Perspectives, Attitudes, and Personality Traits of Maternity Nursing Students Toward the Use of Artificial Intelligence in Education

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Abstract

Background: Recently, artificial intelligence (AI) technology has advanced quickly, and its application in nursing education and healthcare has grown. In education, artificial intelligence (AI) can be applied to analysis, prediction, guidance, assessment, and adaptive learning. **The aim** of the study was to evaluate the perspectives, attitudes, and personality traits of maternity nursing students toward the use of artificial intelligence in education. **Research design:** Descriptive Cross-Sectional Study was used to achieve the aim of this study **Setting:** The present study carried out in the faculty of nursing Badr university in Cairo **Sample:** A convenience sampling technique was used to recruit participants for this study including 158 maternity nursing students. **Tools of data collection:** Four tools were used**: I)** Socio-Demographic Profile and AI Experience of Maternity Nursing Students **II)** General Attitudes Toward Artificial Intelligence Scale (GAAIS) **III)** Ten Item Personality Inventory Tool (TIPI) **IV)** Students' knowledge toward artificial intelligence**. Result**: The majority of maternity nursing students displayed a positive attitude toward AI, while a third displayed a negative attitude. More than two-thirds of maternity nursing students displayed positive personality traits according to the Ten-Item Personality Inventory (TIPI) and had good knowledge of AI, while just over a third displayed negative traits and had poor knowledge of AI, with a statistically significant difference. **Conclusion:** This study concluded that the majority of maternity nursing students demonstrated good knowledge of artificial intelligence, positive attitudes, and strong personality traits associated with openness and conscientiousness, suggesting that these factors collectively influence receptiveness to AI**. Recommendation:** Nursing faculties should incorporate comprehensive AI-related content into undergraduate maternity nursing programs, including both theoretical foundations and hands-on applications, to enhance students' digital literacy and clinical preparedness.

Keywords: Artificial intelligence, Attitudes, Perspectives and Personality Traits.

Introduction

Maternity nursing education is one of the numerous healthcare spaces that fake insights (AI) are changing. AI is characterized as the recreation of human insights forms by machines, particularly computer frameworks. These forms incorporate learning (the procurement of data and rules for utilizing the data), thinking (utilizing the rules to reach surmised or positive conclusions), and self-correction ***(Abualrahi et al., 2024)*.**

Artificial intelligence (AI) plays a vital role in enhancing clinical decision-making, enriching learning experiences, and providing nursing students with realistic simulations as technology advances. In maternity care, it is essential for nurses to possess strong knowledge and critical thinking skills to ensure the safety and well-being of expectant mothers and their infants. AI-powered tools such as predictive analytics, personalized learning platforms, and virtual simulations offer students practical experience in a controlled, safe environment. By integrating AI into maternity nursing education, future nurses can improve patient outcomes, sharpen diagnostic skills, and adapt more

effectively to the evolving healthcare landscape **(Puspasari, & Agustina 2025)**.

Healthcare has seen a surge in the use of artificial intelligence, which presents both new possibilities and difficulties. However, the successful integration of AI into nursing depends on nursing students' attitudes and acceptance of technology. It is crucial for researchers to comprehend the elements that affect these attitudes, especially the character attributes of freshmen. Recent studies show that nursing students typically have mixed feelings about artificial intelligence. despite being aware of its potential to enhance the provision of healthcare. They voice worries that the human element in care is being lost and that they might lose their jobs. 200 nursing students' opinions were examined by **Labrague et al. (2023)**, who found that it was discovered that a lack of education and information caused 60% of participants to be dubious about AI. Moreover, **Lukić et al. (2023)** study of 336 students revealed that those who were exposed to more technology tools during their studies were more likely to accept AI.

AI has the potential to enhance clinical decision-making, lessen workload, and improve patient care in the nursing field. However, nurses' attitudes which are influenced by a wide range of factors like education, experience, ethical concerns, and knowledge determine whether AI is accepted. Different nurses have different attitudes about AI, and these attitudes are influenced by their personal experiences with technology as well as the training they have received in their workplace. For instance, nurses in high-tech settings are more likely to embrace AI and incorporate it into their daily tasks, while nurses in low-tech settings are more likely to oppose it. Concerns regarding AI's function and effects in nursing, as well as how it may affect human care, are frequently voiced by nurses **(Lora, and Foran, 2024)**.

