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# How Medical AI Readiness, Anxiety, and Attitudes Shape Nursing Students' AI Competence – A Path Analysis

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**ABSTRACT** *This study conducted a path analysis to examine the impact of several related variables on artificial intelligence (AI) user competence. The participants included 310 nursing students from a single nursing school in Turkey. Hypothetical paths were established to assess the influence of medical artificial intelligence readiness, AI-related anxiety, and both positive and negative attitudes toward AI on AI competence. Positive attitudes toward AI and medical AI readiness had significant effects on AI competence. Additionally, both positive and negative attitudes toward AI had a significant negative effect on AI-related anxiety; however, the total, direct, and indirect effects of anxiety on AI competence were not significant. The model explained 33.5% of the variance in AI user competence. AI-focused interventions, along with the creation of a supportive learning environment for nursing students during their practicum, may be key strategies to enhance their AI competence.*

***Keywords*** **:** Artificial İntelligence, Anxiety, Attitude, Healthcare, Nursing *Students*

# Tıbbi Yapay Zekâ Hazırbulunuşluğu, Kaygı ve Tutumlar Hemşirelik Öğrencilerinin Yapay Zekaya Yeterliliğini Nasıl Şekillendiriyor? – Yol Analizi

***ÖZ*** *Bu çalışmada, yapay zeka konusundaki kullanıcı yeterliliği üzerinde etkili olan çeşitli değişkenlerin etkisini öngörmek amacıyla bir yol analizi yapılmıştır. Katılımcılar, Türkiye'deki bir hemşirelik okulundan 310 hemşirelik öğrencisinden oluşmuştur. Bu çalışmada, tıbbi yapay zekâya hazırlık, yapay zekâ kaygısı ve yapay zekâya yönelik hem olumlu hem de olumsuz tutumların yapay zeka yeterliliği üzerindeki etkisine ilişkin varsayımsal yollar oluşturulmuştur. Yapay zekâya yönelik olumlu tutumlar ve tıbbi yapay zekâya hazırlık, yapay zeka yeterliliği üzerinde anlamlı etkilere sahip bulunmuştur. Ayrıca, yapay zekâya yönelik olumlu ve olumsuz tutumların yapay zekâ kaygısı üzerinde anlamlı ve olumsuz bir etkisi olduğu belirlenmiştir. Ancak, kaygının yapay zeka yeterliliği üzerindeki toplam etkisi anlamlı bulunmamış; dolaylı*

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*ve doğrudan etkiler de anlamlı değildir. Model, yapay zekâ kullanıcı yeterliliğindeki varyansın %33,5'ini açıkladı. Hemşirelik öğrencilerinin uygulama eğitimi sırasında sağlık kurumları tarafından destekleyici bir ortam yaratılmasıyla birlikte, yapay zeka odaklı müdahaleler, onların yapay zeka yeterliliklerini artırmada kilit müdahaleler olabilir.*

***Anahtar Kelimeler*** : Yapay Zeka, Kaygı, Tutum, Sağlık Hizmetleri, Hemşirelik Öğrencileri

## INTRODUCTION

Artificial Intelligence (AI) has become increasingly prevalent in the healthcare sector, providing innovative solutions to a range of complex challenges. These include mobile health applications, intelligent medical diagnostics, remote patient monitoring, and advanced data processing systems, all of which aim to improve the efficiency, accuracy, and accessibility of healthcare delivery. By leveraging AI technologies, healthcare providers can enhance decision-making, streamline clinical workflows, and support personalized patient care (Fahim et. Al., 2025; Faiyazuddin et al., 2025). Thus, it is increasingly important to assess users' competence in using AI technology (Wang et al., 2023). Competence reflects the desire to feel skilled and efficient in making decisions and performing tasks (Latikka et al., 2023).

