



Oxford International

**International Peer-Reviewed
Academic Journal**

Vol. 2 - No. 1
February - 2026

ISSN (Online): 3050-7618
www.oijrp.com

Research 6

Factors Influencing Nurses' Acceptance of Digital Health Technologies in Clinical Practice: A Cross-Sectional Study in Saudi Arabia

Ahmed Saeed Nasser Bin Jaber¹

Fatma Ahmed Abeed²

Nehad Ezz Aldeen Abdullah Fekry³

¹Director of Nursing, Ahad Rufaidah General Hospital, Asir Health Cluster, Saudi Arabia, aljabeer77@gmail.com

² Professor of Nursing Administration, Faculty of Nursing, Cairo University, Fatma_abed66@yahoo.com

³ Professor of Nursing Administration, Faculty of Nursing, Cairo University, Nehad_fekry@hotmail.com

Abstract

Background: Digital transformation is reshaping healthcare delivery worldwide, with nurses playing a central role in the successful implementation of digital health technologies. **Aim:** This study aimed to identify the factors influencing nurses' acceptance of digitalization in nursing care. **Methods:** A descriptive cross-sectional design was used. The study was conducted at Ahad Rofidah Hospital, affiliated with the Ministry of Health of Saudi Arabia. A convenience sample of all staff nurses having six months of experience composed the study sample (180 nurses). Two main tools were formulated pertained to this study. Descriptive statistics, inferential tests, and correlation analysis were used to examine predictors of acceptance. **Results:** The study revealed that most participants were male (52.7%), aged 20–25 years (32.1%), Saudi nationals (70.1%), held a bachelor's degree in nursing (66.3%), and had 5–10 years of experience (60.3%). Overall, nurses demonstrated a high level of acceptance of digital health technologies. Age was the only demographic variable significantly associated with digital acceptance ($p < 0.001$). Nurses acknowledged training requirements and skill demands as key barriers, but did not perceive digitalization as a threat to professional ethics or patient privacy. **Conclusion:** Nurses generally accept digitalization in clinical practice; however, acceptance varies significantly by age. Tailored training programs and age-sensitive implementation strategies are essential to ensure equitable and sustainable adoption of digital health technologies. Healthcare organizations should enhance nursing performance and communication by leveraging digital technologies while addressing challenges through comprehensive training and user-friendly systems.

Keywords: Acceptance, Clinical, Digital, Health, Healthcare, Nurses, Practice, Technology

Introduction

The increasing adoption of digital technologies has had a significant impact on the nursing profession in recent years. Digitalization has transformed various aspects of nursing care, leading to improved patient outcomes, enhanced efficiency, and better overall healthcare delivery (Muñoz et al., 2022). Modern technology in nursing practice is the application of organized knowledge and skills in the form of devices, medicines, vaccines, procedures, and systems developed to solve a health problem and improve the quality of life. Implementation of modern technology in health care has become a global trend. The effect of global changes, especially the rise of new diseases like the Coronavirus, Ebola virus, Lassa fever, and so on, has led to an increase in the development of technologies in nursing practice to combat the new challenges (Olorunfemi et al., 2020).

The digitalization of health care delivery has brought up a new relationship for nurses: the nurse and technology relationship. Although technology cannot replace compassionate inpatient care, it is defined as a unique competence expected to be acquired in nursing. This competence, believed to be developed through informatics expertise and health informatics solutions, is a significant opportunity to improve health care quality. In addition to keeping the patient's information wholly and accurately, health informatics has made it possible to access this information easily and quickly. This ease of access positively impacts correct decision-making, reduces medical errors, and supports evidence-based practices. It is also known that health information systems that provide easy access to nursing care plans enhance satisfaction in nurses (Yilmaztürk, Kose & Cece, 2023).

