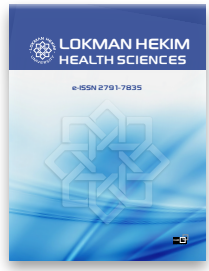
LOKMAN HEKIM HEALTH SCIENCES

DOI: 10.14744/lhhs.2026.51207
Lokman Hekim Health Sci 2026;6(2):237–245



lokmanhekimhs.com

ORIGINAL ARTICLE

Determining the Artificial Intelligence Literacy and Attitudes toward Artificial Intelligence of Oncology Nurses: A Descriptive-correlational Study

Zeynep Karakuş[1], Remziye Semerci Şahin[2], Burcu Babadağ Savaş[3], Gülcan Bağçivan[4]

[1]Department of Internal Medicine Nursing, Faculty of Nursing, Akdeniz University, Antalya, Türkiye
[2]Department of Pediatric Nursing, Faculty of Nursing, Koç University, İstanbul, Türkiye
[3]Department of Radiotherapy, Hannover Medical School, Hannover, Germany
[4]College of Nursing and Health Sciences, University of Massachusetts Dartmouth, Dartmouth, Massachusetts, USA

Abstract

Introduction: Artificial intelligence (AI) is increasingly shaping oncology nursing practice. This study examined the relationship between AI literacy and attitudes toward AI among oncology nurses in Türkiye and evaluated AI literacy's predictive role for these attitudes.

Methods: This descriptive-correlational study was conducted among oncology nurses between August and December 2025. Data were collected using the personal information form, the Artificial Intelligence Literacy Scale (AILS), and the General Attitudes toward Artificial Intelligence Scale (GAAIS) through Google Forms. Data analysis performed using IBM SPSS Statistics (version 28.0).

Results: The study included 102 oncology nurses across Türkiye. Significant positive correlations were found between the total AILS score and all subscales. A strong correlation was observed between usage and ethics, while evaluation showed moderate correlations with the other subscales. In regression analysis, the model predicting negative attitudes was not statistically significant (F=0.936, p=0.483), explaining 6.5% of the variance (R^2=0.065); only Ethics showed a significant negative association. The model predicting positive attitudes was statistically significant (F=3.425, p=0.003), explaining 20% of the variance (R^2=0.20); however, none of the AI literacy subscales were significant predictors, and age showed significant negative association.

Discussion and Conclusion: It is recommended that nurses should be supported with in-service training to enhance their AI literacy and foster more positive attitudes toward AI and that relevant regulatory frameworks should be strengthened.

Keywords: Artificial Intelligence attitudes; Artificial intelligence literacy; Descriptive study; Nursing; Oncology

Artificial intelligence (AI) is becoming a part of our daily lives faster than other technologies.[1,2] AI is currently one of the most powerful transformative forces, particularly in the healthcare sector.[3] In healthcare, AI is used in a wide range of applications, encompassing both basic and advanced care and treatment.[4] As global

Cite this article as: *Karakuş Z, Semerci Şahin R, Babadağ Savaş B, Bağçivan G. Determining the Artificial Intelligence Literacy and Attitudes toward Artificial Intelligence of Oncology Nurses: A Descriptive-correlational Study. Lokman Hekim Health Sci 2026;6(2):237–245.*

Correspondence: Remziye Semerci Şahin, PhD. Koç Üniversitesi Hemşirelik Fakültesi, İstanbul, Türkiye
E-mail: rsemerci@ku.edu.tr **Submitted:** 05.02.2026 **Revised:** 29.04.2026 **Accepted:** 11.05.2026 **Available Online:** 02.06.2026

demographic trends lead to increased prevalence of chronic diseases, patient loads and nurse responsibilities are increasing, and the potential of AI to enhance personalized patient care and workflow efficiency is widely recognized.[3,5]

Oncology nurses play many important roles, including evaluating individuals diagnosed with cancer, facilitating diagnostic and therapeutic procedures, and providing personalized, holistic care.[3,6] Nurses are collaborating with AI systems, and this is not passive adoption but rather taking an active role in interpreting AI-generated insights, integrating AI into clinical decision-making processes, and providing critical human oversight.[7] While AI is transforming nurses' roles in the care of patients with cancer, adopting AI into patient care is closely related to factors such as nurses' knowledge, acceptance, and attitudes.[4,8,9] The technology acceptance model (TAM) suggests that perceived ease of use also influences perceived usefulness and that these two perceptions shape individuals' attitudes toward technology, which in turn affects their intention to use technology and their actual usage behavior.[10] In this context, the utility and ease of use of AI technologies can be influenced by AI literacy, and nurses must possess a specific level of expertise and a positive attitude to effectively employ them.[11]