AI operates using complex algorithms and vast amounts of data, enabling the software to learn automatically from patterns within that data. By simulating human intelligence, machines gain the capacity to learn, apply analytical methods, make decisions, and solve complex problems. AI tools, such as chatbots, can be strategically integrated into active learning approaches to enhance student engagement and develop practical skills. These methodologies not only improve students' ability to effectively utilize AI technologies but also help maintain the rigor and quality of scientific research (Papaneophytou and Nicolaou, 2025). With AI anticipated to reshape healthcare delivery and influence healthcare providers, including nurses, shifts in core nursing competencies and educational requirements are unavoidable. These advancements necessitate changes in the nursing curriculum to enhance students' competencies, which will be crucial for adapting to their specific roles within healthcare systems and their professional field in the future (Kaya et al., 2025; Sağlam and Kalanlar, 2025).

The incorporation of AI technology into higher education began in the 1950s, and it now offers considerable potential to generate sophisticated and intricate simulations that assist nursing students in developing critical thinking skills and preparing for real-life patient care scenarios (De Gagne, 2023). Nursing students must be equipped with the necessary knowledge and skills to effectively utilize AI technologies in education and, subsequently, to provide person-centered nursing care in future practice settings (Kaya et al., 2025). The integration of

AI technology in nursing education also has the potential to transform the field by offering tailored learning experiences and enhancing efficiency and outcomes (De Gagne, 2023).

Over the past decade, the integration of technology into both the theoretical and practical components of nursing education has grown rapidly (Amin et al., 2025), with artificial intelligence emerging as one of the most notable innovations in the field (Jallad et al., 2024). As healthcare evolves and becomes more complex, nursing education must adapt to keep up with the shifting landscape (De Gagne, 2023). Previous studies have explored nursing students' attitudes toward AI in education (Yalcinkaya et al., 2024), their readiness (Demir-Kaymak et al., 2024; Yalcinkaya et al., 2024), and their experiences of anxiety (Demir-Kaymak et al., 2024). As AI is expected to play an increasingly essential role in health education technologies, investigating students' readiness, anxiety, attitudes, and competence in using AI is crucial. To our knowledge, no study has simultaneously examined readiness, anxiety, and attitudes as predictors of AI competence using a path analysis approach among nursing students. Thus, this study investigates the impact of several related variables—medical artificial intelligence readiness, artificial intelligence anxiety, and both negative and positive attitudes toward artificial intelligence—on user competence in using AI.

## 1. MEDICAL ARTIFICIAL INTELLIGENCE READINESS AND USER COMPETENCE IN USING ARTIFICIAL INTELLIGENCE

AI competency has become a critical skill for individuals, growing in significance for the future workforce. As people adopt AI technology, learning how it works is crucial for becoming informed individuals and adapting to new AI-driven work skills. Education must critically assess AI-generated content, as it can be inaccurate, biased, or favor mainstream views. Both teachers and students often lack awareness of these issues (Almatrafi et al., 2024). Evidence shows the urgent need to improve people's ability to work with AI (Wang et al., 2023) and the need to equip nursing students and professionals with the skills necessary for successful AI integration (Kaya et al., 2025; Rony et al., 2024). In this regard, the sense of being equipped with AI knowledge and skills is correlated with nursing students' readiness (Taskiran, 2023). Medical AI readiness is defined as "the preparedness of healthcare professionals to integrate AI applications into healthcare services by combining their professional knowledge, skills, and attitudes". Although students may possess a moderate level of AI readiness, targeted efforts are necessary to enhance their competency in critically evaluating AI tools and their overall user competence (AlZaabi and Masters, 2025; El Arab et al., 2025). Based on theoretical analysis and available evidence, we formulated Hypothesis 1.

