding Artificial intelligence?
4. Is there relationship between personal characteristics and impact of artificial intelligence on practical training of nursing students?
5. Is there a correlation between knowledge and impact of artificial intelligence on practical training of nursing students ?

### **SUBJECTS AND METHODS**

#### **Research design.**

The present study adopted a descriptive research design to attain its purpose.

#### **Research Setting**

The study was conducted at the faculty of nursing at Beni-Suef City. This faculty is at Beni-Suef University, affiliated with the Egyptian Ministry of High Education, founded in East Nile; it is a separate building of 3 floors and equipped with teaching and practical rooms, a library, computer rooms, seven nursing skills laboratories, and number of administrative offices. The faculty of nursing provides medical and nursing education and training for both boys and girls: it consists of 7 departments: (fundamental nursing, medical-surgical nursing, obstetric nursing, pediatric nursing, community

health nursing, administrative nursing, and psychiatric nursing department). The 4th year faculty of nursing students study community health nursing.

**Research Subjects:**

Simple random sample was used in this study and the researcher took 255 students from fourth grade students(2023-2024) in faculty of nursing at Beni- Suef University within three months From November 2023 till January 2024.

**Sample size:**

the sample number calculate according to the following equation:  $(n = N / 1 + N(e^2))$

n= sample size

N= total number of all student in fourth grade nursing students (2023-2024)

N=700

e" is Coefficient factor 0.05"

n=255

for 3 months from the beginning of the study .

**Tools of data collection:**

One Tools was used to achieve the aim of this study

**Tool I: Interviewing Questionnaire Sheet:**

The tool was developed by investigator after reviewing the national and international related literature. It contained four parts.

**Part I: Personnel characteristics:**

This part includes: (age, gender, marital status, rank, residence)

**Part II: Family data**

This part includes: (number of family members, father education, mother education, father job, mother job and family income)

**Part III: Nursing students' knowledge regarding artificial intelligence**

This part was concerned with knowledge of students about artificial intelligence .that contain 11 closed-ended MCQ questions such as: the meaning of artificial intelligence ,

the Important of artificial intelligence , advantage of using artificial intelligence in health care, disadvantage of artificial intelligence, barrier of artificial intelligence , benefit of artificial intelligence in nursing education, principles of artificial intelligence in nursing education, simulation is type of artificial intelligence uses in clinical practice , challenges faced during used artificial intelligence is lack of training , type of artificial intelligence used in nursing education .

**Scoring system:**

For each questions the answer of correct scored as (1), and incorrect answer scored with (0), the total knowledge score was calculated as the following: -

Good ----- > 75% (9-11) of the total knowledge score

Fair----- 60- 75% (7-8) of the total knowledge score

Poor ----- <60 %(1-6) of the total knowledge score

**Part IV: Impact of using Artificial intelligence on practical training**

This part was concerned with reported practice of students .that contain 14 items such as : - artificial intelligence system have positive impact on practical training, when use simulation in clinical practice put nursing students in real clinical practice , use of artificial intelligent system in clinical practice can safe student time , use of artificial intelligent system in clinical practice can safe student effort , when used artificial intelligence system in education can facilitates patient education , artificial intelligence reduce errors in nursing practice, artificial intelligence enable healthcare professionals to make more accurate decisions , AI in healthcare should improve the patient care that's offered ,artificial intelligence can Improve workload and reduced staff stress, artificial intelligence system are susceptible to security risks , artificial intelligence make healthcare more accessible , simulation prevent patient from exposure to unsafe and dangerous situations , simulation provide freedom to make and

learn from mistakes , when used artificial intelligence fell absence of empathy.

#### **Scoring system:**

Each student was asked to select yes or / No for each stamen. The scoring was (0) for no, and (1) for yes.

Total perceived impact was calculated as the following: -

- Low perceived impact ----<60.0% (1-8) of total perceived impact score.
- Moderate perceived impact-----60-75.0% (9-11) of total perceived impact
- High perceived impact-----> 75.0%(12-14) of total perceived impact

#### **II Operational design**

The preparatory phase, pilot research, and fieldwork were all included in the operational design.