The objective of AI literacy is to equip individuals with new competencies and methods to engage in a digital society.[12,13] To better understand the impact of AI literacy on nursing practices, it is important to examine this concept alongside attitudes. Understanding oncology nurses' attitudes toward AI applications is crucial for successfully integrating AI into clinical settings.[8] The growing use of AI in nursing requires oncology nurses to be AI-literate and to maintain a positive attitude.[9] In the literature, there are studies on Turkish nurses' AI literacy and attitudes toward AI.[7,11,14–17] While some of these studies included nurses working in various wards,[7,16,17] others were conducted on specific groups working in a particular ward, such as pediatric or perioperative nurses, etc.[11,14,15] Despite the expansion of literature on AI in nursing, there is a gap in research on AI literacy and attitudes among oncology nurses. The study aimed to determine the relationship between AI literacy and attitudes toward AI of oncology nurses in Türkiye and to examine the predictive power of AI literacy on AI attitudes. It is anticipated that the findings of this study will contribute to determining AI literacy and oncology nurses' attitudes toward AI and to developing strategies to strengthen their competencies in AI use.

Materials and Methods

Study Design

The study used a descriptive-correlational design. The Strengthening the Reporting of Observational Studies in Epidemiology checklist was used to report the study[18] (Appendix 1).

Research questions were

1. What is the level of AI literacy among oncology nurses in Türkiye?
2. What is the general attitude level toward AI among oncology nurses in Türkiye?
3. Is there a significant relationship between the AI literacy levels of oncology nurses and their general attitudes toward AI?
4. Do nurses' AI literacy significantly predict their general attitudes toward AI?

Setting and Sample

This study was conducted between August and December 2025 with oncology nurses throughout Türkiye. The sample was recruited through convenience sampling. It consisted of oncology nurses who met the inclusion criteria and were actively working in oncology settings such as medical oncology or hematology wards and chemotherapy units. The inclusion criteria for participants were as follows: (a) Actively working in the field of oncology in Türkiye (e.g., medical oncology, chemotherapy unit, hematology-oncology wards, etc.); (b) ability to use a smartphone, social media, or internet to complete the online survey; and (c) voluntary agreement to participate in the study. The exclusion criteria were as follows: (a) Individuals who did not have a digital device with internet access, such as a smartphone, tablet or computer; (b) who did not have digital literacy to fill out data collection tools completely using online survey platforms; (c) the individuals wishes to terminate their voluntary participation at any stage of the research process; (d) individuals who filled out the data collection tools incompletely (20% and above).

Since no similar study in the literature addresses sample size calculation, it was assumed that a moderate correlation (r=0.30) would exist between the scores of the Artificial Intelligence Literacy Scale (AILS) and the General Attitudes toward Artificial Intelligence Scale (GAAIS) used in the study. In line with this assumption, the minimum sample size was calculated as 138 nurses using G*Power 3.1.9.4 software with 95% power and 5% type I error (α).[19] Considering a possible 10% data loss, the target sample

size was determined as 152. A post hoc power analysis was conducted based on the observed correlation between the positive attitude subscale and the total scale score (r=0.309, n=102, α=0.05, two-tailed). This post hoc power analysis (r=0.309, n=102, α=0.05, two-tailed) indicated 99% statistical power. However, because post hoc power analyses based on observed correlations have inherent limitations and do not directly reflect the power of regression models, the statistical power of regression analyses was also evaluated separately. Based on the observed model effect sizes, the achieved power was approximately 0.70 for the model predicting a negative attitude and 0.80 for the model predicting a positive attitude.

Data Collection Tools

Data were collected using a personal information form, the AILS, and the GAAIS.

Personal Information Form

The personal information form, prepared by researchers to assess individual characteristics, consists of 10 items such as age, gender, education level, marital status, and the use of AI applications.

The AILS

The AILS consists of 12 items and four sub-scales (Awareness, Usage, Evaluation, and Ethics).[1,20] Items are scored using a seven-point Likert scale (1=strongly disagree and 7=strongly agree). The lowest score on the AILS is 12, and the highest score is 84, with higher scores indicating greater AI literacy. In the Turkish validity and reliability study of the AILS, the overall Cronbach's α was 0.85.[1] In our study, the total Cronbach's α value was 0.89, 0.69 for awareness, 0.54 for usage, 0.82 for evaluation, and 0.70 for ethics.

The GAAIS

The GAAIS consists of two sub-scales: Negative attitudes toward AI and positive attitudes toward AI. Items are scored using a five-point Likert scale.[21,22] In the Turkish validity and reliability study of the scale, Cronbach's α was 0.82 for positive attitudes toward AI and 0.84 for negative attitudes toward AI.[22] In our study, Cronbach's α was 0.89 for positive attitudes toward AI and 0.82 for negative attitudes toward AI.