*$H_1$: Medical artificial intelligence readiness correlates positively with user competence in using artificial intelligence.*

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## 2. ARTIFICIAL INTELLIGENCE ANXIETY AND USER COMPETENCE IN USING ARTIFICIAL INTELLIGENCE

The lack of knowledge and experience with AI among nursing students increases their anxiety (Cruz et al., 2023; Demir-Kaymak et al., 2024), whereas those who are well-informed about AI are less likely to experience anxiety or concerns related to AI technologies (Labrague et al., 2023a). Evidence shows that nursing students experience anxiety about unemployment due to insufficient AI skills (Yalcinkaya et al., 2024). AI-supported education has been shown to reduce this anxiety (Kavakli & Konukbay, 2024) and, therefore, could also alleviate students' concerns about the necessity of AI competency for future employment. Although nursing students' anxiety about AI may deter them from using it, increased experience with AI can reduce this anxiety and enhance their understanding of the technology (Sağlam and Kalanlar, 2025). Evidence illustrates that AI anxiety has a minimal yet significant negative effect on users' competency in AI (Schiavo et al., 2024; Dagcan Sahin and Yildirim, 2026). In line with the points mentioned above, we propose Hypothesis 2.

*$H_2$: Artificial intelligence anxiety correlates inversely with user competence in using artificial intelligence.*

## 3. GENERAL ATTITUDES TOWARDS ARTIFICIAL INTELLIGENCE AND USER COMPETENCE IN USING ARTIFICIAL INTELLIGENCE

Individuals' proficiency in utilizing artificial intelligence is positively correlated with their attitudes toward AI (Li, 2025). People's attitudes toward technology are key indicators of how they will use and accept it, highlighting the need to understand the variations in these attitudes across individuals (Park and Woo, 2022). A previous study found that, despite having low levels of competence, individuals could still have a positive attitude toward AI (Scantamburlo et al., 2024). Individuals with greater computer experience and more frequent computer use are generally expected to exhibit more positive attitudes toward AI. However, a previous study found no significant relationship between competence in using new technologies and positive attitudes toward AI, which contrasts with findings in psychological literature, where competence is recognized as a key determinant of human cognition and behavior and a major motivator for adopting new technologies (Latikka et al., 2023; Zgambo et al., 2025). In light of theoretical analyses and available evidential support, we proposed Hypotheses 3 -4.

*$H_3$: Positive attitudes toward artificial intelligence correlate positively with user competence in using artificial intelligence.*

*$H_4$: Negative attitudes toward artificial intelligence correlate inversely with user competence in using artificial intelligence.*

## 4. GENERAL ATTITUDES TOWARDS ARTIFICIAL INTELLIGENCE AND ARTIFICIAL INTELLIGENCE ANXIETY

Higher levels of artificial intelligence anxiety are associated with stronger negative attitudes toward AI and lower levels of AI acceptance (Cho and Seo, 2024; Nair and Palsetia, 2025). AI anxiety significantly influences attitudes toward AI, and negative attitudes toward artificial intelligence are closely linked to concerns about AI configuration and AI learning (Kaya et al., 2024). Job security concerns, performance pressure, and worries about skill obsolescence are key stressors associated with negative attitudes toward artificial intelligence, which are in turn positively related to higher levels of anxiety (Nair and Palsetia, 2025). Concerns about the potential loss of meaning in work due to automation, along with pressures to change careers and update skills, contribute to anxiety regarding the development and use of artificial intelligence. This anxiety, shaped by current or anticipated interactions with AI technologies and negative perceptions of AI-related tasks, can influence future behavioral intentions. Affective responses such as anxiety or fear may either inhibit or promote engagement with AI systems (Stănescu and Romașcanu, 2024). Individuals' positive attitudes reduce their anxiety about AI, encourage its use, and enhance their confidence, helping nurses to overcome anxiety and negative attitudes toward AI technology (Sağlam and Kalanlar, 2025). Hence, we proposed Hypotheses 5 -6.

*$H_5$: Positive attitudes toward artificial intelligence correlate inversely with artificial intelligence anxiety.*

*$H_6$: Negative attitudes toward artificial intelligence correlate positively with artificial intelligence anxiety.*

As mentioned earlier, drawing on the theoretical framework and previous research, we have developed a hypothetical model that reflects the structural relationships between the variables, as illustrated in **Figure 1**.

