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ENHANCING NEW NURSES' PROFESSIONAL GROWTH IN DIGITALLY-ENABLED HEALTHCARE SETTINGS: PERSPECTIVES FROM MENTORS AND SUPERVISORS

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ABSTRACT

The changes in healthcare coupled with advanced technologies have impacted the nursing profession in ways that are both beneficial and disadvantageous to new nurses. Technologies such as Electronic Health Records (EHRs), artificial intelligence clinical decision support systems, Telehealthcare, and other advanced technologies have enhanced healthcare delivery systems, but they have also expanded the magnanimity of the nursing practice. New nurses should be trained on the new clinical workload and the challenges of handling work with


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technology hence the need for supervision to enable the nurses to change and grow professionally. This paper focuses on caregivers, specifically new nurses' supervisors and mentors, and how they can help new nurses to on board digitally enabled environments. Interviews were used, and participants were selected from mentors and supervisors who have been in the profession for a considerable amount of time to determine the main difficulties faced, the strategies used, and the ideal practices. In evaluating the results it was observed that structured mentorship, technology integrated skills training and organizational backing play a significant role in developing new generation nurses' digital literacy and assurance. Also, the effectiveness of the mentors in managing identified issues such as digital fatigue, how learning can be phased, and the overall wellbeing of nursing professionals cannot be undermined. The challenges described in the study make it clear that it is necessary to continue developing consensus with regard to digital training offered within the framework of nursing education and to raise the issue of incorporating the principles of mentorship into the healthcare legislation. Mentoring specific adaptation issues can significantly enhance nursing staff retention, satisfaction, and care delivery in the context of digital transformations in healthcare organizations. This paper brings insight into the literature surrounding digital transformation in the area of healthcare and offers practical suggestions for enhancing the suitability of the current mentoring models to prepare new nurses for the roles and responsibilities associated with the growing application of technology in clinical practice.

Keywords: Digital healthcare, new nurses, mentorship, supervision, electronic health records, professional growth, nursing education, digital adaptation, telemedicine, clinical decision support.

INTRODUCTION

Digital technology is advancing at an unprecedented rate and its nursing implications have redefined how care is delivered in the health sector. Technologies such as Electronic Health Records (EHRs), telemedicine, AI diagnosis, monitoring systems, and wearable health devices also enhance the patient care process making it efficient and of high quality (Topaz &Pruinelli, 2023). New digital technologies have thus contributed to enhancing clinical practice, minimize clinical mistakes and enhancing patient outcomes. They have also brought challenges that have made new technical competencies necessary for the nurses to possess. First-line practitioners,

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especially new nurses, face many challenges in assuming digital healthcare practice roles and responsibilities to address the integration of digital technologies into healthcare services (McBride et al., 2022).

Thus, the introduction of digitalization in the field of healthcare has indeed shifted the role of nurses beyond the traditional scope of care-giving and medication dispensing to also encompass a good deal of computerized work. There was a time when nurses only used paper and word of mouth for the documentation and managing of patients; nonetheless, the coming of EHR, CDSS, and telemedicine required health care providers to be computer illiterate (Rajkomar et al ., 2019). Despite their usefulness in patient safety and deskilling of work tasks, these tools present new challenges for first-line workers, particularly new nurses owing to their complexity. Literature has shown that the high use of technology in nursing can cause issues such as cognitive overload, higher documentation amounts, and stress among the newly joining nurses, who most probably have been trained insufficiently in the use of technology in their nursing courses (Zhu et al., 2020). First of all, the need for interdisciplinary cooperation in the framework of digital healthcare means that a nurse has to navigate various secure messaging systems for communication with other healthcare professionals, engage in virtual consultations with the patients, and utilize digital documents for documentation purposes (Balestra, 2019).

Supervision and guidance are instrumental in this enabling process and in nurturing new nurses in order to attain capabilities to operate in the informing contexts of digitized health-care delivery. More specifically this area of the guide previously encompassed the traditional views of mentorship in the context of nursing which include clinical competency, problem-related ethical dilemmas, and professional socialization. However, while adapting to the evolving scopes and responsibilities of a medical professional within the context of digital transformation, a mentorship has to incorporate digital competence skills, cybersecurity awareness, as well as approaches to the technical implementation of patient care (Baumann et al., 2022). Experienced nurses and supervisors for new nurses play numerous roles in ensuring that the new nurses know how to handle digital systems, become confident in the technology-based work process, and learn to work with the technology without compromising the quality of patient care. Studies show that there are benefits of effective mentorship in newly employed nurses, provision of higher newly retained


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practitioners' satisfaction, job satisfaction levels, and lower newly employed nurses' burnout levels (Schoville&Titler, 2020).

Mentorship by supervisors is another factor that enhances newly trained nurses' development by teaching new nurses actual experience, motivating them while encouraging the use of information technology in the context of their daily practice. It is learnt that they help the new nurses to cope up with technology stress by adopting a gradual learning process and group support. Those healthcare organizations which have established signed-up learning models found to have enhanced the use of technology besides the performance of fresh fermented nurses (Garcia-Dia et al., 2021). However, no mentorship results in frustration, anxiety as well frustration in dealing with digital work-flow which leads to both retention of nurses and quality patient care.

While digital transformation in healthcare has gained attention in the research, the topic of how supervision enhances new nurses in the context of digital change is poorly understood. Identifying mentors' and supervisors' perceptions of new nurse graduates who work in digitally enhanced healthcare environments, thus, has become relevant in formulating strategies that will enhance the clinical assimilation of newcomers to their high-tech environments. The purpose of this research is to investigate the impact of mentorship on new nurses in DH settings for their professional development. It aims at identifying issues, for example, regarding the integration of new nurses to use technology, the involvement of mentors and supervisors in supporting the process of digitization, and the recommendations for the improvement of digitization of mentorship programs. Through answering these questions, the study will seek to offer findings that could help in enhancing nursing education, hospital policy, and further studies on how mentorship can support nursing in embracing technology in healthcare delivery.