Data Collection

The Google Forms link containing the data collection tools was shared through email or message with hospital administrators, chief nurses, and unit nurses to ensure it reached oncology nurses throughout Türkiye. In addition, the managers of professional associations, such as the Turkish Oncology Nursing Society, were contacted to ensure that the survey link was announced in oncology nurses' WhatsApp groups. Participants who voluntarily agreed to participate were directed to the data collection tools, and the survey was terminated for those who did not indicate consent. The data collection tools comprised 42 items, with an average completion time of 15 min.

Statistical Analysis

Statistical analyses were performed using IBM Statistical Package for the Social Sciences Statistics (Version 28.0, IBM Corp, Armonk, NY). Descriptive statistics were calculated and presented as means and standard deviations for continuous variables and as frequencies and percentages for categorical variables. The normality of the data distribution was assessed using the Kolmogorov–Smirnov test, as well as skewness and kurtosis values; values between −2 and +2 were considered acceptable. A Pearson correlation analysis was conducted to examine relationships between the AILS and GAAIS subscales. Multiple linear regression analyses were performed to evaluate the predictive effects of AILS subscales on both negative attitude and positive attitude toward AI. Before regression analyses, multicollinearity among independent variables was assessed using tolerance values and the variance inflation factor (VIF). Variables were retained in the regression models if they met the following criteria: VIF values <10, tolerance values >0.20, and condition index values below 15, indicating the absence of multicollinearity. All statistical tests were evaluated at the 95% confidence interval, and $p<0.05$ was considered statistically significant. Demographic variables were not included in the regression models because the primary aim of the analysis was to examine the predictive relationship between AI literacy dimensions and attitudes toward AI. In addition, given the relatively modest sample size, limiting the number of predictors in the model helped reduce the risk of model overfitting.

Ethical Approval and Considerations

Ethical approval was obtained from the Koç University Social and Human Sciences Ethics Committee (Date: 24.07.2025, Decision no: 2025.312.IRB3.115) to conduct the research. Before participating in the study, each participant was informed about the study, provided consent, and completed the data collection tools through Google Forms. The participant's confidentiality was ensured with anonymization. The study was conducted in accordance with the Declaration of Helsinki.

Results

The study was completed with 102 oncology nurses who met the eligibility criteria. The mean age of the nurses was 37.02±8.65, the nursing experience mean was 15.41±9.24, and the oncology nurses' experience was 8.07±6.79. Most of the participants were female (96.08%). Regarding perceived information technology use, nearly half of the participants rated it as medium (47.06%), followed by good (44.12%). Regarding the use of AI in clinical practice, most participants reported not using AI (73.53%), whereas approximately one-quarter reported using it (26.47%) (Table 1). The most frequently reported purpose was the development of patient education materials (56.3%) (Fig. 1).

Based on the GAAIS score, positive attitude showed a small-to-moderate positive correlation with usage (r=0.28, p=0.042) and a moderate correlation with the AILS total scale score (r=0.33, p=0.010). Awareness demonstrated moderate positive correlations with usage (r=0.38, p=0.001), evaluation (r=0.53, p=0.011), and a strong positive correlation with the total scale (r=0.79, p<0.001). Usage was moderately associated with evaluation (r=0.37, p=0.002) and strongly associated with ethics (r=0.52, p<0.001) and the total scale (r=0.75, p<0.001). In addition, evaluation was moderately correlated with ethics (r=0.48, p<0.001) and strongly correlated with the total scale (r=0.77, p<0.001). A strong positive correlation was also observed between ethics and the total scale (r=0.73, p<0.001). No other correlations reached statistical significance after correction for multiple comparisons (Table 2).

The linear regression model examining the predictive effects of awareness, usage, evaluation, ethics, and demographic variables (age, nursing experience, and oncology experience) on negative attitude was not statistically significant (F=0.936, p=0.483), explaining a small proportion of the variance (R^2=0.065). This indicates that the predictors did not significantly explain variation in negative attitude. Only Ethics demonstrated a statistically significant association with negative attitude (B=-0.54, standard error [SE]=0.27, p=0.047), suggesting that higher ethics scores may be associated with lower negative attitudes. However, this finding should be interpreted with caution, given the non-significant overall model. Overall, the findings suggest limited explanatory power of the model, and the results should be considered exploratory, with no causal inferences drawn (Table 3).