The use of AI in patient care may diminish human interaction and empathy, which is one of the primary worries of nurses. Building relationships based on trust and emotional support is essential to nursing and is challenging for machines to imitate. Furthermore, nurses frequently worry about the ethical implications of AI, including patient data security and the potential for algorithms to make poor decisions. Furthermore, the question of who bears responsibility in error situations, the AI system or the nurse comes up. In addition, many nurses voice concerns about their proficiency with sophisticated technologies, particularly in cases where they lack sufficient training. Resistance to change is prevalent, particularly in environments where artificial intelligence is seen as a danger to jobs or work routines ***(Tsiara et al., 2025)***.

Therefore, a variety of factors may impact nurses' willingness to incorporate AI into their daily practice, influencing their attitudes and perceptions of the technology. Education, experience, and cultural factors are important determinants of their attitudes and perceptions. One significant element that boosts nurses' confidence in AI is education. However, students' attitudes toward AI are significantly influenced by their personality traits. The connection between attitudes and personality can aid in creating educational initiatives that encourage constructive AI acceptance. More precisely, the study by ***Kaya et al. (2024)*** examined the connection between acceptance of AI and personality traits based on the Big Five model. Conscientiousness and openness to new experiences were discovered to be important elements that favorably impacted perceptions of AI. Furthermore, 58 empirical studies revealed that extroverted people were more willing to accept AI, whereas neurotic people had more negative attitudes toward it, per a meta-analysis by ***(Shribala et al., 2024)***.

Significance of the study:

The incorporation of artificial intelligence (AI) into nursing education is revolutionizing conventional teaching strategies and providing maternity nursing students with new prospects. Educators and institutions may create more successful AI-integrated programs that improve diagnostic reasoning, critical thinking, and practical training by comprehending students' attitudes regarding AI. Furthermore, faculty members and legislators can create plans to maximize AI-driven learning tools by recognizing potential obstacles and difficulties in AI adoption. To better understand how AI affects learning experiences, clinical

decision-making, and general readiness for maternal and newborn care, this study examines the perspectives, attitudes, and personality traits of maternity nursing students toward the use of artificial intelligence in education.

Aim of the study:

The present study aims to evaluate the perspectives, attitudes, and personality traits of maternity nursing students toward the use of artificial intelligence in education.

Research Questions:

1.How do maternity nursing students perceive the integration of artificial intelligence (AI) in nursing education?

2.What are the attitudes of maternity nursing students toward the use of AI-assisted learning tools?

3.How do different personality traits influence maternity nursing students' acceptance and utilization of AI in education?

Subjects and methods:

Research design: Descriptive Cross-Sectional Study was used to achieve the aim of this study.

Study Setting: The present study carried out in the faculty of nursing Badr university in Cairo which provides a bachelor's degree in nursing program which is accredited by the Accreditation and Quality Assurance Commission for Higher Education Institutions.

Sample and sampling

A convenience sampling technique was employed to recruit participants for this study due to ease of access and time constraints. All participants were over the age of 18. Eligible participants included maternity nursing students enrolled in Level Three of the bachelor's degree nursing program during the 2024–2025 academic year.

Sample size

The sample size was estimated to be using G Power software for a one-sample t-test. The parameters included a medium effect size of 0.3, a significance level (α) of 0.05, and a statistical power of 0.95. Based on these settings, a total of 158 maternity nursing students would need to be approached to ensure sufficient statistical power.

Tools of data collection: An online survey was designed using **Google Forms**, with each required question clearly marked to ensure participants completed all items without omissions. The form was structured to guide students through the questionnaire efficiently. The survey consists of four tools:

Tool 1- Socio-Demographic Profile and AI Experience of Maternity Nursing Students.

It included two parts: the first included questions about demographics, as well as social and academic characteristics, such as gender, age, last GPA, and work alongside studies. The second part assessed students' experience with artificial intelligence, their use of its tools, and their perceptions of its benefits in education.