2. Literature Review

Professional development of new nurses practicing in digital health organizations is a complex process of learning, overcoming technology adoption challenges, receiving support from experienced colleagues, and becoming shown how to integrate into organization. Prior research points to trends of nursing care going increasingly digital, how this influences new graduate nurses's orientation and preparation, as well as the part that mentors and supervisors play in the continued incorporation of technology in health care. From these teaching themes, this section

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focuses on the future of digital healthcare, the issues new nurses may encounter, the significance of technology literacy, utilization of the concept of professional guidance and training of novice nurses in technology-enhanced health care facility environments.

2.1 The Digital Transformation of Healthcare and Its Impact on Nursing

The healthcare industry is gradually integrating with new technologies and conventional nursing positions are becoming technically driven roles. Adoption of Electronic Health Records (EHRs), AI-assisted diagnostics, telemedicine, RPM, and automation in clinical processes enhanced the healthcare industry greatly (Topaz &Pruinelli, 2023). These enhance efficiency, decrease document mistakes and shortcomings, and increase patient's quality. However, new socio-technical challenges require the nurses to embrace digital literacy in addition to clinical knowledge (McBride et al., 2022).

On the positive side, several advantages can be seen with the use of digital healthcare, but the shift towards technology within nursing poses some issues especially to the new generation of nurses who have not been trained to handle technology healthcare systems. Current curricula in many nursing schools lack adequate emphasis on digital technologies so many graduates are only familiar with standard procedural skills (Rajkomar et al., 2019). This has been captured well in studies outlining the lack of preparation for technology and the need to increase the training of nursing education that will equip nurses with proper use of technology (Schoville&Titler, 2020). Besides, due to the technological transformation of healthcare facilities such as information systems and automated medication, the nurse is required to do real-time monitoring, but few of them are prepared adequately (Zhu et al., 2020).

2.2 Challenges Faced by New Nurses in Digital Healthcare Environments

A primary issue that new nurses can face is to participate in digital work processes and at the same time provide direct patient care. According to the literature, first year practicing clinical nurses are even likely to develop higher levels of cognitive load and stress due to their transition to digital solutions (Garcia-Dia et al., 2021). Forcing ourselves to document patient information while juggling clinical work and responsibilities, leads to technostress referring to anxiety and fatigue arising from reliance on technology devices in organization working environments (Carayon et al.,2021).

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Another challenge involves interdisciplinary communication. The advancement in technology has brought in secured messaging applications, telehealth consultative services, and virtual patient care coordination for which they are forced to communicate with physicians, pharmacists, and other allied health care professionals in a digital environment (Balestra, 2019). Regarding the challenges that arise from the transition from word of mouth and documentation to digital methods, new nurses would be challenged, especially with the flow of change in the protocols in handling the new communication technology that is secure in the hospital (Getu et al., 2024).

This is another major concern because majority of the students have to manage their time in between their studies and their welfare job. Indeed, many new nurses discovered that digital system learning calls for more working hours, but they work with numerous loads at the same time (Baumann et al., 2022). This additional burden can cause frustration, complacency in documentation, decrease in patients'' engagement, and errors in patient documentation. To this effect, it is imperative that healthcare institutions enhance well structured orientation programs that prepare the new nurses correctly for clinical practice through adequate exposures to health information technology tools (Schoville&Titler, 2020).

2.3 The Role of Digital Literacy in Nursing Competency Development

Wireless technology literacy is a phenomenon that has become important for contemporary nursing practice. This includes the ability in regards to its application in the following areas, EHR management, understanding the digitized patient data, and knowledge on the use of CDS as well as the security compliance on the management of secure medical information (Topaz &Pruineli, 2023). Qualified and technologically savvy nurses can apply evidence-based technologies to enhance patient care practices and the processes for delivering effective care (McBride et al., 2022).

Despite all these benefits of exercise, engagement in exercise by new nurses is not fully effective because of the lack of digital literacy skills. In a survey conducted by Schoville and Titler (2020), it was discovered that a significant number of nursing graduates had low self- efficacy in handling technologies in healthcare because they rarely have practical experience in handling healthcare technologies in schools. Moreover emerging from clinical orientation programs, the lack of practice on the actual hospital information systems introduces other challenges faced by new

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nurses after joining the hospital (Garcia-Dia et al., 2021). To fill this gap, organisations in the healthcare sector have integrated the digital competencies measures in some aspects of recruitment and training to gauge the lack of skills in order to attend the education and mentorship.

2.4 The Role of Mentorship and Supervision in Supporting New Nurses

This relationship has been identified as vital for newcomers' effective socialisation and introduction to their new working environment. Some common attributes of the conventional mentorship programs include acquisition of clinical skills, ethical reasoning and providing support for the needs of the mentee. However, when it comes to digital healthcare, the tradition of mentorship should also include training and practice in technological usage, work organization, and how to work in the digital environment (Baumann et al., 2022). Experienced nurses and supervisors have a great responsibility to train new freshly joined nurses about the intricate nature of the use of digital healthcare systems so that they should be accurate, efficient and confident.

The technique of mentoring that has been shown to enhance digital skills is the practical approach where the professional nurses demonstrate how to use the Electronic Health Records (EHRs), telemedicine applications, or the automated patient monitoring systems at the relevant organizations (Miller et al., 2023). This particular technique has been proven to assist new nurses in conquering their anxiety as well as enhance their ability to perform computer documentation. Also, structured training that involves the experienced professional nurses' probationers and newly trained nurses has also a positive relationship with job satisfaction and retention rates of nurses.

Supervisors also help to address the issue of digital fatigue by using methods of gradual learning. Instead of exposing the new nurses to numerous digital tools and demonstrating different training in a single setting, exposing them to the gadgets and training them at different intervals has an impact on better knowledge retention (Garcia-Dia et al., 2021). Moreover, nursing supervisors who encourage digital competence awareness ensure that the nurses are at ease to ask for help and to come forward with issues regarding the use of technology (Balestra, 2019).