The linear regression model examining the predictive effects of awareness, usage, evaluation, ethics, and the same demographic variables on positive attitude was statistically significant (F=3.425, p=0.003), explaining 20% of the variance (R^2=0.20). This indicates that the model significantly explains variation in positive attitudes. However, none of the primary predictors were statistically significant (p>0.05). Among the demographic variables, only age approached statistical significance (B=–0.47, SE=0.25, p=0.047), suggesting a potential negative association with positive attitude, although this did not reach conventional significance levels. Overall, while the model demonstrated significant explanatory power, no individual variable uniquely accounted for variation in positive attitude, and findings should be interpreted cautiously (Table 4).

Table 1. Sociodemographic characteristics of oncology nurses (n=102)

Variables	n	%
Age (years), Mean±SD	37.02±8.65	
Nursing experience (years), Mean±SD	15.41±9.24	
Oncology experience (years), Mean±SD	8.07±6.79	
Gender		
Female	98	96.08
Male	4	3.92
Education level		
High school	12	11.76
Associate degree	14	13.73
Bachelor	52	50.98
Master	21	20.59
Doctorate	3	2.94
Marital status		
Married	69	67.65
Single	33	32.35
Income-expense status		
Income is less than expenses	35	34.31
Income is equal to expenses	59	57.85
Income is greater than expenses	8	7.84
Perceived level of information technology use		
Poor	2	1.96
Medium	48	47.06
Good	45	44.12
Advance	7	6.86
Use of AI in clinical practice		
No	75	73.53
Yes	27	26.47

SD: Standard deviation; AI: Artificial intelligence.

Table 2. Pearson correlation matrix among GAAIS and AILS

Variables	1	2	3	4	5	6	7
GAAIS							
1. Negative attitude	–						
2. Positive attitude	0.15	–					
AILS							
3. Awareness	0.20	0.23*	–				
4. Usage	-0.03	0.28*	0.38*	–			
5. Evaluation	0.02	0.20	0.53*	0.37*	–		
6. Ethics	-0.16	0.24	0.48*	0.52*	0.4*	–	
7. Total scale	0.03	0.33*	0.79*	0.75*	0.77*	0.73*	–

*Indicates p<0.05. AILS: Artificial intelligence literacy scale; GAAIS: General attitudes toward artificial intelligence scale.

Table 3. Results for linear regression with awareness, usage, evaluation, and ethics predicting a negative attitude

Variables	B	SE	95.00% CI	β	t	p
(Intercept)	25.11	3.51	(18.15, 32.0)	0.00	7.16	<0.001
Awareness	0.12	0.18	(0.07, 0.81)	0.26	2.39	0.504
Usage	-0.05	0.23	(-0.50, 0.40)	-0.03	-0.23	0.818
Evaluation	0.10	0.18	(-0.25, 0.45)	0.06	0.57	0.572
Ethics	-0.54	0.27	(-1.09, –0.002)	-0.24	-1.99	**0.047**
Age	-0.08	0.19	(-0.45, 0.29)	-0.15	-0.43	0.662
Nursing experience (years)	0.05	0.17	(-0.29, 0.39)	0.10	0.30	0.763
Oncology experience (years)	0.13	0.10	(-0.06, 0.33)	0.19	1.32	0.190

SE: Standard error; CI: confidence interval; F=0.936; p=0.483; R^2=0.065.

Table 4. Results for linear regression with awareness, usage, evaluation, and ethics predicting positive attitude

Variables	B	SE	95.00% CI	β	t	p
(Intercept)	25.86	4.96	(16.02, 35.70)	0.00	5.22	<0.001
Awareness	0.35	0.26	(-0.17, 0.87)	0.14	1.34	0.183
Usage	0.45	0.32	(-0.19, 1.08)	0.17	1.41	0.163
Evaluation	0.12	0.25	(-0.37, 0.61)	0.05	0.49	0.628
Ethics	0.28	0.39	(-0.48, 1.05)	0.09	0.73	0.467
Age	-0.47	0.25	(-0.93, 0.01)	-0.59	-1.93	0.047
Nursing experience (years)	0.31	0.23	(-0.15, 0.75)	0.41	1.35	0.181
Oncology experience (years)	-0.12	0.13	(-0.38, 0.15)	-0.12	-0.88	0.380

SE: Standard error; CI: confidence interval; F=3,425; p=0.003; R^2=0.20.