#### **Preparatory phase:**

It included reviewing past, current, national, and international related literature and theoretical knowledge of various aspects of the study using books, articles, the internet, periodicals, and magazines to develop tools for data collection.

#### **Tools Validity and reliability**

##### **• Content Validity:**

Study tools were designed and submitted to a panel of 5 reviewers & experts in nursing from the faculty of nursing at Beni-Suef University (2 experts in the community health nursing, one expert in the medical surgical nursing, one expert in Psychiatric nursing and one expert in pediatric nursing). Each of one of the experts on the panel was asked to examine the instrument for content coverage clarity, wording, length, format & overall appearance. Modifications of tools were done according to panel judgment.

##### **Reliability:**

The Reliability was done by **Cronbach's Alpha Test**. It was 0.846 & 0.897 for knowledge and perceived impact tools

##### **Pilot study:**

The pilot study has been conducted to test the clarity of questions, applicability, and

understanding of the tool. It has been conducted on 10 % (25) of students. based on the result of pilot study ,no modification were made . The participants of the pilot were included in the main study sample.

#### **Field Work**

Data collection for the study consumed 3 months from the beginning of November 2023 till the end of January 2024. The researcher attended the faculty of nursing in Beni- Suef university, from 10 am to 1 pm; 2 days/ a week (Saturday, Tuesday) to collect student data. At the beginning, the researcher explained the purpose of the study to the students and reassured them that the collected information is strictly confidential and that it is used only for the purpose of the research. An interview questionnaire sheet was filled out and completed by the participants about 10:11 student per day and returned within 15 minutes.

#### **III) Administrative design**

Approval to conduct this study was obtained from the Dean of the Faculty of Nursing, Beni- Suef University at Beni-Suef city to conduct the study. explanation of the study steps for the Dean of Faculty of Nursing students then obtaining their consent.

#### **Ethical considerations:**

Before the study ethical approval was obtained from the scientific research ethical committee of faculty of medicine Beni-suef university(ApprovalNo:FMBSUREC/031020 23/Mohammed, date 3/10/2023 ), then official permission was taken from Dean of the Faculty of Nursing and written or oral consent was obtained from nursing students after the researcher introduced herself and explained the nature and the purpose of the study. The aim and process of the study were explained through direct personal communication with the faculty-student, as well as to assess their approval prior to starting their participation in the study to ensure their cooperation, voluntary participation, and confidentiality. After that, data collection was started.

#### **IV) Statistical design**

The collected data was scored, tabulated and analysed by personal computer using Statistical Package for the Social Sciences (SPSS) program version 22. Descriptive statistics tests as numbers, percentage, mean standard deviation (SD), were used to describe the results. Appropriate inferential statistics such as “x2” test was used to determine the relation between qualitative data. The P value will be set at 0.05. The collected data were coded & entered into the statistical packages for the social sciences (SPs,20.0; Armonk’NY: IBM Corp).

The degree of significance of results was identified at:

- \* Statistically significant  $p < 0.05$
- \* Highly statistically significant  $p < 0.001$
- \*Not significant  $P > 0.05$

## RESULTS

**Table (1)** ; indicates that (93.7%) were in the age group of 21-<24 years old, with a mean age of  $22.45 \pm 0.458$ , (78.8% )of them were female, (72.9%) of them were living at rural settings. In addition, (84.7%) were single, and (43.1%) were the third member among their brothers.

**Table (2)**; indicates that (36.9%) of the studied participants' fathers had a university educational level and,(42.7%) of their mothers had a secondary education. Moreover, (59.2%) of their fathers had a non-governmental job addition, (84.7%) of their mothers are unemployed, and (65.5%) of them had family members from 5-8 individuals. Moreover, (60.8%) of them had enough monthly family income.