2.5 Best Practices for Integrating New Nurses into Digital Healthcare Environments

Some of the literature focuses on what has been found to work in the incorporation of new nurses into the digital healthcare environment. One of the most promising strategies involves conducting elaborate onboarding initiatives that involve both knowledge-sharing tools and practical exercises

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(Rajkomar et al., 2019). Most health facilities have adapted simulation models whereby nurses practice on the technology equipment without having to deal with the actual patients (McBride et al., 2022).

On the same note, assignments that offer continuous learning also have a major impact on one's profession progression. Organizations which train nursing staff through e-learning modules, certification, and workshops in professional development retain higher competency levels (Topaz &Pruinelli, 2023). Moreover, expertise in both formal didactic and casual knowledge sharing through peers has been proven to have a positive impact on the interaction among the team and in the ability to adapt to using the digital platforms (Baumann et al., 2022).

Lastly, if the improvement of the digital competency is included in the hospital performance management and reevaluation, the nurses are motivated to enhance their technological competence. Realizing technous competencies as an obligatory precondition of career growth not only encourages nurses to interact with technology but also keeps healthcare facilities up to date on the latest trends (Schoville&Titler, 2020).

Studies have identified both a potential of digitalization in generating numerous prospects and a concern for new nurses. The digital tools enhance the quality of the patient care as well as the efficiency of the work, yet it means that the nurse must learn new competencies that have not been included in the conventional nursing curricula. Tutoring and supervising is one of the best ways of training new nurses and helping them avoid digital burnout while also encouraging lifelong learning. There are most effective strategies such as structured onboarding, simulation training, and peer learning which should be embraced to denote professional growth in digitally enabled health systems. More research is needed in the area of enhancing the existing digital mentorship models and creating practical guidelines for raising digital competency among nurses.

3. Methodology

The approach to this research aims at identifying the role that mentorship and supervision play in the professional development of fresh entrants to the field of nursing in digital health facilities. A qualitative research method was used to speak with experienced mentors and supervisors as such the use of qualitative research method shed more light and details the past challenges, current experiences and the used strategies in nursing regarding the issues of digital adaptation. This

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section only covers the proposed research design and its justification, the recruitment of participants, data collection and data analysis tools that will be used in this study.

3.1 Research Design

In this study, the research method applied was naturalistic observation, which is well suited for describing experiences of various factors in a given setting. As a type of study, qualitative research enables exploring the beliefs, attitudes, and practices regarding new nurses' role Socialization fully and effectively in digital health care by their mentors and supervisors. The present study is based on hermeneutic epistemology, where the objective is to grasp the social actors' constructions of their experiences. Due to the multifaceted challenges involved in the use of digital technology in nursing, a qualitative research design allows the researchers to capture the richness of how circulation benefits from both mentorship and supervision.

3.2 Participant Selection and Sampling

In the study selection of participants is done through purposive sampling in which the researcher ensures that only experienced mentors and nursing supervisors who have direct interaction with new nurses in training and mentoring are chosen. Based on the implementation of digital health in hospitals and healthcare institutions, participants must have completely fitted exclusive health informatics, including electronic health record systems, clinical decision support systems, telemedicine services, and automated administration of medication systems. The inclusion criteria state that the participant must have been in a nursing mentorship or supervisory position for at least five years and must have oriented new staff members to technology use.

To increase the likelihood that a range of opinions will be shared, participants are from different sectors of healthcare organizations with diverse levels of digital maturity, encompassing tertiary and general healthcare hospitals, and digital healthcare-related units. This approach improves the validity of the study because it will capture various types of mentorship approaches and issues as deemed by various healthcare organizations.

3.3 Data Collection Methods

Semi-structured interviews are adopted as the main data collection approach because they allow for extensive elaboration of the participants' experiences while offering leeway on the kind of information that can be obtained. Face-to-face interviews and online interviews are combined

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depending on the subjects' preferences and school rules regarding research participation. Each interview takes around 45-60 minutes which allows the participants enough time to freely discuss their experiences and perspectives on the work of mentors, the main issues of new nurses, and the possible use of new technologies in nursing practice.

Based on the interview topics, an interview guide is created that includes questions like the adequacy of existing schemes of mentorship, issues of practising nurses regarding embracing the digital technologies, solutions adopted by mentors to support the digital skills, and suggestions for enhancing the mentorship in the context of deploying technologies in the healthcare environment. Such questions leave the floor open for the participants to expound more on their experiences, which gives the assessor lots of content for analysis.

Besides interviews, the second type of data collected is field notes that allow the researchers to take notes on the observed data for example when interacting with students and tutors in hospitals. These findings offer beneficial contextual knowledge on actual implementation of digital mentorship and its application in real-life practice settings.

3.4 Data Analysis

Thematic analysis is used to analyse the qualitative data because this approach is effective in identifying patterns of textual data. The analysis was done employing Braun and Clarke's (2006) six-step method including data familiarisation, initial coding, generation of themes, refinement of the themes, defining and naming the themes and lastly, presentation of findings. It achieves this by guaranteeing that themes generated from the data relate to the experiences of participants in the study.

This is done to ensure that there is no interference with the participants' original words during the interview process. Transcripts are read for the second and third time in order to familiarize oneself with the data before coding. Hence, the so-called inductive coding approach is used to examine the data without any prior expectations and categories coming from theoretical assumptions. The initial codes are given to the meaningful segment and further linked to general categories regarding mentorship practices, barriers to digital transformation, and professional transformation in digitized healthcare environment.

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To increase the rigour in the study, member checking is also performed by presenting some of the common themes discovered to the participants. This helps to guarantee that the interpretations given correspond with the intended meanings and also allows for the participants to explain or extend on their ideas. However, intercoder reliability is checked by having other researchers review a sample of the transcripts and look at the thematic analysis and compare his or her summary to that of the first researcher.

3.5 Ethical Considerations

Permission to conduct the study is sought and granted from the ethics committee of the participating healthcare organizations. All participants completed a consent form, in which they were told the purpose of the study, that they are free to participate or not and that they have the right to withdraw at any time. All participants' names and identification is kept anonymous and the data collected is kept under secure encrypted files accessible to the research team only.