## 5. METHODS AND DESIGN

### 5.1. Design, Sampling, and Participants

This cross-sectional study was conducted at a public university in Turkey between December 2023- February 2024. Convenience sampling was used for participant recruitment. All nursing students enrolled in the nursing program (n= 415) were invited to participate, and 310 accepted, resulting in a response rate of 74,6%. The QR code for the questionnaire was shared with the nursing students after obtaining their informed consent. Participation was

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voluntary. It followed the guidelines for reporting observational studies, the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement.

### 5.2. Instruments

A survey form, User Competence in Using Artificial Intelligence (UCAI), the Medical Artificial Intelligence Readiness Scale for Medical Students (MAIRS), the Artificial Intelligence Anxiety Scale (AIA), and the General Attitudes Toward Artificial Intelligence Scale (GAAIS) were used for data collection.

**A survey form:** The first part of the form includes questions related to nursing students' demographic characteristics, such as age, gender, enrollment status, and income level. The second part gathers information about artificial intelligence, including knowledge of AI programs and sources of information.

**User Competence in Using Artificial Intelligence (UCAI):** The scale was developed by Wang et al. (2023) to assess the AI literacy of general users. The seven-point Likert scale consists of twelve items, with items 2, 3, and 8 being reverse-scored. The one-factor UCAI scale originally had a Cronbach's alpha of 0.83, while in this study, it was 0.87.

**Medical Artificial Intelligence Readiness Scale for Medical Students (MAIRS):** The scale was developed by Karaca et al. (2021) to evaluate medical students' perceived readiness for AI technologies. The five-point Likert scale consists of 22 items across four factors: cognition, ability, vision, and ethics. The total score ranges from 22 to 110, with higher scores indicating a greater level of readiness for AI technologies. The cronbach's alpha reliability coefficient was 0.87 for the original scale and 0.98 in this study.

**Artificial Intelligence Anxiety Scale (AIA):** AIA scale was adapted into Turkish by Terzi (2020). The seven-point Likert scale consists of 21 items across four factors: learning, job replacement, sociotechnical blindness, and AI configuration. Higher scores indicate a greater level of AI anxiety. The Cronbach's alpha reliability coefficient was 0.96 for the Turkish version of the scale and 0.97 in this study.

**The General Attitudes toward Artificial Intelligence Scale (GAAIS):** GAAIS was developed to measure individuals' general attitudes toward AI and was adapted into Turkish by Kaya and İşçi, (2025). The scale consists of 20 items, with 12 items in the Positive GAAIS and 8 items in the Negative GAAIS, scored using a five-point Likert scale. Cronbach's alpha was 0.82 for the Positive GAAIS and 0.84 for the Negative GAAIS in the Turkish version, while in this study, it was 0.96 for the Positive GAAIS and 0.94 for the Negative GAAIS.

### 5.3. Ethical Considerations

This study was approved by the Bartın University Social and Human Sciences Ethics Committee. Ethical approval was granted at the committee meeting held on 11 December 2023 (Meeting No: 20, Decision No: 1), under Protocol No: 2023-SBB-0811. Participation in the study was voluntary, and informed consent was obtained from all participants. Confidentiality and anonymity of the participants were ensured throughout the study.

### 5.4. Data Analysis

Descriptive statistics and correlations analyses were performed using the SPSS 25.0 software, and structural equation modelling (SEM) was performed using AMOS 21.0. To observe the impact of medical artificial intelligence readiness, artificial intelligence anxiety, negative and positive attitudes toward artificial intelligence on user competence in using artificial intelligence structural equation modeling (SEM) was employed to test the hypothetical model. Model fit was evaluated with the following indices: $\chi 2/df$, normed fit index (NFI), goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). A good fitting model was considered to meet the following recommendations: Chi-square/degrees of freedom ($\chi 2/df < 3$), normed fit index (NFI > 0.90), goodness-of-fit index (GFI > 0.90), comparative fit index (CFI > 0.90) and root mean square error of approximation index (RMSEA < 0.08).