**Figure (1)** ; illustrates that (48.6%) of the studied nursing students had a good level of knowledge regarding Artificial

Intelligence, (35.3%) of them had a fair level, on the other hand. (16.1%) of them had a poor knowledge level.

**Figure (2)** ; illustrates that (63.1%) of studied nursing students had a high perceived impact, (19.3%) of them moderate perceived impact, and(17.6%) had low perceived impact.

**Table (3)** ; indicates that there was a highly statistical significant relation between studied participants’ total artificial intelligence knowledge score and, their age ( $p < 0.001^{**}$ ). In addition, there was a significant relation between their AI total knowledge and their gender, as the female students had higher knowledge than male students ( $p < 0.05^*$ ). On the other hand, there was no statistically significant relation between their AI knowledge score and, their residence, marital status, and their ranking among their brothers ( $p > 0.05$ ).

**Table (4)** ; indicates that there was a significant relation between their perceived impact of artificial intelligence on practical training and their age. ( $p < 0.05^*$ ).On the other hand, there was no statistically significant relation between their perceived impact of artificial intelligence on practical training and their gender, residence, marital status, and ranking among brothers( $p > 0.05$ ).

**Table( 5)**; indicates a highly statistically significant positive association between the studied participants’ total AI knowledge score and their perceived impact of artificial intelligence on practical training. That means increased knowledge was highly associated with increased perceived impact.

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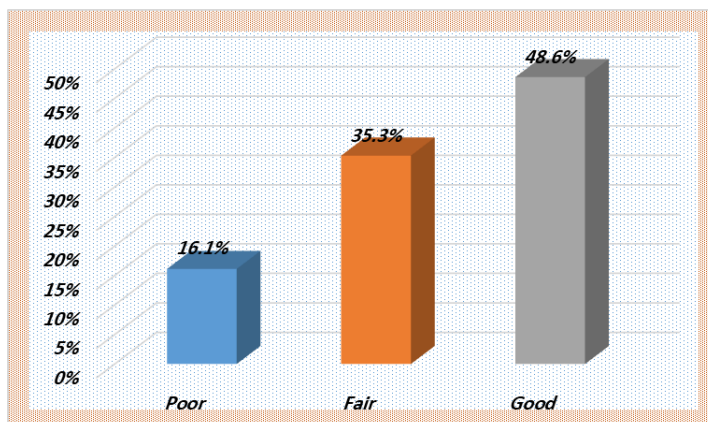
**Table (1):** Distribution of personnel characteristics of the studied nursing students (n=255).

<b>Personnel characteristics</b>	<b>Frequency</b>	<b>%</b>
<b>Age in years</b>		
21-<24	239	93.7
≥24	16	6.3
Mean ±SD	<b>22.45±0.458</b>	
<b>Gender</b>		
Male	54	21.2
Female	201	78.8
<b>Residence</b>		
Rural	186	72.9
Urban	69	27.1
<b>Marital status</b>		
Single	216	84.7
Married	39	15.3
<b>Ranking among brothers</b>		
First	84	32.9
Second	61	23.9
Third	110	43.1