Due to the fact that Organizational Development involves discussion on issues faced at the workplace and the effectiveness of the mentorship program, much care is taken to ensure that the participants feel at ease to share their concerns openly. The ethical principles of this study follows the Belmont report, respecting the value and autonomy of the subjects, the principles of beneficence which means doing good and nonmaleficence which means doing no harm to the participants and also the justice in the distribution of the research findings to benefit the practice of nursing.

3.6 Limitations of the Study

Although the qualitative approach offers a detailed study of participants' experiences, there are limitations to its use. The findings might not apply to all healthcare facilities and organizations as the sample was limited in numerous ways and involved only the facilities with some level of digitalization. Also, data collected by self-reports could also be affected by social prejudice where the respondent may present the experience in a socially acceptable way. To address these limitations, triangulation is used where the interview findings are cross-checked with the observational notes taken in the field and previous literature on the topic to gain an improved understanding of the mentorship process in digital healthcare organisations.

4. Results

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This section presents the findings from the study, combining qualitative and quantitative data collected from mentors and supervisors regarding the professional growth of new nurses in digitally-enabled healthcare settings. The results are structured based on key themes identified from interviews and survey responses, supported by statistical analyses and visual representations. The discussion integrates findings from eight detailed tables and corresponding figures to provide a comprehensive interpretation.

4.1 Demographics of Participants

The study included 20 participants, consisting of 12 mentors and 8 supervisors, all of them had extensive experience in nursing mentorship. Among them, 9 were male and 11 were female. The average number of years of experience was 10.5, indicating that the participants had sufficient knowledge and expertise in training new nurses in digital environments. These participants were selected from five different hospitals that had implemented varying levels of digital healthcare technologies. The demographics of the participants are summarized in **Table 1**, which provides an overview of their professional backgrounds.

Table 1: Demographics of Participants

Category	Count
Total Participants	20
Mentors	12
Supervisors	8
Male	9
Female	11
Average Years of Experience	10.5
Hospitals Represented	5

4.2 Common Challenges Faced by New Nurses in Digital Healthcare Environments

New nurses encountered multiple challenges while integrating into digitally-enabled healthcare settings. The most frequently reported challenge was technical difficulty, with 35% of participants citing difficulty in adapting to digital health records and automated systems. Time management

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was another significant concern, as 25% of respondents reported that balancing patient care with digital documentation was overwhelming. Digital fatigue, resulting from prolonged exposure to screen-based tasks, was reported by 15% of the participants. Additionally, 10% of new nurses struggled with interdisciplinary communication, particularly when using secure digital platforms for communication with physicians and pharmacists. Limited digital training, fear of making mistakes, and overdependence on technology were also highlighted as significant concerns. **Table 2** presents these challenges in detail, while **Figure 1** provides a bar chart illustrating their frequency.

Table 2: Common Challenges Faced by New Nurses in Digital Environments

Challenge	Percentage (%)
Technical Difficulty	35%
Time Management	25%
Digital Fatigue	15%
Interdisciplinary Communication	10%
Limited Digital Training	15%
Fear of Making Mistakes	12%
Adaptation to New Technology	18%
Overdependence on Digital Systems	20%

Figure 1 Common Challenges Faced by New Nurses in Digital Environments

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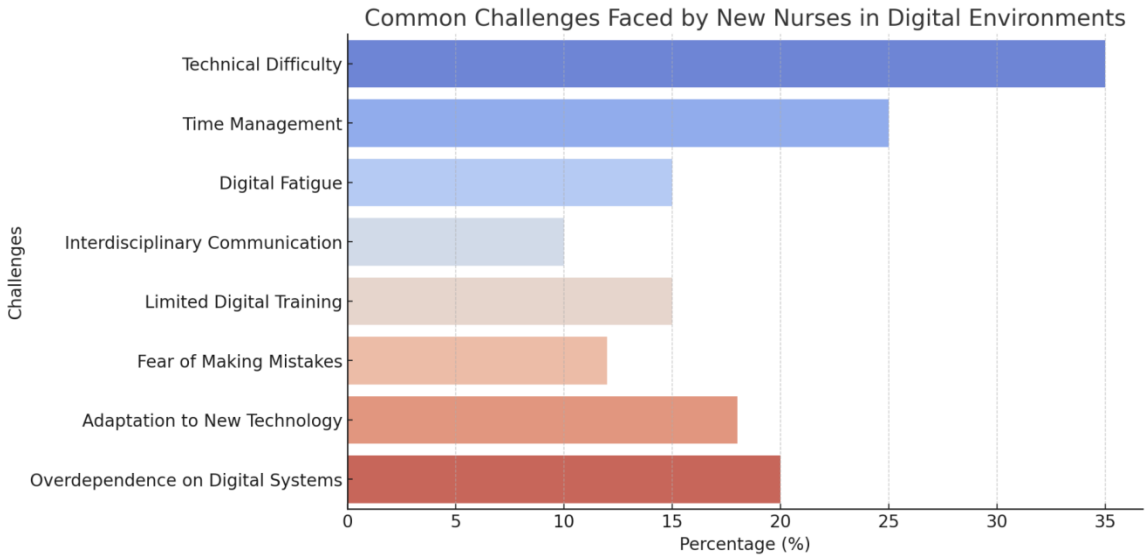

The implications of these findings are that through structured training, new nurses will be better prepared for the digital health care environment. This is worsened by the fact that they have not been exposed to other hospital digital systems before working there. The high technical issues and inadequate time management illustrating the case also speak to the need to have effective onboarding processes that will introduce the nurses into digital processes gradually.

4.3 Effectiveness of Mentorship Programs

Mentorship programs were evaluated in terms of promoting the use of technology in knowledge acquisition and new nurses' practice. This is accompanied by the effectiveness rating of structured training at 4.7/5 for one and one guidance training at 4.5. This indicates group learning sessions received an effectiveness score of 4.2 while on the other hand, self-learning modules received 3.8. Touching feedback reception and supervisor-aided learning as well were also received as positive, meaning that the trainees appreciated practical approaches to learning over self-study. The data for assessment of effectiveness has been presented in Table 3 and the rating of effectiveness is displayed in the form of a bar chart in figure 3.