While the integration of digital technologies in nursing care has brought numerous benefits, it has also raised concerns about patient privacy, data security, and the potential for technology to replace human interaction. Nurses must balance the advantages of digitalization with the need to maintain a patient-centered, compassionate approach to healthcare delivery (Han et al., 2023). The technology adoption and acceptance behavior shown by nursing staff represents a key outcome within the corpus of studies examining digital transformation processes in health care. But aside from the surrounding discourse of factors causing a successful or an unsuccessful adoption or implementation of technology, few research exists broaching the issue of consequences of digital transformation for nurses' professional identity or relations of power to colleagues and patients, although the interaction with digital technologies in clinical environments becomes a significant part of nurses' daily work routines (Garnett et al., 2022). As these work routines change, nurses become aware of a technology-infused way to deliver care.

In particular, concerns arise that the digitization of nursing seems to shift the interaction between nurse and patient from a direct, bodily interaction to an indirect, machine-driven one (Knop et al., 2020), resulting from technologies' ability to create digital reflections of the patient (e.g., telehealth) and, therefore, an artificial distance between nurse and patient. This interactional work, which is at the core of nursing and greatly contributes to nurses' identity, thus gets complemented by new job demands beyond interpersonal solicitude and professional knowledge, that is, the appropriate and effective use of digital technology intended to support nursing processes (Hack-Polay et al., 2023).

The study aimed to identify the factors influencing nurses' acceptance of digitalization in nursing care

Methodology

Study design and participants

A descriptive exploratory cross-sectional research design was utilized in the current study. The study was conducted at Ahad Rofidah Hospital, affiliated with the Ministry of Health of Saudi Arabia, and offers both free and paid healthcare services for a range of diseases. It consists of (2) floors with a total capacity of (100 beds). A convenient sample of all staff nurses having six months of experience will compose the study sample (about 184 nurses).

Study measures

The researcher developed two tools to collect data for the present study:

Tool (1): Nurse' Personal characteristics data sheet: it was developed by the investigator and included age, gender, level of education, years of experience, and training courses.

Tool (2): Digitalization Acceptance Questionnaire:

The tool was developed by the investigator after an extensive review of related literature guided by Bayomee, Mohammed, & Elmwafy. (2020). It is used to explore nurses' opinions regarding the use of digitalization in nursing care and was translated into the Arabic language. It consisted of 35 items, which were divided into two parts. The first part was concerned with the positive aspects of using digitalization in patient nursing care. It included 19 items, and the second part was concerned with the negative aspects of using digitalization in patient nursing care. It included 16 items. Scoring system: Staff nurse responses were measured against -point Likert scale ranging from (1) for " disagree, (2) for "neutral and (3) for " agree.

Scoring system: Staff nurse responses were measured against 3-point Likert scale ranging from (1) for "disagree, (2) for "neutral and (3) for "agree. The use of a three-point Likert scale in the present study was methodologically justified to enhance clarity and ease of response among staff nurses, reduce respondent burden, and minimize ambiguity in item interpretation. The score of items was summed up and converted into percentage scores. The staff nurse's acceptance is considered High acceptance if the percent score is more than 50%, Moderate acceptance if the percent score ranges from 35 to 50%, and low acceptance if the percent score is less than 35%.

Validity and reliability

Content validity of the developed tool was established by three experts in the nursing education specialty from the Faculty of Nursing, Cairo University. They were asked to assess the questionnaire for its content coverage, appropriateness, clarity of sentences, sequence of items, length, format, and face validity. Reliability of the questionnaires was tested using Cronbach's alpha coefficient analysis, and the value was 0.75.

Ethical Considerations

Official permission to conduct the proposed study was obtained from the research ethics committee at the Faculty of Nursing, Cairo University. Then, official permissions were obtained from the medical manager and the nursing director of the selected hospital to conduct the study. Participation in this study was entirely voluntary; each participant had the right to accept or refuse participation in the study. Informed consent was obtained after an explanation of the aim and nature of the study from the study participants. Anonymity and confidentiality are assured through the coding of the data, and each participant has the right to withdraw from the study at any time. Participants were assured that this data would not be reused in another research without permission. The data collected were used for research purposes only.