**Table (2):** Distribution of family data among the studied nursing students (n=255).

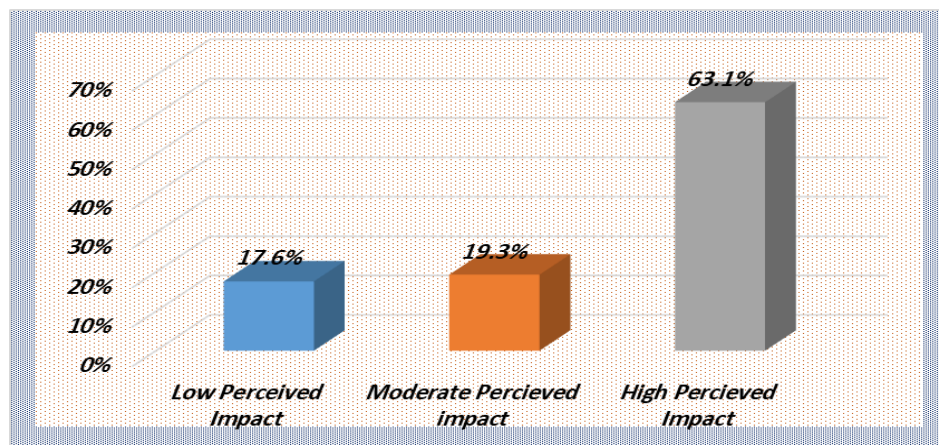
Family History	Frequency	%
<b>Father education</b>		
Not read and write	25	9.8
Read and write	49	19.2
Secondary education	87	34.1
University	94	36.9
<b>Mother education</b>		
Not read and write	40	15.7
Read and write	70	27.5
Secondary education	109	42.7
University	36	14.1
<b>Father's job</b>		
Governmental job	104	40.8
Non- governmental job	151	59.2
<b>Mother's job</b>		
Employed	39	15.3
Unemployed	216	84.7
<b>Number of family member</b>		
2-4	72	28.2
5-8	167	65.5
≥9	16	6.3
<b>Monthly family income</b>		
Enough and save	78	30.6
Enough	155	60.8
Not enough	22	8.6

**Fig.(1):** percentage of studied nursing student ' total artificial intelligence knowledge score. (n=255).





**Fig. (2):** percentage of studied participants' total perceived impact of artificial intelligence on practical training (n=255).



**Table (3):** Distribution of relationship between studied nursing students total knowledge score, and their personnel characteristics (n=255)

Personnel characteristics	Total knowledge score						Chi square	P value
	Poor		Fair		Good			
	No	%	No	%	No	%		
<b>Age in years</b>								
21-<24	33	80.5%	86	95.6%	120	96.8%	14.69	<0.001**
≥24	8	19.5%	4	4.4%	4	3.2%		
<b>Gender</b>							6.70	<0.05*
Male	11	26.8%	11	12.2%	32	25.8%		
Female	30	73.2%	79	87.8%	92	74.2%		
<b>Residence</b>							1.38	>0.05
Rural	32	78.0%	62	68.9%	92	74.2%		
Urban	9	22.0%	28	31.1%	32	25.8%		
<b>Marital status</b>							0.019	>0.05
Single	35	85.4%	76	84.4%	105	84.7%		
Married	6	14.6%	14	15.6%	19	15.3%		
<b>Ranking among brothers</b>							1.38	>0.05
First	14	34.1%	27	30.0%	43	34.7%		
Second	9	22.0%	23	25.6%	29	23.4%		
Third	18	43.9%	40	44.4%	52	41.9%		

**Table (4):** Distribution of relationship between studied nursing students perceived impact of artificial intelligence on practical training, and their personnel characteristics (n=255).

Personnel characteristics	Total perceived impact						Chi square	P value
	Low		Moderate		High			
	No	%	No	%	No	%		
<b>Age in years</b>							<b>12.87</b>	<b>&lt;0.05*</b>
21-<24	37	82.2%	46	93.9%	156	96.9%		
≥24	8	17.8%	3	6.1%	5	3.1%		
<b>Gender</b>							2.94	>0.05
Male	11	24.4%	6	12.2%	37	23.0%		
Female	34	75.6%	43	87.8%	124	77.0%		
<b>Residence</b>							0.655	>0.05
Rural	35	77.8%	35	71.4%	116	72.0%		
Urban	10	22.2%	14	28.6%	45	28.0%		
<b>Marital status</b>							0.509	>0.05
Single	39	86.7%	40	81.6%	137	85.1%		
Married	6	13.3%	9	18.4%	24	14.9%		
<b>Ranking among brothers</b>							0.518	>0.05
First	15	33.3%	16	32.7%	53	32.9%		
Second	9	20.0%	12	24.5%	40	24.8%		
Third	21	46.7%	21	42.9%	68	42.2%		