## 6. RESULTS

A total of 310 nursing students responded to the survey; their average age was 20.50±1.85 years, ranging from 18 to 34 years. More than half of the participants were female (69.4%), and 67.7% described their income status as equal to their expenses. Additionally, 56.1% of the students reported that they had not heard about the use of artificial intelligence in nursing. The main sources from which students had heard about the use of artificial intelligence in nursing were social media (44.4%) and nurse educators (37.8%). More than half of the students (56.5%) spent four to six hours on the internet daily. Of the participants, 77.7% were familiar with artificial intelligence programs, primarily ChatGPT (100.0%), Canva (16.0%), and Scite-AI (2.9%). Overall, 18.1% of students reported using artificial intelligence programs, and among these, the majority (89.3%) reported using ChatGPT. Additional demographic information is in **Table 1**.

Nursing students reported moderate user competence in using artificial intelligence (4.44 ± 0.67) and medical artificial intelligence readiness (3.33 ± .84). They also reported moderate artificial intelligence anxiety (3.51 ±1.30), positive general attitudes toward artificial intelligence (3.61 ±0.81), and low negative general attitudes toward artificial intelligence (2.71 ±0.89). Pearson analysis showed that user competence in using artificial intelligence was moderately correlated with medical artificial intelligence readiness ($r = .479$, $p < 0.001$) and positive general attitudes toward artificial intelligence ($r = .539$, $p < 0.001$), and had a low correlation with negative general attitudes ($r = -.322$, $p < 0.001$). Medical artificial intelligence

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readiness was moderately correlated with positive general attitudes toward artificial intelligence ($r = .578$, $p < 0.001$) and negatively correlated with negative general attitudes ($r = -.488$, $p < 0.001$). It showed no significant correlation with artificial intelligence anxiety ($r = -.075$, $p > 0.05$). Artificial intelligence anxiety was weakly correlated with negative general attitudes ($r = -.143$, $p < 0.05$) and showed no significant correlation with positive general attitudes toward artificial intelligence ($r = -.079$, $p > 0.05$). Additional information is summarized in **Table 2**.

### 6.1. Model Testing

We included user competence in using artificial intelligence, medical artificial intelligence readiness, artificial intelligence anxiety, negative and positive attitudes toward artificial intelligence (**Figure 2**). The overall fit information for the model was: $\chi 2/df = .147$, NFI = 1.000, GFI = 1.000, CFI = 1.000, AGFI = .997 and RMSEA = .000, indicating the proposed model fit the data well. The model explained 33.5% of the variance of user competence with artificial intelligence. The direct paths for medical artificial intelligence readiness ($\beta = 0.258$, $p < .001$) and positive attitudes toward artificial intelligence ($\beta = 0.390$, $p < .001$) had significant effects on competency with AI (Hypotheses 1 and 3 were supported by the analysis, whereas Hypothesis 4 was not supported). Additionally, positive attitudes toward artificial intelligence ($\beta = -0.219$, $p < .001$) and negative attitudes toward artificial intelligence ($\beta = -0.260$, $p < .001$) had a significant negative effect on artificial intelligence anxiety (Hypothesis 5 was supported, whereas Hypothesis 6 was not supported by the analysis), and the total effect of anxiety on competency with AI were not significant ($\beta = -0.048$, $p = .318$) (Hypothesis 2 was not supported by the analysis), and indirect effects and direct effects were not significant ($p > 0.05$).