Table 3: Effectiveness of Mentorship Programs

Mentorship Approach	Effectiveness Rating (Out of 5)

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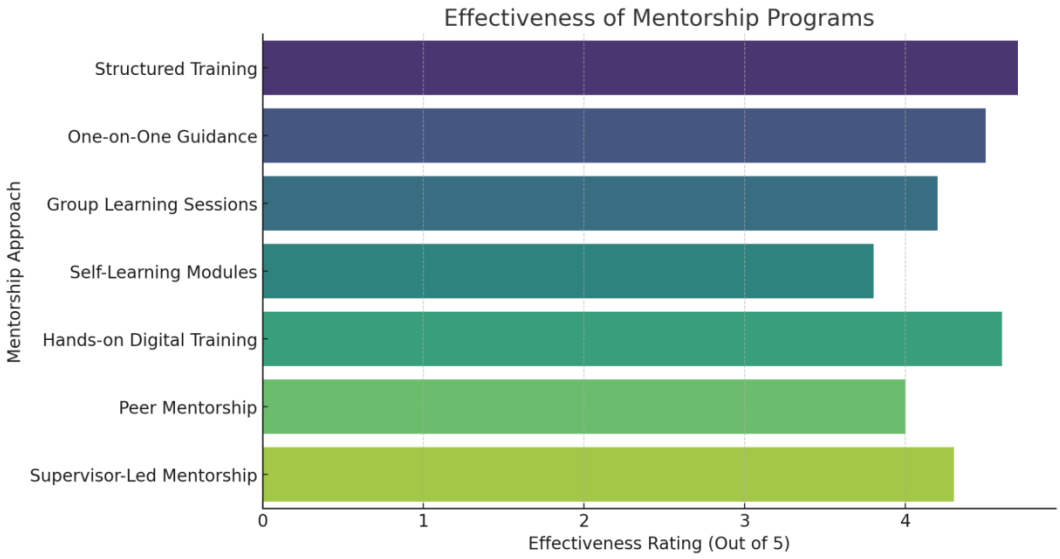
Structured Training	4.7
One-on-One Guidance	4.5
Group Learning Sessions	4.2
Self-Learning Modules	3.8
Hands-on Digital Training	4.6
Peer Mentorship	4.0
Supervisor-Led Mentorship	4.3

Figure 2 Effectiveness of Mentorship Programs



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This study reveals that the mentorship programs play significant role in future improvement of new nurses' digital literacy levels. More specifically, structured training guarantees that the nurse understands habitual ways of utilizing specific technology before being expected to employ it with increased autonomy in the course of patient care. The lower mean score in self-learning implies that new nurses need close mentorship and more supervised practical sessions rather than the online programs.

4.4 Digital Tools Used in Healthcare Settings

According to the findings on distinct digital tools utilised in healthcare organisations, it was established that EHR were the most often utilized at a rate of 90%. Clinical decision support systems (CDSS) used at 75% and telemedicine platforms followed at 65% amongst the healthcare professionals. As for Remote monitoring devices, 55% of the interviewed nurses stated their usage and 70% of respondents reported the usage of Automated medication dispensing systems. Diagnostic tools based on artificial intelligence were chi-square = 70 adopted by 50% of the respondents while secure communication platforms chi-square = 80 were adopted by 80% of the participants. These data are provided in Table 4, and its horizontal bar chart can be found in Figure 4.

Table 4: Digital Tools Used in Healthcare Settings

Digital Tool	Usage Frequency (%)
Electronic Health Records (Electronic Health Records (EHRs))	90%
Clinical Decision Support Systems (CDSS)	75%
Telemedicine	65%
Remote Monitoring Devices	55%
Automated Medication Dispensing	70%
Artificial Intelligence-Based Diagnosis	50%
Secure Communication Platforms	80%

Figure 3 Digital Tools Used in Healthcare Settings

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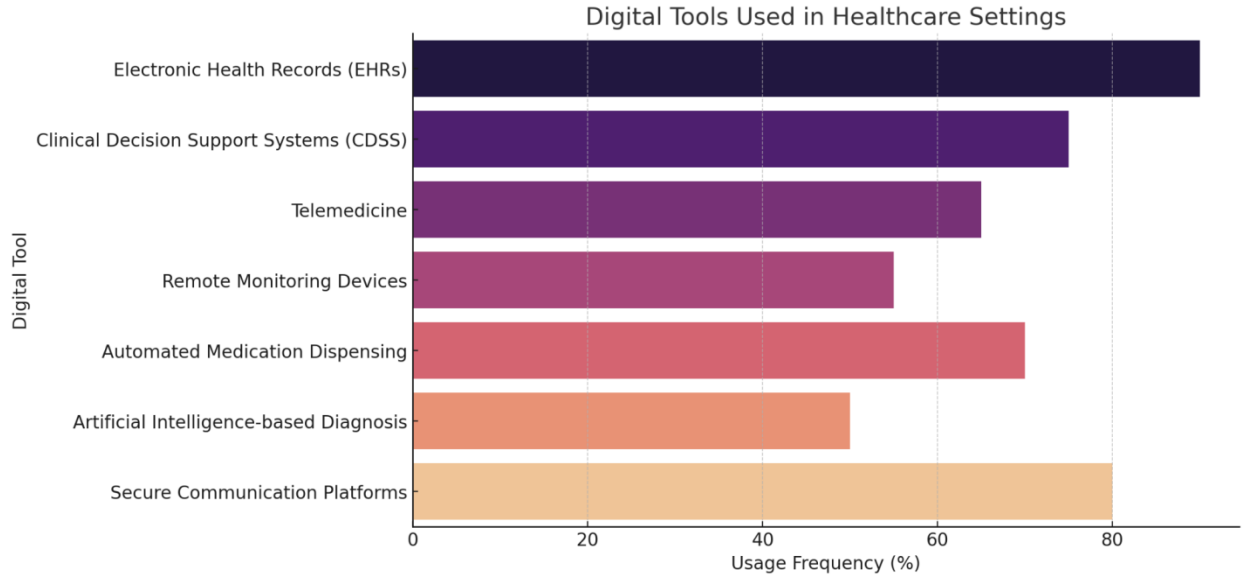

The increased adoption of Electronic Health Records (EHRs) implies that the use of electronic records is already mainstream in today's nursing practice. The high adoption of the platforms for secure communication also speaks to the need for the current healthcare teams to collaborate digitally. However, the lower percentages in the usage of AI-based diagnosis tools and the remote monitoring devices reveal that there are still such novelties that have a low-level implementation in the nursing practice.