Tool 2- General Attitudes Toward Artificial Intelligence Scale (GAAIS)

This scale consists of two subscales that assess different aspects of attitudes toward AI, such as perceptions of the benefits of AI, concerns and fears about AI ***(Schepman, & Rodway 2020)***.

The scale has two sub-dimensions: **a**. Positive attitude toward AI (consists of 12 items). These items are scored from 1 (Strongly Disagree) to 5 (Strongly Agree), with Neutral at 3. **b**. Negative attitude toward AI (consists of 8 items). These items are reverse scored (1 = Strongly Agree, 5 = Strongly Disagree). For analysis, the scale is inverted, meaning a higher score on each subscale represents a more positive attitude toward AI. So that higher scores consistently reflect more favorable attitudes toward AI. A total attitude score can be calculated by summing all 20 item scores after appropriate reverse scoring, resulting in a composite score ranging from 20 to 100, where higher scores indicate a more positive overall attitude toward artificial intelligence.

Tool 3- Ten Item Personality Inventory Tool (TIPI)

Personality traits were assessed using the Ten Item Personality Inventory, a personality assessment tool designed to measure the five major personality dimensions, known as the Big Five **(Gosling et al., 2003**). These dimensions are **Openness to Experience** (creative, imaginative vs. conventional, routine-oriented), **Conscientiousness** (organized, dependable vs. spontaneous, careless), **Extraversion** (outgoing, energetic vs. solitary, reserved), **Agreeableness** (compassionate, cooperative vs. competitive, antagonistic), **Neuroticism** (anxious, easily upset vs. calm, emotionally stable). The TIPI consists of 10 questions, with two questions assessing each of the five dimensions. Each question uses a five-point Likert scale, ranging from "Strongly Agree" to "Strongly Disagree.

The total score thus represents the sum of the five mean trait scores, yielding a composite score ranging from 5 to 25, with higher values indicating a greater overall expression of positive personality traits.

Tool 4- Students' Knowledge toward artificial intelligence

This sub-scale has seven questions about the general knowledge of AI, including knowledge of artificial intelligence machine learning, AI in the medical field, AI in nursing diagnosis, AI in calculating drug doses, and AI for undergraduate education. Each item is scored as 1 for "Yes" and 0 for "No," yielding a total score ranging from 0 to 7. Higher scores reflect greater knowledge of AI. For analysis purposes, respondents scoring above 3 (i.e., 4 to 7) are classified as having "Good knowledge" of AI, while scores of 3 or below indicate "Poor knowledge."

Pilot study

A pilot study was conducted to assess the readability and level of comprehension of the questionnaire items by enrolling 15 nursing students. Participants were encouraged to provide feedback on any items they found difficult or unclear. This feedback helped enhance the overall clarity of the questionnaire, and necessary modifications were subsequently made.

Validity of the tools:

The validity of tool content was established by a panel of three experts (two maternal and newborn health nursing, and one community health nursing) who revised the tool for clarity, relevance, applicability, comprehensiveness, understanding, and ease for implementation and according to their opinion little modifications were made.

Reliability of the tools

Internal consistency reliability of the study tools was assessed using Cronbach's alpha (α) to determine how well the items within each instrument fit together, evaluating the tool's comprehensiveness, clarity, relevance, understanding, and applicability. For the **Ten Item Personality Inventory (TIPI)**, a reliability coefficient of **α = 0.72** was considered acceptable, given the brief nature of the tool. For the **General Attitudes Toward Artificial Intelligence Scale (GAAIS)**, Cronbach's alpha value in the range of **0.70 to 0.79** was interpreted as indicating acceptable internal consistency reliability.

Ethical consideration

To conduct the study, the researchers took approval through official letters containing the objective of the study that was directed from the researchers to the Dean of the school of nursing at Badr university in Cairo, as well as the head of maternity and newborn health nursing department and from scientific research ethical committee of Badr university in Cairo as an approval to conduct this study with (approval number:BUC-IACUC-250423-132) April 23,2025, and from the eligible students who agreeable to participate in the study. verbal consent was obtained from the maternity nursing students after explaining the aim of the study. The students were reassured about anonymity, particularity and confidentiality of the collected data and were informed about their rights to pull out from the study at any time.