**Table (5):** correlation between the studied nursing students’ total Artificial Intelligence knowledge score and their total perceived impact of artificial intelligence on practical training (n=255)

Variables		Total AI knowledge score	Total perceived impact of artificial intelligence on practical training, score
Total knowledge score	R	1	.359
	P- value	-	0.001**
Total perceived impact of artificial intelligence on practical training, score	R	.359	1
	P- value	0.001**	-

## DISCUSSION

Artificial Intelligence (AI) is the ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans. AI in education refers to the use of artificial intelligence technologies, such as machine learning and natural language processing, intelligent tutoring system, simulation-based learning and personalized learning to increase efficiency, save time, provide more accurate and consistent feedback and can help improve student engagement by providing interactive and engaging learning experiences ( **Alexandara Harry 2023**).

Regarding to personnel characteristics the results of the current study showed that the vast majority of the study had age group of 21<24 years old with a mean age of 22.45±0.458 Table (1). This result was in agreement with **Alwadani etal (2024)** , who conducted a study in Eastern Governorate of Saudi Arabia about“ Attitude and Understanding of Artificial Intelligence Among Saudi Medical Students” and

reported that the vast majority of the study are in the age group of 21<24 years old .

Regarding to gender and residence of studied nursing students, the present study revealed that more than three quarters of them were female, and less than three quarter lived in rural area .This result was in agreement with **Leodoro (2023)** who conducted a study in Eastern Visayas, Philippines about “student nurses' attitudes, perceived utilization, and intention to adopt Artificial Intelligence (AI) technology in nursing practice” and reported that more than three quarter are female, and nearly three quarter lived in rural area. From the investigator's point of view, this result may be due to females' interest in studying nursing more than males and the fact that rural areas had a large section of the total Beni- Suef population .

Regarding marital status , father and mother education of studied nursing students the present study revealed the vast majority of them were single , more than one third of the studied participants father had a university education and nearly two fifth of

their mother had a secondary education . This result was in agreement with **Gihan (2024)** who conducted a study in Saudi Arabia about “ Nursing Students’ Personality Traits and Their Attitude toward Artificial Intelligence ” and reported that the vast majority are single and two fifth of father had university education .

Regarding percentage of studied nursing students total artificial intelligence knowledge score. The present study showed that nearly half of the studied had a good level of knowledge, more than one third of them had a fair level, and nearly one fifth of them had a poor knowledge level . This result was in the same line with **Gong et al., (2019)** who conducted a study in Canadian about “ Influence of artificial intelligence on Canadian medical students' preference for radiology specialty: A National survey study ” and reported that nearly half had a good level of knowledge , and nearly one third had poor knowledge level . The findings of the present study contradict with other studies. **Abdulmajeed Bin Dahmash et al., (2020)** who conducted a study in Saudi Arabia about “Artificial intelligence in radiology: does it impact medical students preference for radiology as their future career” and reported that, one quarter had a good level of knowledge , and more than half had poor knowledge level .

From the investigator's point of view, artificial intelligence is a relatively new topic, some students not aware of all information about it due to lack of technology sources in some places, not found in curriculum. There is a need to enhance the university curriculum to include more comprehensive and up-to-date AI courses.

Regarding the studied nursing students total perceived impact of artificial intelligence on practical training,. The present study showed that nearly two third of them had high perceived impact, nearly one fifth of them had moderate perceived impact, and nearly one fifth of them had low perceived impact. This result disagreement with **Mohamed Mustaf Ahmed (2024)** who

conducted a study in Somalia about “ Assessment of Knowledge, Attitudes, and Practices in Artificial Intelligence Among Healthcare Professionals in Mogadishu, Somalia ” and reported that nearly majority had low perceived impact and more than one fifth had high perceived impact . From the investigator's point of view, Some of the students attended conferences held at the college about artificial intelligence .the simulation system is already implemented in the college and students are familiar with it this lead to increase information of student regarding the impact of artificial intelligence on practical training.