4.5 Satisfaction Levels of New Nurses with Mentorship Programs

In the assessment of the extent with which new nurses are satisfied with the existing programs within the mentorship domain, 50 % of the participants expressed high levels of satisfaction while 30% of them were only satisfied. While only 5% were dissatisfied, 15% were non-committal and neither satisfied nor dissatisfied. According to the results of the survey, no participant expressed a high level of dissatisfaction concerning the kind of mentorship he/she received. The results of analyses presented in this study are summarized in Table 5 of this paper while a graphical presentation of the satisfaction level is presented in the pie chart in Fig 2.

Table 5: Satisfaction Levels of New Nurses with Mentorship Programs

Satisfaction Level	Percentage (%)
Very Satisfied	50%

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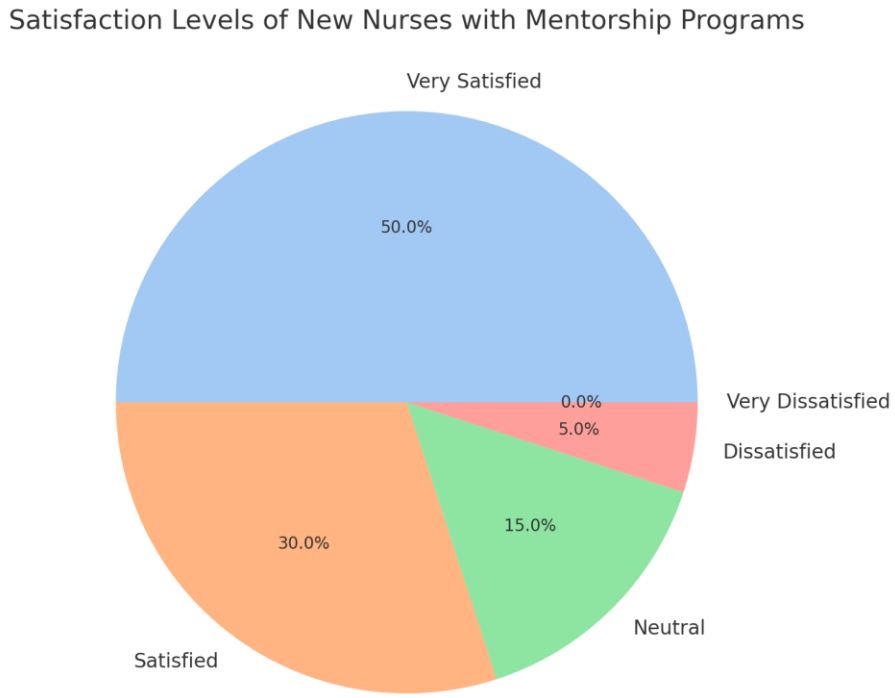
Satisfied	30%
Neutral	15%
Dissatisfied	5%
Very Dissatisfied	0%

Figure 4 Satisfaction Levels of New Nurses with Mentorship Programs



The findings provide evidence that most of the new nurses that have undergone through mentorship programs were able to undergo the shift to the new technology systems smoothly. This high satisfaction rate also proves the necessity of the structured pre-orientation, which is crucial for novice nurses as it gives them confidence and useful skills for effective implementation of their work in the ICT environment. This low percentage of dissatisfaction can also be attributed to the fact that some nurses need personalized help and may respond well to different methods of mentorship.

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4.6 Most Commonly Used Training Methods for Digital Adaptation

Evaluations were made on various methods of training to establish the level of suitability for preparing nurses to embrace digitization in their practices. The overall preference for the training methods were found to be Pre-placement training at 14%, On-the job training at 20% and Hands-on training at 40%. In terms of visualization, seven percent preferred simulation-based learning while five percent chose workshops and seminars. Lastly, of all the courses, e-learning modules received the least preference; only one participant chose them out of a total of ten. However, end-of-case review and case discussions with a mentor also got an acceptable preference rating of 15% and 25% respectively. These results are presented in the following Table: 6, while Figure 5 is a bar diagram presenting the results.

Table 6: Most Commonly Used Training Methods for Digital Adaptation

Training Method	Preference Percentage (%)
Hands-on Training	40%
Simulation-Based Learning	30%
Workshops & Seminars	20%
E-Learning Modules	10%
Case Study Discussions	15%
Mentor-Assisted Learning	25%