Statistical design:

The data collected online from the participating students was reviewed, coded, and entered a Personal Computer (PC). The

computerized data entry and statistical analysis were conducted using the Statistical Package for Social Sciences (SPSS) version 22.0 (SPSS Inc., Chicago, Illinois, USA). The findings were presented using descriptive statistics, with quantitative data expressed as mean ± standard deviation (SD) and qualitative data presented as frequency and percentage. ***Chi-square (x^2)*** test of significance was used to compare proportions between qualitative parameters. ***Pearson's correlation coefficient (r)*** test was used to assess the degree of association between two sets of variables. The confidence interval was set at 95% and the margin of error accepted was set to 5%.

Results:

Table (1) shows a mean age of the maternity nursing students 20.24±2.19. The maximum number of students was in the age group between 20-22 years old, and a slightly higher proportion of females (58.2%). Most had strong academic performance, with 77.2% reporting a GPA of 3.0 or higher. Experience with AI was common, as 82.3% had at least basic knowledge, and 21.5% used AI tools daily, while 59.5% used them several times monthly. The most recognized benefit of AI in education was expanded access to educational resources (36.7%), followed by quicker assessment and customized learning. Notably, a large majority (87.3%) believed AI will become an essential part of education within the next decade.

Table (2) shows generally positive attitudes toward artificial intelligence, with the majority of the students agreeing or strongly agreeing with statements about its benefits, excitement, and potential impact. Most notably, over 60% viewed AI as beneficial, economically valuable, and capable of improving wellbeing. Interest in using AI in daily life and jobs was also high, though opinions were more mixed regarding AI outperforming humans or replacing them in routine tasks.

Regarding The students' responses to negative statements **table 3,** revealed a mix of concern and uncertainty among maternity nursing students regarding AI. While a significant portion expressed worries particularly about AI making errors (63.3%) and potentially taking control (53.1%) many also responded neutrally, suggesting ambivalence or a lack of strong conviction. Ethical concerns, fears of surveillance, and unease about future AI use were also notable but not overwhelming. **Table 4** shows that a majority of maternity nursing students (69.0%) demonstrated a **positive overall attitude** toward artificial intelligence, while 31.0% held a **negative attitude**. The chi-square test revealed a statistically significant difference ($\chi^2 = 45.486$, $p < 0.001$), indicating that students were significantly more likely to have a positive rather than a negative attitude toward AI.

Concerning the Big Five personality traits among the maternity nursing students, **table 5**, shows balanced and varied responses. For **Extraversion**, most students were neutral or agreed with being outgoing, though a notable portion also identified as reserved. Regarding **Agreeableness**, many express sympathy and concern for others, indicating strong interpersonal sensitivity. In **Conscientiousness**, the majority reported being prepared and valuing order, reflecting responsible and organized tendencies. For **Neuroticism**, responses were mixed between feeling nervous and managing stress well, suggesting varied emotional stability. Lastly, in **Openness to Experience**, a large proportion of students indicated having an active imagination and being somewhat unconventional, pointing to creativity and openness to new ideas.

Table 6 indicates that the majority of maternity nursing students (67.7%) exhibit positive personality traits according to the Ten-Item Personality Inventory (TIPI), while 32.3% display negative traits, with a highly statistically significant difference ($\chi^2 = 39.475$, $p < 0.001$).

Table 7 demonstrates that **75.9%** of the students reported having basic information about AI, and **70.9%** had heard about its use in the medical field. While **62.0%** stated that AI was addressed in their undergraduate education, a larger proportion (**77.2%**) had personally encountered and used AI tools in medical settings. Knowledge of machine learning was reported by **69.6%**, and **72.2%** had experience with AI in nursing diagnoses via electronic care systems. However, only **54.4%** used AI to calculate drug dosages, suggesting this application is less commonly practiced.