Discussion

This study investigated the relationship between AI literacy and oncology nurses' attitudes toward AI in Türkiye and examined AI literacy's predictive power for AI attitudes. The results indicated that most nurses did not use AI in clinical practice and rated their perceived level of information technology use as moderate. It is also found that nurses use AI to develop patient education materials, identify nursing diagnoses, and plan nursing interventions. These results align with the literature.[9,17,23] Similar to our results, a recent systematic review showed that nurses have a poor level of AI knowledge.[9] Previous studies also showed that nurses use ChatGPT and AI programs to create nursing care plans, promote their personal development, and calculate medication dosages.[17,23] A study concluded that approximately half of the nurses use AI for patient

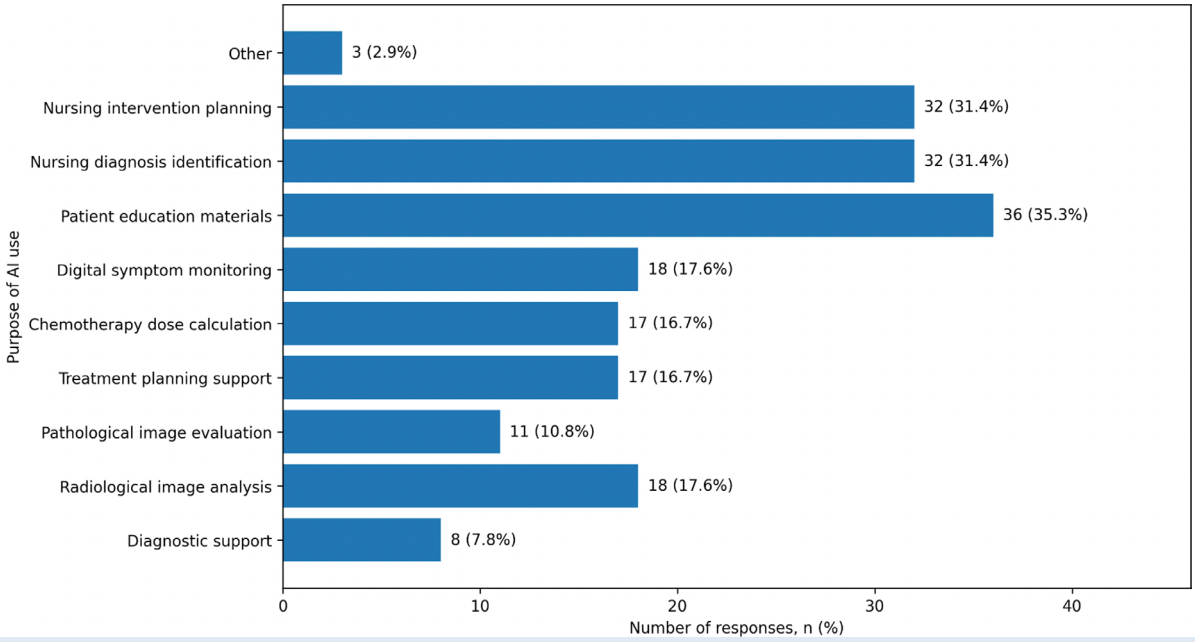


Figure 1. Purposes of AI use.

monitoring, route planning, and nursing documentation.[24] Similar to our results, a study examining nurses' attitudes toward AI in Türkiye indicated that, on average, half of the nurses were unaware of AI programs, and the majority of nurses did not use them.[17] In a cross-sectional study, nurses' attitudes toward AI technologies were also found to be moderate.[23] In this digital era, where AI is rapidly becoming widespread in healthcare delivery, knowledge and perceptions regarding AI are critical determinants of adoption, as stated in TAM.[10,25] It is recommended that nurses' use of AI should be increased and that practical training should be organized to positively influence their attitudes toward AI technologies in patient care.

In this study, the awareness, usage, evaluation, and ethics sub-scales of AILS showed strong positive correlations with the total AILS score. A strong correlation was found between ethics and usage and a moderate correlation between evaluation and the other three sub-dimensions. This may indicate that nurses who use and analytically evaluate AI have become more sensitive to ethical issues and have increased their awareness of them. However, the regression models demonstrated low explanatory power, accounting for only 9% of the variance in negative attitudes and 11% in positive attitudes. These findings suggest that although awareness, use, evaluation, and ethics are related to AI literacy, they account for only a limited proportion of nurses' attitudes toward AI. Based on these results, it is recommended that healthcare institutions, policymakers, and administrators plan technology-based training programs that holistically address awareness, evaluation, use, and ethics issues to increase nurses' AI literacy. At the same time, future studies should examine broader individual and organizational determinants to better explain variations in both positive and negative attitudes toward AI.