Procedure

Once official permission was granted to proceed with the proposed study, the researcher started to collect data through two phases: preparation and implementation. The preparatory phase involved the preparation of the study tools through a literature review and examining the tools for content validity and reliability.

Implementation phase

Once permission was granted to proceed with the proposed study, a letter from the faculty of nursing, Cairo University, was sent to the directors of the selected study setting seeking their official approval for collecting data. Upon receiving the approval of hospital directors, the investigator contacted the manager of each department to get permission, then contacted the participant nurses, explained to them the nature and

and the purpose of the study, invited them to voluntarily participate, and gained their acceptance by formal written consent and filled out the Nurses' Personal Characteristics Data Sheet (Tool 1).

The Digitalization Acceptance Questionnaire (Tool 2) was distributed individually by the investigator to nurses in their working units while they were on duty. Some participants received the questionnaires at the beginning of the shift, with instructions on how they fill and then they were collected at the end of the shift for those who were busy or just after filling for those filled them out.

Statistical Analysis

Upon completion of data collection through the previously mentioned tools, the data were coded, entered into a computerized database, and analyzed using the statistical package for the social sciences (SPSS), program version 22. Descriptive statistics were used to present the data pertinent to the study in the form of frequency and percentage distribution, mean, and standard deviation. Appropriate inferential statistical tests were used to examine the difference and relationship between study tool variables. The significance level of all statistical analyses was ≤ 0.05 (P-value).

Results

The Results of this Study are presented in three Sections:

Section I: Nurses' Personal Data

Table (1): Frequency and Percentage Distribution of Study Sample Nurses According to Personal Characteristics (n= 184).

Characteristics	Categories	No	%
Gender	Male	97	52.7
	Female	87	47.3
Age	20- >25	59	32.1
	26- >30	45	24.5
	30 ->40	57	31.0
	40 and above	23	12.5
Nationality	Saudi	129	70.1
	Egyptian	11	6.0
	Sudanese	2	1.1
	Filipino	30	16.3
	Indian	7	3.8
	Tunisian	3	1.6
Qualification	Bachelor of Nursing	122	66.3
	Technical Institute of Nursing	6	3.3
	Postgraduate Studies	30	16.3
	Other	26	14.1
Years of Experience	5-10	111	60.3
	10-20	56	30.4
	20 and above	17	9.2
Years of experience in the same unit	5-10	139	75.5
	10-20	29	15.8
	20 and above	16	8.7
	Total	184	100

Table 1 shows that 52.7% of the sample were males, while 47.3% were females. In terms of age groups, the highest percentage of the nurses were 32.1% (59 participants) in the age group 20 to >25 years old, 24.5% (45 participants) were aged between 26 and >30 years, 31.0% (57 participants) were aged between 30 and >40 years, and 12.5% (23 participants) were aged 40 years and above. Regarding nationality, the biggest number (129) were Saudi, followed by Filipinos at (30), while the least number were Sudanese (2 nurses).

For educational qualifications, the majority of participants held a Bachelor's degree in Nursing at 66.3% (122 participants), followed by those with postgraduate studies at 16.3% (30 participants). The remaining participants were graduates of Nursing Technical Institutes (3.3%) and other qualifications (14.1%). Regarding years of experience, participants with 5 to 10 years of experience were the majority at 60.3% (111 participants), followed by those with 10 to 20 years of experience at 30.4% (56 participants), and those with more than 20 years of experience at 9.2% (17 participants).

Finally, for years of experience in the same unit, the majority had 5 to 10 years of experience at 75.5% (139 participants), followed by those with 10 to 20 years at 15.8% (29 participants), and those with more than 20 years at 8.7% (16 participants).