Table 8 indicates that a majority of maternity nursing students (69.0%) possess a **good level of AI knowledge**, while 31.0% demonstrate **poor knowledge**. The chi-square test reveals a **highly significant difference** (χ^2 = **45.486, p < 0.001**), suggesting that students are significantly more likely to have good knowledge of artificial intelligence.

Table 9 reveals statistically significant positive relationships among students' attitudes toward AI, personality traits, and AI knowledge. Specifically, there is a **moderate positive correlation** between attitudes toward AI and personality traits (**r = 0.386, p < 0.001)**. Additionally, there are **significant but weaker correlations** between attitudes and AI knowledge (**r = 0.291, p = 0.032**) and between personality traits and AI knowledge (**r = 0.269, p = 0.016**).

Table (1): Distribution of Maternity Nursing Students According to Their Socio-Demographic Characteristics and Experience with Artificial Intelligence (N = 158)

Socio-demographic data	No.	%
Age (years)		
≤20 years	58	36.7
21- <22 years	**78**	49.4
≥22 years	22	13.9
Mean ±SD	**20.24±2.19**	
Gender		
Male	66	41.8
Female	**92**	58.2
Last GPA		
0-2	0	0.0
2-2.5	36	22.8
≥3	122	**77.2**
Mean ±SD	**2.92±0.27**	
Experience with AI (if any):		
None	28	17.7
Basic	48	30.4
Intermediate	**66**	41.8
Advanced	16	10.1
The frequency of using AI tools		
Every day	34	21.5
Weekly	30	19.0
Several time monthly	**94**	59.5
Mean ±SD	**3.88±2.19**	
What are the main benefits of using AI in education?		
Customized learning experiences	40	25.3
Quicker assessment and feedback	48	30.4
Enhanced student engagement	12	7.6
Expanded access to educational resources	**58**	36.7
Do you believe AI will become an essential part of education in the next 10 years?		
Yes	138	87.3
No	6	3.8
Unsure	14	8.9

Table (2): Distribution of Maternity Nursing Students by Responses to Positive Statements on the General Attitudes Toward Artificial Intelligence Scale (GAAIS) (N = 158)

Positive statements	Strongly disagree		Disagree		Neutral		Agree		Strongly Agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
I am interested in using artificially intelligent systems in my daily life	20	12.7	16	10.1	32	20.3	70	44.3	20	12.7
There are many beneficial applications of Artificial Intelligence	12	7.6	12	7.6	30	19.0	74	46.8	30	19.0
Artificial Intelligence is exciting	6	3.8	12	7.6	40	25.3	72	45.6	28	17.7
Artificial Intelligence can provide new economic opportunities for this country	8	5.1	10	6.3	36	22.8	76	48.1	28	17.7
I would like to use Artificial Intelligence in my own job	8	5.1	12	7.6	38	24.1	72	45.6	28	17.7
An artificially intelligent agent would be better than an employee in many **routine jobs**	14	8.9	22	13.9	38	24.1	66	41.8	18	11.4
I am impressed by what Artificial Intelligence can do	12	7.6	6	3.8	46	29.1	70	44.3	24	15.2
Artificial Intelligence can have positive impacts on people's wellbeing	8	5.1	16	10.1	46	29.1	64	40.5	24	15.2
Artificially intelligent systems can help people feel happier	10	6.3	12	7.6	44	27.8	66	41.8	26	16.5
Artificially intelligent systems can perform better than humans	20	12.7	14	8.9	46	29.1	60	38.0	18	11.4
Much of society will benefit from a future full of Artificial Intelligence	6	3.8	10	6.3	36	22.8	80	50.6	26	16.5
For routine transactions, I would rather interact with an artificially intelligent system than with a human	12	7.6	18	11.4	44	27.8	64	40.5	20	12.7

Table (3): Distribution of Maternity Nursing Students' Responses to Negative Statements in the General Attitudes Toward A I Questionnaire (N = 158)