## 7. DISCUSSION

The aim of the study was to test a hypothesized model designed to investigate the impact of several related variables, which were medical artificial intelligence readiness, artificial intelligence anxiety, and both negative and positive attitudes toward artificial intelligence, on user competence with AI. AI competency is crucial among nursing students, as it equips them with the skills necessary to integrate advanced technologies into patient care, thereby improving clinical outcomes and efficiency in their future roles (Abou Hashish and Alnajjar, 2024). While there are concerns about incorporating AI into nursing education, such as potential plagiarism and the risk of reducing critical thinking due to overdependence on technology (Tam et al., 2023), it offers numerous advantages, including personalized learning and the enhancement of students' problem-solving and critical thinking abilities (Chen, 2024). Therefore, a deep understanding of the effects of readiness, anxiety, and attitudes on AI competency may help nurse educators enhance nursing students' ability to benefit from this technology by addressing its negative aspects during their undergraduate education.

One of the main findings of the present study was that medical artificial intelligence readiness had a positive effect on user competence with AI. Readiness refers to how prepared individuals are to embrace new technology, and the development of new behaviors depends on students' level of readiness (Yalcinkaya et al., 2024), which can be enhanced through training on basic AI concepts (Taskiran, 2023). To enhance nursing students' competency with AI, nurse educators should also focus on factors that may affect medical AI readiness. A previous study noted that technological proficiency, understanding of AI-powered technologies, and perceived use of AI in nursing practice are key factors influencing nursing students' readiness, along with challenges such as a lack of computer skills, limited AI knowledge and awareness, and time constraints (Labrague et al., 2023a). By addressing these factors, nurse educators can enhance students' readiness. This, in turn, enables students to effectively engage with educational methods that incorporate AI technologies and better prepares them for future roles in AI-driven healthcare, ultimately supporting improved patient care outcomes.

The results of this study also demonstrated that positive attitudes toward artificial intelligence had a positive effect on AI user competence, whereas negative attitudes toward artificial intelligence were not significantly associated with AI user competence. Students' attitudes toward AI can be influenced by various factors. These attitudes are shaped by both AI-related and user-related factors (De Freitas et al., 2023), including students' age, the number of devices they use, the time they spend using technological resources, and their level of experience (Pellas, 2023). Therefore, it is important to consider cultural, societal, and engineering factors to foster more positive attitudes toward AI (De Freitas et al., 2023; Katsantonis and Katsantonis, 2024), which, in turn, can improve their competency in AI. In addition, nursing students' attitudes toward AI partially mediated the relationship between perceived AI utilization in nursing practice, which, in turn, influenced their intentions to adopt AI technology (Labrague et al., 2023b). These results indicate that explaining to nursing students the benefits AI provides in nursing practice, and why it is important, are crucial for enhancing their attitudes toward AI. Nurse educators need to incorporate AI-focused coursework, training, and experiential learning to further improve students' readiness and attitudes toward AI (Katsantonis and Katsantonis, 2024; Labrague et al., 2023b). Additionally, healthcare institutions should consider creating a supportive environment for nursing students during their practicum (Labrague et al., 2023b).

We found that both positive and negative attitudes toward artificial intelligence were negatively associated with AI anxiety; however, this anxiety did not affect AI competency. Previous evidence also supports our findings, showing that both optimistic and pessimistic perceptions of AI can increase AI-related anxiety (Stănescu & Romașcanu, 2024). The literature highlights negative concerns about the current and future use of AI in the workplace, which can increase individuals' anxiety (Kim et al., 2025; Nair and Palsetia, 2025; Stănescu &

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Romașcanu, 2024). It should be noted that people's concerns about AI and its potential impact on their future work warrant consideration in both future research and workplace practice. Additionally, previous findings indicate that females exhibit higher AI-related anxiety and lower positive attitudes toward AI compared to males, which may reflect an interaction between gender and AI anxiety (Russo et al., 2025). Considering that 69.4% of the current study sample was female, it is recommended that future research further investigate gender differences in AI attitudes and anxiety.