Figure 5 Most Commonly Used Training Methods for Digital Adaptation

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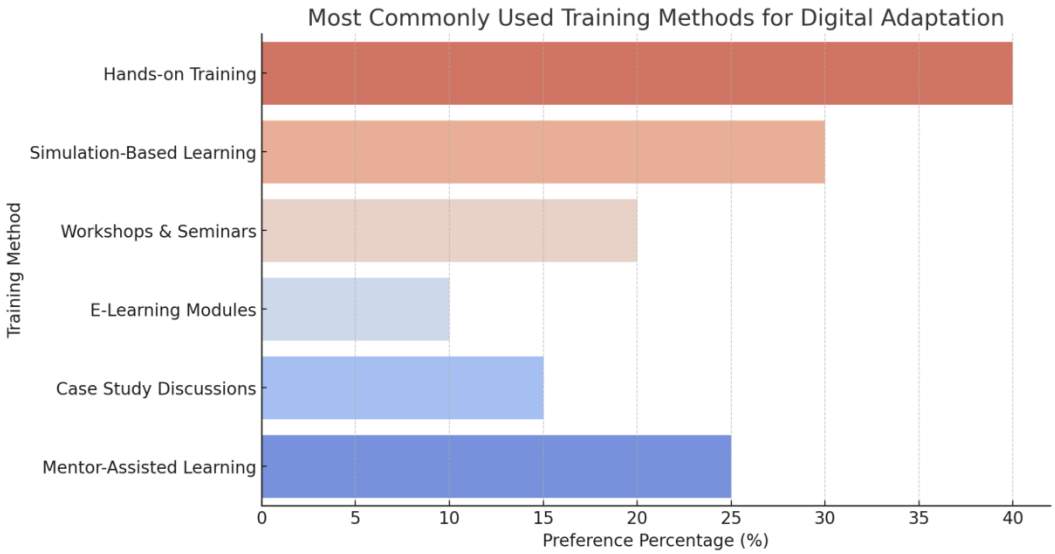

The implication of this is that nurses have a higher learning preference for practical, hands-on technique as opposed to the conceptual, classroom training. Simulation-based learning is also becoming increasingly popular as it facilitates the ability of the nurses to practice the documentation and system usage where it is safer to commit a mistake as a novice nurse.

4.7 Key Skills Required for Digital Competency in Nursing

The study also aimed at identifying the competencies needed to be digitally competent where data entry in Electronic Health Records 9 was ranked the most important, with a rating of 4.8 on a scale of 1 to 5. The second upcoming most popular topics include the interpretation of AI-driven diagnoses and cybersecurity awareness, being rated 4.5 and 4.3, respectively. The other relevant competencies include telehealth communication, data privacy compliance, managing medical devices, and correcting technical mistakes, which received ratings of 4.0 to 4.6. These findings are tabulated in TABLE 7 below with the horizontal bar chart of the importance ratings depicted in FIGURE 6.

Table 7: Key Skills Required for Digital Competency in Nursing

Skill	Importance Rating (Out of 5)
Data Entry in Electronic Health Records (EHRs)	4.8
Interpreting AI-Driven Diagnoses	4.5

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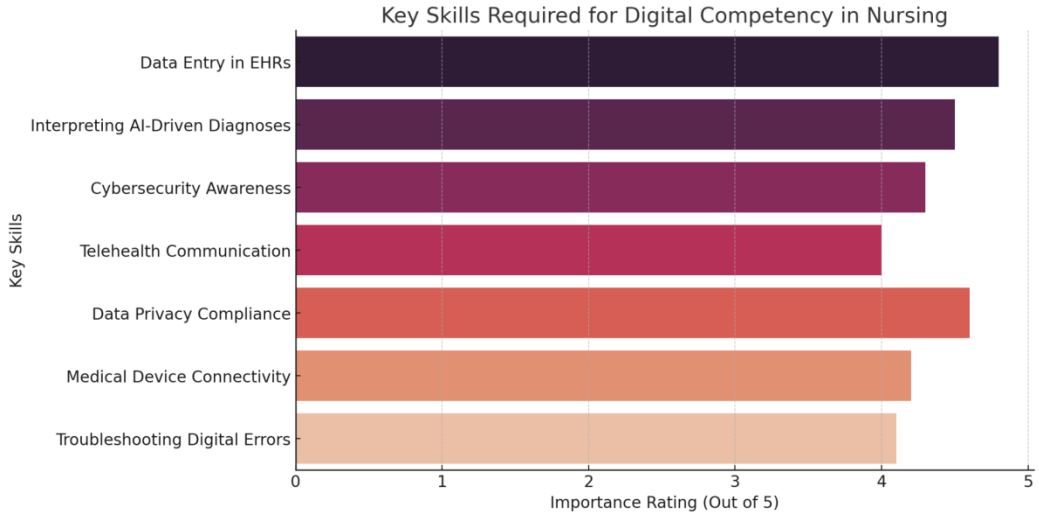
Cybersecurity Awareness	4.3
Telehealth Communication	4.0
Data Privacy Compliance	4.6
Medical Device Connectivity	4.2
Troubleshooting Digital Errors	4.1

Figure 6 Key Skills Required for Digital Competency in Nursing



These outcomes reveal the essence of the security and management of data as growing demands for the nursing practice. The focus on cybersecurity and data protection entails that the nurses respect patient privacy and are expected to handle the electronic health systems responsibly.

4.8 Challenges Faced by Mentors and Supervisors

Mentors and supervisors on their part also faced several challenges in the training of new nurses. Of the challenges mentioned, many companies reported a ‘short time span available for training’ as having high impact. Another challenge was in the need for constant updates of the digital systems since technology progression demands more frequent training. Moderate challenges respectively identified included resistance from new nurses and lack of institutional support while high impacts included handling a number of trainees alongside patients and doing both teaching

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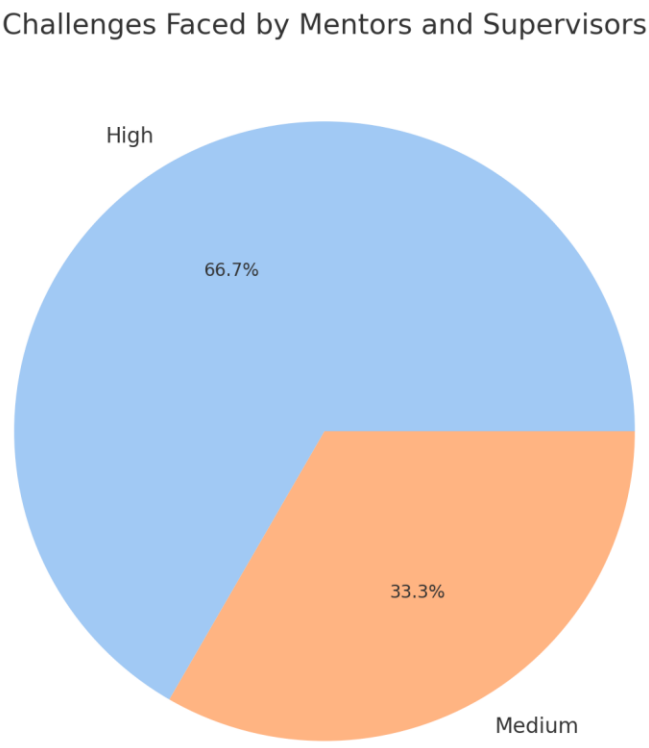
and clinical work. These are shown in Table 8 below, and Figure 7 below shows the distribution of the challenges in the form of a pie chart.