Negative statements	Strongly Agree		Agree		Neutral		Disagree		Strongly disagree	
	No.	%	No.	%	No.	%	No.	%	No.	%
I think Artificial Intelligence is dangerous	22	13.9	68	43.0	42	26.6	18	11.4	8	5.1
Organizations use Artificial Intelligence unethically	18	11.4	52	32.9	54	34.2	24	15.2	10	6.3
I find Artificial Intelligence sinister	14	8.9	54	34.2	64	40.5	18	11.4	8	5.1
Artificial Intelligence is used to spy on people	22	13.9	54	34.2	52	32.9	20	12.7	10	6.3
I shiver with discomfort when I think about future uses of Artificial Intelligence	10	6.3	48	30.4	70	44.3	18	11.4	12	7.6
Artificial Intelligence might take control of people	22	13.9	62	39.2	48	30.4	16	10.1	10	6.3
I think artificially intelligent systems make many errors	30	19.0	70	44.3	40	25.3	10	6.3	8	5.1
People like me will suffer if Artificial Intelligence is used more and more	24	15.2	54	34.2	48	30.4	20	12.7	12	7.6

Table (3): Distribution of Maternity Nursing Students According to Their Overall Level of General Attitudes Toward Artificial Intelligence (N = 158)

Overall Level of General Attitudes	No.	%	x^2	*p-value*
Positive attitude	109	69.0	45.486	<0.001**
Negative attitude	49	31.0		
Total	158	100.0		

*p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS*

Table (5): Distribution of Maternity Nursing Students According to the Ten-Item Personality Inventory (TIPI) (N = 158).

Big Five personality traits	Strongly disagree		Disagree		Neutral		Agree		Strongly Agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
Extraversion										
I am the life of the party	14	8.9	12	7.6	56	35.4	56	35.4	20	12.7
I am reserved	8	5.1	20	12.7	68	43.0	56	35.4	6	3.8
Agreeableness										
I feel little concern for others	18	11.4	22	13.9	54	34.2	52	32.9	12	7.6
I am sympathetic to others' feelings	12	7.6	0	0.0	52	32.9	64	40.5	30	19.0
Conscientiousness										
I am always prepared	10	6.3	8	5.1	46	29.1	72	45.6	22	13.9
I like order	18	11.4	12	7.6	50	31.6	60	38.0	18	11.4
Neuroticism										
I get nervous easily	8	5.1	24	15.2	58	36.7	50	31.6	18	11.4
I am relaxed, handles stress well	12	7.6	18	11.4	46	29.1	60	38.0	22	13.9
Openness to Experience										
I have an active imagination	8	5.1	6	3.8	40	25.3	72	45.6	32	20.3
I am unconventional	6	3.8	18	11.4	52	32.9	64	40.5	18	11.4

Table (4): Distribution of Maternity Nursing Students According to Their Overall Level on the Ten-Item Personality Inventory (TIPI) (N = 158).

Overall Level on the Ten-Item Personality Inventory (TIPI)	No.	%	x^2	p-value
Positive personality traits	107	67.7	39.475	<0.001**
Negative personality traits	51	32.3		
Total	158	100.0		

***p-value <0.001 HS*

Table (5): Distribution of Maternity Nursing Students According to Their Scores on the AI Knowledge Questionnaire (N = 158)

Statement	Yes		No	
	No.	%	No.	%
Do you have basic information about the definition of artificial intelligence?	120	75.9	38	24.1
Have you heard about the use of AI in the medical field?	112	70.9	46	29.1
Have the basics of AI been taught in your undergraduate education?	98	62.0	60	38.0
Have you encountered and used the means of AI in the medical field?	122	77.2	36	22.8
Do you know anything about machine learning?	110	69.6	48	30.4
Have you encountered AI in nursing diagnosis through electronic care systems?	114	72.2	44	27.8
Did you use AI to calculate drug doses?	86	54.4	72	45.6

Table (6): Distribution of Maternity Nursing Students According to Their Overall Level of AI Knowledge (N = 158)

Level of AI knowledge	No.	%	x^2	p-value
Good knowledge	109	69.0	45.486	<0.001**
Poor knowledge	49	31.0		
Total	158	100.0		

*p-value >0.05 NS; *p-value <0.05 S; **p-value <0.001 HS*

Table (9): Correlation between total score of attitudes to artificial intelligence, total score of TIPI and total score of AI knowledge (N=158).