Section II: Part I- Nurses' Level of Digital Acceptance in Patient Care

Table (2): Frequency and Percentage Distribution of Nurses' Level of Digital Acceptance in Nursing Care of Patients (n= 184)

N	Item	Agree N / %	Neutral N / %	Disagree N / %	Mean	SD
1.	Enhance nursing performance through work task organization.	178 / 96.7	6 / 3.3	0 / 0	2.97	0.178
2.	Improvement of nurses' knowledge and skills that allow a higher level of competence in nurses.	175 / 95.1	9 / 4.9	0 / 0	2.95	0.216
3.	Strengthen the nurse's professional role among others	169 / 91.8	14 / 7.6	1 / 0.5	2.91	0.301

4.	Increase the reliability of the data documented	174 / 94.6	10 / 5.4	0 / 0	2.95	0.227
5.	Enhancing nurse communication with other health team members	176 / 95.7	8 / 4.3	0 / 0	2.96	0.204
6.	Help to compensate for the shortage of nurses	151 / 82.1	25 / 13.6	8 / 4.3	2.78	0.511
7.	Save costs for the practice in the long run	160 / 87	24 / 13	0 / 0	2.87	0.338
8.	Create more time for patient care	165 / 89.7	17 / 9.2	2 / 1.1	2.89	0.351
9.	Reduce the time nurses spend on paperwork	172 / 93.5	11 / 6	1 / 0.5	2.93	0.227
10.	Improve the privacy and security of confidential patient information	176 / 95.7	6 / 3.3	2 / 1	2.95	0.271
11.	Increase Health Awareness and Education about the patients	168 / 91.3	16 / 8.7	0 / 0	2.91	0.283
12.	Improve nurses' ability to track medication history	174 / 94.6	9 / 4.9	1 / 0.5	2.94	0.260
13.	Enhance medical research and development	175 / 95.1	9 / 4.9	0 / 0	2.95	0.216
14.	Establish a coordinated care management system for patients	174 / 94.6	10 / 5.4	0 / 0	2.95	0.227
15.	Enhance patient data completeness	176 / 95.7	8 / 4.3	0 / 0	2.96	0.204
16.	Patient's information is always updated	175 / 95.1	9 / 4.9	0 / 0	2.95	0.216
17.	Improve the quality of patient care.	171 / 92.9	13 / 7.1	0 / 0	2.93	0.257
18.	Ensuring nurse work satisfaction	161 / 87.5	22 / 12	1 / 0.5	2.87	0.354
19.	Making patients more satisfied with their healthcare experience.	168 / 91.3	16 / 8.7	0 / 0	2.91	0.283

Table 2 shows that the majority of nurses demonstrated a high level of acceptance of digital health technologies. A majority of studied sample agreed that digital tools enhance nursing performance, enhancing nurse communication with other of health team, improve privacy and security of confidential patient information, improve patient data completeness, and increase reliability of the data documented, with percentages of 96.7%, 95.7%, 95.7%, and 94.6% respectively with mean scores of 2.97 ± 0.178 , 2.96 ± 0.204 , 2.95 ± 0.271 , 2.96 ± 0.204 and 2.95 ± 0.227 respectively.

Part II- Nurses' Perceived Barriers to Digital Acceptance in Patient Care

Table (3): Frequency and Percentage Distribution of Nurses' Perceived Barriers to Digital Acceptance in Nursing Care of Patients (n= 184)

N	Item	Agree N / %	Neutral N / %	Disagree N / %	Mean	SD
1.	Increase errors of health team personnel through the misinterpretation of data provided by machines	31 / 16.8	50 / 27.6	103 / 56	1.161	0.760
2.	Increase nurses' psychological stress and burnout	42 / 22.8	33 / 17.9	109 / 59.2	1.64	0.832
3.	Increase Health and physical risks for nurses	40 / 21.7	31 / 16.8	113 / 61.4	1.60	0.823
4.	Restrict the autonomy of nurses in deciding by increasing dependence on other health care professionals	44 / 23.9	38 / 20.7	102 / 55.4	1.68	0.835
5.	Requires high-level and more qualified skills	53 / 28.8	30 / 16.3	101 / 54.9	1.74	0.879
6.	Increase the nurse's workload	48 / 26.1	31 / 16.8	105 / 57.1	1.69	0.860
7.	Compromising nurses' professional ethics	31 / 16.9	24 / 13	129 / 70.1	1.47	0.768
8.	It is impractical because behavioral health information cannot be captured by checkboxes and dropdown lists	39 / 21.2	32 / 17.4	113 / 61.4	1.60	0.817