Regarding the relations between the study variables the result of the present study showed that there was a highly statistical significant relation between studied nursing students total AI knowledge score and, their age ( $p < 0.001^{**}$ ) and their gender, as the female students had higher knowledge than male students ( $p < 0.05^*$ ). On the other hand, there is no statistically significant relation between their AI knowledge score and, their residence, marital status, and their ranking among their brothers ( $p > 0.05$ ) .This result similar to **Rohin Kansal (2022)** who conducted a study in northern India about “ Differences in Knowledge and Perspectives on the Usage of Artificial Intelligence Among Doctors and Medical Students of a Developing Country: A Cross-Sectional Study ” and reported that highly statistical significant relation between studied participants’ total AI knowledge score and, their age ,gender and no statistically significant relation between their AI knowledge score and, their residence, marital status, and their ranking among their brothers .From the investigator's point of view, female students demonstrating a higher level of knowledge, this could be attributed to factors such as differences in learning styles, engagement, or motivation, which may lead female students to be more attentive or proactive in acquiring information. Additionally, it may reflect varying educational experiences or social influences that encourage women to excel in certain areas of study.

Regarding relationship between studied nursing students perceived impact of artificial intelligence on practical training, and their personnel characteristics of the studied nursing students, the current study cleared that there was a significant relation between their perceived impact of artificial intelligence on practical training and their age. ( $p < 0.05^*$ ) and there was no statistically significant relation between their perceived impact of artificial intelligence on practical training and their gender, residence, marital status, and ranking among brothers ( $p > 0.05$ ). This result in the same line with **Sarya Swed et al., (2022)** who conducted a study in Syria about “ Knowledge, attitude, and practice of artificial intelligence among doctors and medical students in Syria: A cross-sectional online survey ” and reported that there was a significant relation between their perceived impact of artificial intelligence on practical training and their age ( $p < 0.05^*$ ) and there was no statistically significant relation between their perceived impact of artificial intelligence on practical training and their gender.

Regarding correlation between the studied nursing students' total AI knowledge score and their total perceived impact of artificial intelligence on practical training, the current study cleared that there was a highly statistically significant positive association between the studied participants' total AI knowledge score and their perceived impact of artificial intelligence on practical training. This result similar to **Ahmed, (2022)** who conducted a study in Mogadishu and Somalia about “ Assessment of Knowledge, Attitudes, and Practices in Artificial Intelligence Among Healthcare Professionals in Mogadishu, Somalia ” and reported that there was a highly statistically significant positive association between the studied participants' total AI knowledge score and their perceived impact of artificial intelligence on practical training. From the investigator's point of view, an increase in knowledge is highly associated with an increased perceived impact on practice because as individuals gain more understanding and awareness, they become

more confident and capable of applying this knowledge in real-world situations.

## CONCLUSION

**Based on the results of the present study and research questions, we concluded that: -**

The present study showed that nearly half of the studied had a good level of knowledge regarding Artificial Intelligence. Besides that, nearly two third of them had high perceived impact of artificial intelligence on practical training. Also, there was a highly statistical significant relation between total AI knowledge and their age, mother education, number of family member, monthly family income. on the other hand there was a highly statistical significant relation between total perceived impact of artificial intelligence on practical training and their mother's education. finally there was a highly statistically significant positive association between the studied participants' total AI knowledge score and their perceived impact of artificial intelligence on practical training

## RECOMMENDATIONS

**Based on the previous results of the present study and conclusion, the following recommendations are suggested:**

- Regular training program to university students to improve their knowledge about artificial intelligence.
- Conducted regular workshops at convenient times for nursing students to improve knowledge about artificial intelligence benefits, challenges, and issues concerning AI implementation in nursing settings.
- Disseminate booklets and posters about artificial intelligence and its impact on nursing practice.
- Educating nursing students about artificial intelligence, how to use platforms through

various media to help them become more knowledgeable and skilled.

- Further research: Replication of study using large study sample in different settings to generalize the results.

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