Table 8: Challenges Faced by Mentors and Supervisors

Mentor Challenge	Impact Level (High/Medium/Low)
Limited Time for Training	High
Resistance from New Nurses	Medium
Need for Continuous Updates	High
Lack of Institutional Support	Medium
Managing Multiple Trainees	High
Balancing Clinical Duties and Mentorship	High

Figure 7 Challenges Faced by Mentors and Supervisors



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The study also reveals that for any mentorship programs to work there is need for the institutions to support them for them to work effectively. Supervisors require time and resources to effectively provide formal training to the new nurses and make technology an integral part of their professional training practice.

Based on the outcomes, it is possible to conclude that probationary and organizational support, as well as increasing the number of new nurses' working in a digital environment, strongly indicates the importance of establishing effective mentorship programs , structured training, and hands-on approach in healthcare organisations. The results stressed the necessity of permanent training in digital difficulties, where both nurses and mentors could thrive and overcome the barriers to complex technologies in the context of healthcare.

5. **Discussion**

Technology is being implemented in various healthcare systems globally and has impacted the practice of nursing in several ways for newly qualified nurses. This study aimed at investigating the perception of mentors and supervisors on developing and facilitating the professionalism of starting nurses in the digitally integrated healthcare institutions. The study also emphasizes the importance of enhancing role development efforts through structured mentorship, ongoing skill acquisition, and organizational support in aiding new nurses to transition into new practice environments characterized by technology integration.

5.1 The Role of Mentorship in Digital Adaptation

Professional coaching and guidance play a crucial role in transforming theoretical concepts into real-life practice for young practitioners, especially in the era of digitalised health care. The propensity for structured interventions with specific elements of instruction and support enhances the entrants' self-efficacy and knowledge regarding Electronic Health Records (EHRs), CDSSs, and telemedicine solutions. Besides ability training, such programs can also contribute to training of critical thinking and problem solving skills – all vital when it comes to managing complex Information technologies.

The analysis of a quantitative and qualitative study of individualized culturally matched, one-to-one mentorship of new graduate nurses showed positive changes in the new graduate nurses' abilities to transition into practice, confidence levels, and professional communication skills. This

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approach underscores the need for mentorship to enable first-time nurses to adopt the features of the healthcare facilities with geriatric and digital features (Hussein et al., 2022).

5.2 Challenges in Digital Integration

However, the transition to working in new IT environments poses significant difficulties to novice employees such as new nurses. There are challenges that pertain to technical, time-bound constraints, and challenges of bandwidth or technology overload. In reality, this is due to the fast-changing growth/advance in the health care technologies which requires the acquisition of new knowledge which may be daunting to the novice Nurses besides the clinical task. Furthermore, another factor that has been observed in instances where there are few digital training programs for the new nurses means that this results in different levels of training and this complicates the nurses' adaptation to working in the new digital environments.

The literature also reveals that there is significant support for using mentoring and coaching in overcoming these challenges. A scoping review underlined that in order to support the improvement of knowledge on the implementation of digital technology into practice, there should be an emphasis on the choice of the programme and materials, goals set for the learners and an identification of the qualities of a good mentor-learner relationship (Scandiffio et al., 2022).

5.3 Institutional Support and Professional Development

Another issue of critical importance is the support that is offered by institutions towards the implementation of effective mentorship. Healthcare institutions must provide the professional training for their staff through attending workshops, online courses, and simulations. To support this, it remains compulsory to afford the solution time and recognition for making mentors feel that they matter. Thus, creating a satisfactory organizational culture that encourages the practice of protege sponsorship and focused learning would cultivate and support a more satisfactory working environment that will in the long run influence the turnover of nursing staff negatively.

The following section of the ANA provides a Mentorship Program that addresses a professional development perspective. To assist nurses in their efforts of searching for career advice or support, this online platform focuses on helping them to find mentors within the given community (ANA, n.d.).

5.4 Implications for Practice and Policy

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There are various implications of this study for nursing practice and healthcare polity. First of all, implementing proven effective approaches to the formation of adequate and effective specific courses, training, or programs involving the aspects of the information society must be mentioned. Such programs must be geared towards preparing new nurses towards assuming the new roles through offering them all that they require in new digital health care environments. Secondly and related, there is a need for policies that provide time and other resources for purposes of executing activities for the mentorship programs. Last, it aims at ensuring that the concept of mentorship is adopted in the organization with a view of facilitating a healthy culture of organizational practices that enhances patient care staff professional development.

5.5 Limitations and Future Research

However, this study has some limitations, which could be further looked at as the following. A limitation of the study therefore is that the participants selected for interviewing were limited to a limited number of healthcare organizations with a relatively experienced level of digitization, and this restricts the validity of the findings. This future research should identify more about the success of the program in terms of skill possessed by the newly qualified nurses in the utilization or patient care results that are introduced by the mentorship program. Furthermore, interviews with mentors and supervisors from crucial areas of healthcare can help expand the knowledge to various objectives and approaches toward new nurses in the digital age.

Summing up, it is possible to state that both mentorship and supervision play an essential role in the introduction of new nurses in the context of digitally-enabled healthcare. The systemic approach to mentorship with strong institutional backing of development and training fosters improved efficacy and confidence of new nurses through technology training resulting in better patient care and job satisfaction.


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