9.	Require more training	70 / 38	24 / 13	90 / 48.9	1.89	0.929
10.	Difficult because nurse practice lacks the technological expertise to implement.	43 / 23.3	27 / 14.7	114 / 62	1.161	0.842
11.	Negatively influence treatment plans	34 / 18.5	28 / 15.2	122 / 66.3	1.52	0.789
12.	Disrupt nurses' relationships with their clients	34 / 18.5	33 / 17.9	117 / 63.6	1.55	0.788
13.	Be resisted by staff at the practice	47 / 25.5	32 / 17.4	105 / 57.1	1.68	0.855
14.	Increase the violation of patient privacy	35 / 19	26 / 14.1	123 / 66.8	1.52	0.796
15.	High cost of digitalization in healthcare	47 / 25.6	35 / 19	102 / 55.4	1.70	0.851
16.	Increase nurses' legal vulnerability	45 / 24.4	29 / 15.8	110 / 59.8	1.65	0.849

Table 3 indicates that nurses identified several barriers to digital acceptance. The highest levels of agreement are for issues related to requiring more training, requiring high and more qualified skills, and the high cost of digitalization in healthcare, in percentages of 38%, 28.8% and 25.6% respectively. In contrast, Nurses also showed high levels of disagreement regarding digitalization compromising nurses' professional ethics, increasing the violation of patient privacy, and negatively influencing treatment plans in percentages of 70.1%, 66.8% and 66.3% respectively.

Section III: Factors Influencing Digital Acceptance

Table (4): Correlation between nurses' personal data and their acceptance of digitalization

Variable	Correlation	Sig. (2-tailed)
Gender	1.00	0.038
Age	0.154	0.000
Nationality	0.526	0.318
Qualification	0.074	0.296
Years of Experience	0.009	0.902
Years of experience in the same unit	0.193	0.009

Table 4 indicated that revealed that age was significantly associated with nurses' acceptance of digitalization ($p < 0.000$). Older nurses demonstrated comparatively lower acceptance levels than younger nurses. No statistically significant relationships were found between acceptance and gender, nationality, educational qualification, or years of experience.

Although the study aimed to explore factors affecting staff nurses' acceptance, regression analysis was not performed due to the exploratory nature of the study and the limited response scale. Therefore, correlation analysis was used to identify significant associations that may guide future predictive research.

Discussion

This chapter discusses the results of the current study compared with recent literature and other related studies. It also explains to what extent the results of the present study supported or contradicted the results of others. The present study aimed to explore staff nurses' opinions about the use of digitalization in nursing care in Saudi Arabia.

The current study results revealed a relatively balanced gender distribution, with males comprising 52.7% and females 47.3%. While nursing has traditionally been a female-dominated profession globally, recent local studies show mixed gender patterns depending on the context and setting. This finding is in agreement with that of Tagreed, (2025) who studied Quality of Nursing Care of Patients under Mechanical Ventilation in Intensive Care Unit and reported nearly equal representation of male and female nurses (49% male and 51% female), highlighting an evolving gender composition in some clinical environments.

Examining the age distribution, the largest percentage of nurses (32.1%) fell within the 20- to 25-year age group, suggesting a relatively young workforce in this particular study. This contrasts with findings by Smiley et al. (2025) in the US, which reported the median age of registered nurses to be 46 years, indicating a potentially younger nursing demographic in the studied population compared to the US.

In terms of nationality, the majority of nurses in this study were Saudi nationals, with smaller proportions of Filipino and Sudanese nurses. This aligns with national efforts under Vision 2030 and health sector transformation initiatives to increase the representation of Saudi nurses in the healthcare workforce. Although broader national data indicate ongoing diversity and regional inequalities in nurse distribution, the trend toward higher localization within specific facilities remains evident (Kattan & Al-Hanawi, 2025).