The findings regarding negative attitudes toward AI should be interpreted cautiously, as the overall regression model was not statistically significant and explained only a small proportion of the variance in negative attitudes. Accordingly, the results of this model should be considered exploratory rather than confirmatory. Although the ethics sub-scale score showed a significant association within the model, this finding should be interpreted with caution and not considered a robust or independent predictor of negative attitudes toward AI. Rather, it may indicate a limited association, given the model's low explanatory power. While no causal inferences can be drawn, one possible explanation is that nurses with greater ethical awareness may be more sensitive to the potential risks of AI use, including issues of accountability, data privacy, and patient safety. This heightened sensitivity may be related to more cautious or critical attitudes toward AI technologies. Previous studies have reported that nurses' negative perceptions of AI are associated with concerns about malfunctions and errors.[24] Moreover, nurses may perceive themselves as responsible for protecting patient privacy and express heightened ethical sensitivity in technology-integrated

healthcare environments.[26] AI-nursing collaboration has the potential to improve patient care, but ethical responsibilities and accountability issues remain critical considerations.[27] Given the non-significant model, these interpretations should be viewed as tentative. Therefore, future research is needed to identify additional individual, professional, and organizational factors that may better explain negative attitudes toward AI in nursing practice.

The regression analysis regarding positive attitudes toward AI revealed that the model, including the variables awareness, usage, evaluation, and ethics, was statistically significant but explained only a limited proportion of the variance in positive attitudes. However, because none of the individual predictors reached statistical significance, the regression coefficients were not interpreted individually. Our findings suggest that this pattern may indicate shared variance among the predictors, indicating that the variables capture related aspects of a broader construct and therefore contribute jointly to the model, while their unique contributions remain limited. Such situations may arise when conceptually related variables overlap in what they measure, reducing the statistical power to detect independent effects of each predictor. In addition, the relatively modest sample size may have limited the ability to detect small individual effects within the regression model. Measurement-related factors, such as conceptual proximity between the subscales and potential overlap in item content, may also have contributed to this pattern. An effective adoption and use of new technologies, which support from colleagues and organizations, are the most important factors in fostering positive experiences with AI.[28] A study emphasized that nursing students and nurses should be equipped with the knowledge and skills to safely integrate AI-assisted health technologies into practice to support care.[29] In another study, a strong positive correlation was found between knowledge and positive attitudes toward AI in healthcare, and age, gender, educational background, years of experience, attending conferences, and individuals learning about AI through research articles/journal websites were determinants for a positive attitude toward AI.[30] These findings suggest that positive attitudes toward AI may emerge from the combined influence of multiple interrelated competencies rather than a single dominant factor. Consistent with TAM, attitudes toward AI are linked to perceived ease of use and perceived usefulness. Specifically, the observed association between use (as an indicator of adoption behavior) and evaluation and positive attitudes shows that nurses develop more positive attitudes when they perceive AI as both useful and more applicable in clinical practice. Therefore, multiple factors need to be addressed to foster a positive attitude toward AI use among nurses.

This study has several limitations. First, although the priori power analysis indicated a target sample size of 152 participants, the study was completed with 102 oncology nurses who met the eligibility criteria. Therefore, the final sample remained below the initially planned size, which should be acknowledged as a methodological limitation. In addition, although a post hoc power analysis was performed, this approach has inherent limitations because it is based on observed effect sizes. Moreover, the smaller-than-planned sample size may have reduced the regression analyses' statistical power, potentially limiting the ability to detect significant relationships. As statistical power decreases with smaller sample sizes, the risk of Type II error increases, meaning that some true associations may not be identified. In addition, smaller samples may lead to less stable regression estimates, which should be considered when interpreting the non-significant findings of the regression models. In addition, the use of convenience sampling and voluntary participation may have introduced selection bias, as individuals who were more interested in or familiar with AI may have been more likely to participate. This may have influenced the study findings and should be considered when interpreting the results. Participating oncology nurses may have differed in their opportunities to access and use AI technologies, which may have influenced their responses. Finally, the internal consistency of the usage subscale of the AILS yielded a Cronbach's α of 0.54 in the present sample. Although the total scale demonstrated excellent reliability (α=0.89), the low alpha for this subscale suggests that its items may not have been perceived as measuring a unified construct within this sample. Findings derived from this subscale should therefore be interpreted with caution. Future studies are encouraged to examine the psychometric performance of this subscale across different nursing populations.

Conclusion

The study found that most oncology nurses did not use AI in clinical practice. Ethical risks were prominent in negative attitudes toward AI, while positive attitudes, although significant in a model including awareness, usage, evaluation, and ethics variables, explained only a limited portion of the variance. Given the cross-sectional design and the models' limited explanatory power, these findings should be interpreted with caution. Rather than providing

definitive recommendations, the results suggest that nurses may benefit from in-service and practical training in AI use and that supportive strategies at the institutional level could be considered to enhance AI literacy and foster more positive attitudes toward AI. Similarly, addressing ethical concerns related to AI use in patient care may be important, and policymakers and healthcare administrators could consider developing appropriate guidelines and frameworks.