		Total score of attitudes	Total score of TIPI	Total score of AI knowledge
Total Score of Attitudes	r		0.386	0.291
	p-value		<0.001**	0.032*
	N		158	158
Total Score of TIPI	r	0.386		0.269
	p-value	<0.001**		0.016*
	N	158		158
Total Score of AI Knowledge	r	0.291	0.269	
	p-value	0.032*	0.016*	
	N	158	158	

r-Pearson Correlation Coefficient;
**p-value <0.05 significant correlation; **p-value <0.001 highly significant*

Discussion:

As new AI technologies take over some of the jobs that nurses already undertake, nursing will be impacted. Although the way nurses spend their time caring for patients will alter due to technology, nurses will still be needed. Nurses will acquire new perspectives and methods of processing information, becoming information integrators, health coaches, and human care givers instead of being replaced by AI technologies ***(Al Khatib and Ndiaye, 2025)***. Due to its ability to enhance clinical training and instructional strategies, artificial intelligence (AI) is becoming an increasingly significant component of maternity nursing education. Nursing students may acquire vital obstetric care skills more efficiently with the help of AI-driven technologies that provide real-time feedback, adaptive simulations, and tailored learning experiences ***(Glauberman et al., 2023)***. Therefore, the present study was conducted to evaluate the perspectives, attitudes, and personality traits of maternity nursing students toward the use of artificial intelligence in education.

According to the present study finding, the maximum number of cases was in the age group between 20-22 years with the mean age 20.24 ± 2.19 years and a slight predominance of females (58.2%). This demographic aligns with other studies involving undergraduate nursing students, where the majority are young adults and female due to the gender distribution in the profession ***(Labrague et al., 2023)***. Also, the findings harmony with ***Tsiara et al., (2025)*** in a study entitled "The Role of Personality Traits in Nursing Students' Attitudes Toward Artificial Intelligence" who found that the majority of participants were female (70.4%), with a mean age of 20.9 years (SD = 3.5).

A strong academic background was evident, with 77.2% of students reporting a GPA of 3.0 or higher. Importantly, 82.3% of students had at least basic knowledge of AI, and a considerable number (21.5%) used AI tools daily. This aligns with recent findings showing increasing exposure to digital tools and AI applications among healthcare students ***(Tsiara et al., 2025)***. The perceived benefits of AI in education such as expanded access to resources, quicker assessments, and customized learning were highly endorsed, reflecting trends in educational research that highlight AI's transformative role in student-centered learning ***(Fadel et al., 2019)***.

Regarding Students' responses to the General Attitudes Toward AI Scale (GAAIS) the current study demonstrated predominantly positive views. Over 60% agreed that AI is beneficial, can improve well-being, and offers economic advantages. This is consistent with previous research indicating that health sciences students often view AI as an opportunity rather than a threat ***(Labrague et al., 2023)***. However, responses to negative statements in Table 3 revealed some ambivalence and concerns, particularly about AI making errors (63.3%) or taking control (53.1%). These concerns mirror findings by ***Mou et al. (2023)***, who reported that healthcare professionals often harbor mixed feelings about AI's role in decision-making, especially in sensitive contexts like patient care.

The overall attitude scores confirmed that the majority of students held a positive attitude toward AI, with a highly significant difference (χ^2 = 45.486, p < 0.001). Personality traits measured by the Ten-Item Personality Inventory (TIPI) indicated balanced distributions across the Big Five dimensions. These findings supported by ***Şahin et al., (2024***), entitled "Nursing Students' Personality Traits and Their Attitude Toward Artificial Intelligence: A Multicenter Cross-Sectional Study" who revealed that the majority of nursing students with a high score in the openness trait displayed positive attitudes toward artificial intelligence. Without targeted educational interventions to address these fears and improve AI literacy, negative perceptions may persist and hinder the integration of AI into nursing education and practice ***(Sumengen et al., 2025)***.