Regarding qualification, the majority of the nurses (66.3%) held a Bachelor of Nursing degree, followed by those with postgraduate studies (16.3%). This suggests a generally well-educated nursing workforce in the study. This finding is in agreement with that of Tagreed, (2025) who reported 64.7% of studied sample held bachelor's degrees. Recent trends in nursing education, as highlighted by the American Association of Colleges of Nursing (AACN) in April 2024, show an increasing preference and requirement for baccalaureate-prepared nurses, indicating the growing importance of higher education in the nursing profession globally.

Regarding years of professional experience, the largest group had between 5 and 10 years of experience (60.3%), followed by those with 10–20 years (30.4%). A considerable proportion was also relatively experienced within their current units. This finding is in agreement with that of Tagreed, (2025) who reported (64.7%) of the

of the studied sample had 1-5 years of experience in ICU. These findings on experience levels are crucial for understanding the skill mix and potential mentorship opportunities within the nursing teams in the study. Recent studies have emphasized the importance of experienced nurses in mentoring new entrants, especially given concerns about potential shortfalls due to retirements in some regions, as noted in the WHO's May 2025 report.

The current results showed that the majority of nurses demonstrated a high level of acceptance of digital health technologies, as evidenced by the overwhelmingly positive agreement across multiple dimensions of technology utility. These findings suggest a strong overall endorsement of digitalization, reflecting nurses' recognition of its practical benefits in clinical settings. These results are consistent with recent literature demonstrating that healthcare professionals, including nurses, generally hold positive perceptions toward digital health technologies. For instance, Jarva et al., (2022) who studied and reported that nurses believe these systems enhance workflow efficiency and support safer, more accurate documentation, which are key contributors to technology acceptance.

Also, Ismail, Mamdouh, Mohamed, & Said, (2025) Conducted a study titled Digital Nurses' Competencies in Relation to Patient Safety and Teamwork Communication and found a significant positive correlation between nurses' digital competencies, patient safety, and teamwork communication. They also emphasized the importance of technology in modern healthcare settings.

Moreover, the integration of digital tools can lead to significant time and cost savings. Research conducted by Volkan, Köse, Cece & Elmas (2024) about Analysis of the effect of digital hospital efforts on paper savings in inpatient procedures and on the duration of nursing care services indicates that digitalizing forms and administrative tasks can free up nurses' time, allowing them to focus more on direct patient care. This efficiency not only reduces the workload on nurses but also contributes to increased job satisfaction. The adoption of telehealth and remote monitoring technologies has also expanded the scope of nursing practice, enabling nurses to provide care to patients in various settings and improving overall accessibility to healthcare services.

The current results revealed that nurses identified several key barriers to digital acceptance, with the highest levels of agreement being for issues related to the need for more training (38%), requirement for more highly qualified skills (28.8%), and the high cost of digitalization in healthcare (25.6%). These results align with existing literature emphasizing insufficient training and skill gaps as major obstacles to the adoption of digital health technologies. A systematic review of digital nursing technologies identified insufficient training, increased workload, and low technological confidence as recurrent barriers that negatively impact nurses' ability to integrate new digital tools into practice (Walzer et al., 2025).

The current study showed that the identified barriers, particularly training and skill requirements, indicate that resistance to digitalization reflects a need for organizational support rather than rejection of technology. Structured training, continuous technical assistance, and user-friendly system design are essential to enhance acceptance across age groups. Additionally, nurses reported concerns about potential data misinterpretation, increased stress and burnout, and reduced professional autonomy, highlighting the importance of careful implementation and sustained support to minimize the negative impacts of digitalization.

The data also reveals that nurses are worried about the potential for increased psychological stress and burnout associated with digitalization. The integration of new technologies into clinical practice can create additional workload and pressure on nurses, who may already be facing demanding work environments. Studies have shown that the learning curve associated with new technologies, coupled with concerns about technical malfunctions and data security, can contribute to increased stress levels among nurses. Healthcare organizations must address these concerns by providing sufficient resources, training, and ongoing support to help nurses adapt to the digital transformation.