Ethics Committee Approval: This study was approved by the Koç University Social and Human Sciences Ethics Committee (Date: 24.07.2025, Decision no: 2025.312.IRB3.115).

Informed Consent: Written informed consent was obtained.

Conflict of Interest: None declared.

Financial Disclosure: The authors declared that this study has received no financial support.

Use of AI for Writing Assistance: The generative AI tools like QuillBot and Grammarly were used in a limited capacity during the writing process to check grammar and improve sentence clarity.

Authorship Contributions: Concept: ZK, RSŞ, BBS, GB; Design: ZK, RSŞ, BBS, GB; Supervision: RSŞ, GB; Data collection and/or processing: ZK, RSŞ, BBS, GB; Analysis and/or interpretation: RSŞ; Literature review: ZK, BBS; Writing: ZK, RSŞ, BBS; Critical review: ZK, RSŞ, BBS, GB.

Peer-review: Double blind peer-reviewed.

References

1. Çelebi C, Yılmaz F, Demir U, Karakuş F. Artificial intelligence literacy: An adaptation study. ITALL 2023;4(2):291-306.
2. Temple S, Rowbottom C, Simpson J. Patient views on the implementation of artificial intelligence in radiotherapy. Radiography 2023;29:S112-S6. [CrossRef]
3. Hassanein S, El Arab, RA, Abdrbo A, Abu-Mahfouz MS, Gaballah MKF, Seweid MM, et al. Artificial intelligence in nursing: An integrative review of clinical and operational impacts. Front Digit Health 2025;7:1552372. [CrossRef]
4. Hamedani Z, Moradi M, Kalroozi F, Manafi Anari A, Jalalifar E, Ansari A, et al. Evaluation of acceptance, attitude, and knowledge towards artificial intelligence and its application from the point of view of physicians and nurses: A provincial survey study in Iran: A cross-sectional descriptive-analytical study. Health Sci Reports 2023;6(9):e1543. [CrossRef]
5. Alqaissi N, Qtait M. Knowledge, attitudes, practices, and barriers regarding the integration of artificial intelligence in nursing and health sciences education: a systematic review. SAGE Open Nurs 2025;2:11:23779608251374185. [CrossRef]
6. O'Connor S, Vercell A, Wong D, Yorke J, Fallatah FA, Cave L, et al. The application and use of artificial intelligence in cancer nursing: A systematic review. Eur J Oncol Nurs 2024;68:102510. [CrossRef]
7. Erkayıran O, Aslan R. Evaluation of nurses' perceptions and readiness for artificial intelligence integration in healthcare: A cross-sectional study in Turkey. J Adv Nurs 2025;0:1-13. [CrossRef]
8. AL-Olaimat K, Salameh B, Alqadi RA, Alruwaili A, Hakami M, ALanazi HH, et al. Readiness and acceptance of nursing students regarding AI-based health care technology on the training of nursing skills in Saudi Arabia: Cross-sectional study. JMIR Nurs 2025;(1):e71653. [CrossRef]
9. Sandanasamy S, McFarlane P, Okamoto Y, Couper AL. Nurses' knowledge and attitudes towards artificial intelligence and related factors: A systematic review. J Nurs Rep Clin Pract 2025;3(5):486-93. [CrossRef]
10. Davis FD. Perceived Usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly 1989;13(3):319-40. [CrossRef]
11. Subaşi DÖ, Sümengen AA, Semerci R, Şimşek E, Çakır GN, Temizsoy. Paediatric nurses' perspectives on artificial intelligence applications: A cross-sectional study of concerns, literacy levels and attitudes. J Adv Nurs 2025;81(3):1353-63. [CrossRef]
12. Yılmaz FGK, Yılmaz R. Adaptation of Artificial Intelligence Literacy Scale into Turkish. Journal of Information and Communication Technologies 2023;5(2):172-90. [CrossRef]
13. Kimiafar K, Sarbaz M, Tabatabaei SM, Ghaddaripouri K, Mousavi AS, Mehneh MR, et al. Artificial intelligence literacy among healthcare professionals and students: a systematic review. Front Health Inform 2023;12:168. [CrossRef]
14. Güneş H, Okutan Ş, Dolanbay N, Bostancı ME. Investigation of surgical nurses' anxiety and general attitudes towards artificial ıntelligence. J Basic Clin Health Sci 2025;9(3):583-92. [CrossRef]
15. Kahraman H, Akutay S, Kaçmaz HY, Taşci, S. Artificial Intelligence literacy levels of perioperative nurses: the case of Türkiye. Nurs Health Sci 2025;27(1)e70059. [CrossRef]
16. Nirgiz C, Sarı MK, Çaylı N. The relationship between nurses' anxiety and attitudes towards artificial intelligence and examination of influencing factors. BMC Nurs 2026;25(1):122. [CrossRef]
17. Tuncer GZ, Tuncer M. Investigation of nurses' general attitudes toward artificial intelligence and their perceptions of ChatGPT usage and influencing factors. Digit Health 2024;25:10:20552076241277025. [CrossRef]
18. Von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: Guidelines for reporting observational studies. Lancet 2007;370(9596):1453-7. [CrossRef]
19. Faul F, Erdfelder E, Lang AG, Buchner A. G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behav Res Methods 2007;39(2):175-91. [CrossRef]
20. Wang B, Rau PLP, Yuan T. Measuring user competence in using artificial intelligence: Validity and reliability of artificial intelligence literacy scale. Behav Inf Technol 2023;42(9):1324-37. [CrossRef]