In the same line study conducted by ***Zhong, et al. (2024)*** which entitled "Exploring the Impact of Artificial Intelligence Learning Platforms on Interest in and Attitudes Toward Learning, Taiwan "Who showed that where 65 students were surveyed to obtain their opinions on their interest in learning and attitudes after learning on the AI learning platform. The results of the survey showed that around forty percent of the students were interested in learning and had a positive attitude towards the AI learning platform.

According to the results of ***Alemany et al., (2024)*** study on Nursing Students' Perception and Attitudes toward Utilization of Artificial Intelligence in Health Care, the students' mean scores for attitudes and perceptions regarding this use were high. The students most likely had favorable views about the usage of AI and a favorable impression of it, based on the high mean scores for these two categories.

AI knowledge among students was found to be generally strong. According to the current study findings the majority of students had basic information about AI, and more than three quartet reported using AI tools in medical settings. However, fewer students had practical experience in specific clinical applications like dosage calculation indicating potential areas for curriculum development. Overall, 69.0% of students scored high on AI knowledge, with a statistically significant difference (χ^2 = 45.486, p < 0.001), aligning with global educational trends emphasizing digital competency in nursing education ***(Booth et al., 2021)***.

Concerning the relationship between students' knowledge, attitude and personality traits regarding the artificial intelligent, the current study finding showed that the majority of students displaying positive personality traits (χ^2 = 39.475, p < 0.001). Personality appears to influence attitudes toward AI, as demonstrated in the study findings, where a moderate positive correlation (r = 0.386, p < 0.001) was observed between attitudes and personality traits. Weaker but still significant correlations were found between attitudes and AI knowledge (r = 0.291, p = 0.032), and between personality traits and AI knowledge (r = 0.269, p = 0.016), suggesting an interrelated influence of knowledge and personality on how students perceive AI.

In their study ***Al Khatib, & Ndiaye (2025)*** stated that studying exploring the role of personality in shaping nurses' professional attitudes is crucial. Personality traits, such as extraversion or emotional intelligence, influence how nurses interact with patients and respond to situations of intense emotional or psychological stress. Thus, training that combines the use of AI with an understanding of personality can lead to more integrated and person-centered care.

In this respect ***Tsiara et al., (2025)*** reported that while nursing students are open and receptive to AI, targeted education and hands-on training are essential to deepen their practical understanding and reduce lingering concerns. Integrating AI-related content into nursing curricula could help bridge gaps between theoretical awareness and clinical application, ensuring that future nurses are prepared to work effectively in AI-integrated healthcare environments.

Conclusion:

The current study results answered the research questions by highlighting a generally positive orientation among maternity nursing students toward artificial intelligence (AI), with the majority demonstrating good AI knowledge, favorable attitudes, and strong personality traits

associated with openness and conscientiousness. Most students reported exposure to AI tools in both academic and clinical settings, with expanded access to educational resources and improved assessment recognized as key benefits. Despite some concerns regarding AI-related risks such as errors or ethical misuse, the overall attitude remained optimistic, with the majority of the student's expressing confidence in AI's future role in education and healthcare.

The findings also revealed significant associations between students' attitudes, personality traits, and AI knowledge, suggesting that these factors collectively influence receptiveness to AI. These insights underscore the importance of integrating AI-focused content into nursing curricula to prepare students for an increasingly digital healthcare environment. Enhancing AI literacy and practical application in maternity nursing education is not only necessary for student competence but also vital for advancing maternal and neonatal care in the age of intelligent technologies.

Recommendation:

Nursing faculties should incorporate comprehensive AI-related content into undergraduate maternity nursing programs, including both theoretical foundations and hands-on applications, to enhance students' digital literacy and clinical preparedness. AI-powered simulations should be employed to provide students with realistic, risk-free opportunities to practice clinical decision-making in maternity care, particularly in areas like fetal monitoring, labor management, and medication dosage calculation. Collaboration between nursing educators, computer scientists, and AI developers should be encouraged to ensure the design of educational tools that are both clinically relevant and pedagogically effective. **Future studies** should be conducted to evaluate the long-term impact of AI integration on nursing competencies, patient outcomes, and student satisfaction in maternity and broader clinical education.

Conflict of Interest

The authors declare that they have no competing interests

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