Study results indicated that age is the only demographic variable significantly correlated with nurses' acceptance of digitalization in patient care. Specifically, older nurses were more likely to express different opinions about the use of digital technologies compared to their younger colleagues. This finding is consistent with some previous research that has explored the relationship between age and technology adoption among healthcare professionals.

Several studies have suggested that younger nurses, often referred to as "digital natives," tend to be more comfortable and proficient with technology, which may influence their perceptions of digitalization in healthcare. They've grown up with digital tools and may see them as integral to efficient and effective patient care. On the other hand, older nurses who may have less exposure to technology in their formative years might express more reservations or face more challenges in adapting to digital systems. This can shape their opinions on the benefits and drawbacks of digitalization in their daily practice.

However, it's important to note that the relationship between age and technology acceptance is complex and not always consistent across all studies. Some research has shown that with proper training and support, older adults, including healthcare professionals, can successfully adopt and utilize digital technologies. Therefore, the significant correlation between age and opinions on digitalization in this study highlights the need for tailored interventions and training programs that address the specific concerns and needs of nurses across different age groups.

The fact that gender, nationality, qualification, and years of experience (both overall and in the same unit) did not show a significant correlation with nurses' opinions suggests that these factors do not play a substantial role in shaping their views on digitalization. This could imply that nurses' perceptions of digital technologies are more influenced by their personal experiences, training, and exposure to these tools in their professional practice, rather than by these demographic variables. However, further research with larger and more diverse samples may be needed to confirm these findings and explore other potential factors that may influence nurses' attitudes towards digitalization.

Conclusion

Nurses in the studied setting demonstrate a high level of acceptance of digital health technologies. However, acceptance varies significantly by age, underscoring the need for age-sensitive digital transformation strategies. Addressing training needs and providing tailored support can enhance nurses' engagement with digital systems and promote sustainable integration into nursing practice.

Recommendations

Designing age-appropriate digital training programs can be a good idea to help the acceptance of technology among older nurses. However, embedding digital skills development in nursing education at all stages would be a great professional development strategy. Consistent technical help should be available to lower anxiety and raise self-assurance in one's abilities to operate digital systems. Incorporating nurses as co-designers and testers of the systems can be a powerful way to raise the level of comfort and approbation of these tools.

Funding

The study received no financing from public, commercial, or non-profit entities.

Availability statement

The corresponding author may obtain data substantiating the study's conclusions upon a reasonable request.

Conflicts of interest

The authors declare no conflicts of interest related to this article.