21. Schepman A, Rodway P. Initial validation of the general attitudes towards Artificial Intelligence Scale. Comput Hum Behav Rep 2020;1:100014. [CrossRef]
22. Kaya F, Aydin F, Schepman A, Rodway P, Yetişensoy O, Kaya MD. The roles of personality traits, AI anxiety, and demographic factors in attitudes toward artificial intelligence. Int J Hum Comput Interact 2024;40(2):497-514. [CrossRef]
23. Alruwaili MM, Abuadas FH, Alsadi M, Alruwaili AN, Ramadan OME, Shaban M, et al. Exploring nurses' awareness and attitudes toward artificial intelligence: Implications for nursing practice. Digit Health 2024;10:20552076241271803. [CrossRef]
24. Sommer D, Schmidbauer, L, Wahl F. Nurses' perceptions, experience and knowledge regarding artificial intelligence: results from a cross-sectional online survey in Germany. BMC Nurs 2024;23(1):205. [CrossRef]
25. El Arab RA, Alshakihs AH, Alabdulwahab SH, Almubarak YS, Alkhalifah SS, Abdrbo A et al. Artificial intelligence in nursing: A systematic review of attitudes, literacy, readiness, and adoption intentions among nursing students and practicing nurses. Front. Digit. Health 2025;7:1666005 [CrossRef]
26. Rony MKK, Numan SM, Akter K, Tushar H, Debnath M, Johra FT, et al. Nurses' perspectives on privacy and ethical concerns regarding artificial intelligence adoption in healthcare. Heliyon 2024;10(17):36702. [CrossRef]
27. Ceviz A, Özden G. Ethical implications of artificial intelligence in intensive care: A literature review of clinical decision-making and nursing practices. J Intensive Care Nurs 2025;29(2):152-60.
28. Konttila J, Siira H, Kyngäs H, Lahtinen M, Elo S, Kääriäinen M, et al. Healthcare professionals' competence in digitalization: A systematic review. J Clin Nurs 2019;28(5-6):745-61. [CrossRef]
29. Buchanan C, Howitt ML, Wilson R, Booth RG, Risling T, Bamford M. Predicted influences of artificial intelligence on nursing education: Scoping review. JMIR Nurs 2021;4(1):e23933. [CrossRef]
30. Rony MKK, Akter K, Nesa L, Islam MT, Johra FT, Akter F, et al. Healthcare workers' knowledge and attitudes regarding artificial intelligence adoption in healthcare: A cross-sectional study. Heliyon 2024;10(23):e40775. [CrossRef]

Appendix 1. STROBE statement – Checklist of items that should be included in reports of cross-sectional studies

	Item no	Recommendation	Pages
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	1–2
Objectives	3	State specific objectives, including any prespecified hypotheses	2
Methods			
Study design	4	Present key elements of study design early in the paper	2
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	2
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	2, 3
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	3–4
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	3–4
Bias	9	Describe any efforts to address potential sources of bias	NA
Study size	10	Explain how the study size was arrived at	2–3
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	3
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	4
		(b) Describe any methods used to examine subgroups and interactions	4
		(c) Explain how missing data were addressed	4
		(d) If applicable, describe analytical methods taking account of sampling strategy	NA
		(e) Describe any sensitivity analyses	NA
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	4
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	4–5
		(b) Indicate number of participants with missing data for each variable of interest	NA
Outcome data	15*	Report numbers of outcome events or summary measures	
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	5
		(b) Report category boundaries when continuous variables were categorized	5
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	NA
Discussion			
Key results	18	Summarise key results with reference to study objectives	6–7
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	7
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	7, 8
Generalisability	21	Discuss the generalisability (external validity) of the study results	7, 8
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	COI disclosure

*Give information separately for exposed and unexposed groups. An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.