Our study results did not reveal any total, indirect, or direct effects of AI anxiety on AI competency. However, higher AI-related anxiety has been shown to predict lower AI competency, particularly in domains such as learning or job displacement (Albino et al., 2025; Asio and Suero, 2024). However, AI anxiety has been found to positively influence motivated learning, but only when moderated by AI self-efficacy, indicating that students with higher self-efficacy can transform anxiety into proactive learning behaviors (Chen et al., 2025). Therefore, interventions aimed at improving nursing students' self-efficacy can help transform AI-related anxiety into a positive factor for educating students about AI competency and preparing them for their future careers. Additionally, regardless of whether attitudes toward AI are positive or negative, interventions designed to improve nursing students' positive attitudes toward AI could enhance their competency. In light of the evidence and the results of this study, it is clear that creating an innovative undergraduate curriculum that allows students to interact with AI technologies is essential (Hassan Mekawy et al., 2020) and developing guidelines for the appropriate use of AI in nursing education (Tam et al., 2023) are vital for enhancing their competency in AI. This approach also promotes critical thinking skills and fosters a continuous learning mindset (Hassan Mekawy et al., 2020), which are essential for enhancing nursing students' adaptability to new technologies, treatments, and guidelines in clinical settings.

## 8. STRENGTH AND LIMITATION

There are several limitations to this study. First, since the data were collected from only one university and the participants had limited education and experience with AI-based healthcare technology, the generalizability of our findings to other educational institutions or cultural contexts may be limited. Second, this study employed a cross-sectional design using convenience sampling, whereas longitudinal studies with more rigorous sampling methods would allow for a stronger examination of the hypothesized causal relationships. Third, the absence of an explicit theoretical framework in the background section may be considered a limitation; future research could integrate theories such as technology acceptance or self-efficacy to strengthen theoretical grounding. Fourth, all variables were assessed using self-report instruments, which may be subject to social desirability bias and participants' subjective perceptions. Incorporating objective measures or triangulating data sources could strengthen

the validity of future research. Finally, although Structural Equation Modeling (SEM) was employed to test hypothesized relationships, the cross-sectional design prevents the establishment of causal inferences. Longitudinal or experimental designs would provide stronger evidence for causality.

## CONCLUSION

Our results illustrated that positive attitudes toward artificial intelligence and medical AI readiness significantly affect competency with AI. Additionally, both positive and negative attitudes toward AI were negatively associated with AI-related anxiety, while anxiety had no significant direct, indirect, or total effect on AI competence. Factors such as technological proficiency, understanding of AI-powered technologies, and a supportive learning environment in nursing practice which are key in influencing nursing students' readiness and attitudes toward AI should be considered by nurse educators when designing the curriculum. Furthermore, interventions aimed at improving nursing students' self-efficacy can help transform AI-related anxiety into a positive factor for fostering students' AI competence. Overall, fostering AI competency enables nursing students to gain confidence in utilizing these technologies, ultimately improving their capacity to adapt to rapidly evolving healthcare environments. Thus, incorporating AI-focused coursework, training, and experiential learning by nurse educators, along with creating a supportive environment for nursing students during their practicum by healthcare institutions, could be key strategies to enhance their competency in AI.

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## Ethics Committee Approval

This study was approved by the **Bartın University Social and Human Sciences Ethics Committee**. Ethical approval was granted at the committee meeting held on **11 December 2023** (Meeting No: **20**, Decision No: **1**), under **Protocol No: 2023-SBB-0811**. Participation in the study was voluntary, and informed consent was obtained from all participants. Confidentiality and anonymity of the participants were ensured throughout the study.

## Etik Kurul Onayı

Bu çalışma için etik kurul onayı, **Bartın Üniversitesi Sosyal ve Beşeri Bilimler Etik Kurulu**'ndan alınmıştır. Çalışma, kurulun **11.12.2023 tarihli, 20 sayılı toplantısında alınan 1 sayılı karar** ile **2023-SBB-0811 protokol numarası** kapsamında onaylanmıştır. Araştırmaya katılım gönüllülük esasına dayalı olup, tüm katılımcılardan bilgilendirilmiş onam alınmıştır. Katılımcıların gizliliği ve anonimliği araştırma süresince korunmuştur.