References

- Bayomee, R. M., Mohammed, M. A., & Elmwafy, R. I. (2020). Nurses' perception regarding utilization of information technology at primary health care centers in Port Said city. *Port said scientific journal of nursing*, 7(3), 140-157. DOI: 10.1007/s10389-017-0890-4
- Garnett, A., Connelly, D., Yous, M.-L., Hung, L., Snobelen, N., Hay, M., Furlan-Craievich, C., Snelgrove, S., Babcock, M., Ripley, J., Hamilton, P., Sturdy-Smith, C., & O'Connell, M. (2022). Nurse-led virtual delivery of PIECES in Canadian long-term care homes to support the care of older adults experiencing responsive behaviors during COVID-19: Qualitative descriptive study. *JMIR Nursing*, 5(1), e42731. <https://doi.org/10.2196/42731>
- Hack-Polay, D., Mahmoud, A. B., Ikafa, I., Rahman, M., Kordowicz, M., & Verde, J. M. (2023). Steering resilience in nursing practice: Examining the impact of digital innovations and enhanced emotional training on nurse competencies. *Technovation*, 120, 102549. <https://doi.org/10.1016/j.technovation.2022>.
- Han, Y., Xu, Y., Liu, J., & Aparna, P. (2023). Integrating artificial intelligence in nursing practice: Challenges and strategies. *International Journal of Environmental Research and Public Health*, 20(4), 3274 DOI: 10.1093/ijnp/pyae059.489.
- Jayousi, S., Barchielli, C., Alaimo, M., Caputo, S., Paffetti, M., Zoppi, P., & Mucchi, L. (2024). ICT in Nursing and Patient Healthcare Management: Scoping Review and Case Studies. *Sensors*, 24(10), 3129. <https://doi.org/10.3390/s24103129>.
- Knop, M., Mueller, M., Freude, H., Rensing, C., & Niehaves, B. (2020). Perceived limitations of telemedicine from a phenomenological perspective. In A. DOI:10.18690/978-961-286-362-3.9
- Muñoz, R., Oliván-Blázquez, B., Magallón-Botaya, R., & Gea-Caballero, V. (2022). Digitalization in nursing: A scoping review. *International Journal of Environmental Research and Public Health*, 19(9), 5541. <https://www.scjn.gob.mx/sites/default/files/donaciones/documento/2023-01/Convenio-Donacion-SCJN-FCE-2022.pdf>.
- Olorunfemi, Olaolorunpo¹; Osunde, Ngozi Rosemary²; Olorunfemi, Omotayo Mercy³; Adams, Sherifat⁴. Assessing Nurses' Attitudes toward the Use of Modern Technology to Care for Patients at Selected Public and Private Hospitals, Benin-City, Nigeria, 2020. *International Archives of Health Sciences* 7(3): 143-148, July-September 2020. | DOI: 10.4103/iahs.iahs_25_20
- Smiley, Richard A.Kaminski-Ozturk, NicoleReid, MichaelaBurwell, PatriciaOliveira, Carrie Shobo, YettyAllgeyer, Richard L.Zhong, ElizabethO'Hara, Charlie Volk, AudreyMartin, Brendan, et al. (2025). The 2024 National Nursing Workforce Survey, *Journal of Nursing Regulation*, Volume 16, Issue 1, S1 - S88. <https://nmibon.info/wp-content/uploads/2025/04/piis215582562500047x.pdf>.
- Volkan, E., Köse, İ., Cece, S., & Elmas, Ö. (2024). Analysis of the effect of digital hospital efforts on paper savings in inpatient procedures and on the duration of nursing care services. *Frontiers in Digital Health*, 6, 1367149. <https://doi.org/10.3389/fdgth.2024.1367149>.
- Yilmaztürk, N., Kose, İ. & Cece, S. The effect of digitalization of nursing forms in ICUs on time and cost. *BMC Nurs* 22, 201 (2023). <https://doi.org/10.1186/s12912-023-01333-6>
- Tagreed Musaad AlQutami, (2025). Quality of Nursing Care of Patients under Mechanical Ventilation in Intensive Care Unit in Taif City, Saudi Arabia in 2024. *MAR Nursing and Patient Care*, 01(01).
- Kattan, W., Al-Hanawi, M.K. Inequalities in the distribution of the nursing workforce in the Kingdom of Saudi Arabia: a regional analysis. *Hum Resour Health* 23, 34 (2025). <https://doi.org/10.1186/s12960-025-01010-6>
- Walzer S, Armbruster C, Mahler S, Farin-Glattacker E, Kunze C. Factors Influencing the Implementation and Adoption of Digital Nursing Technologies: Systematic Umbrella Review. *J Med Internet Res*. 2025 Jul 31;27:e64616. doi: 10.2196/64616. PMID: 40743516; PMCID: PMC12355146.
- Jarva E, Oikarinen A, Andersson J, Tuomikoski AM, Kääriäinen M, Meriläinen M, Mikkonen K. Healthcare professionals' perceptions of digital health competence: A qualitative descriptive study. *Nurs Open*. 2022 Mar;9(2):1379-1393. doi: 10.1002/nop2.1184. Epub 2022 Jan 30. PMID: 35094493; PMCID: PMC8859079.



International Journal of
Research and Publishing

International Peer-Reviewed Academic Journal

Volume 2 | Issue 1 | Compilation 1.0



International Journal of Research and Publish

2026

www.ojrp.com

ISSN-3050-7618