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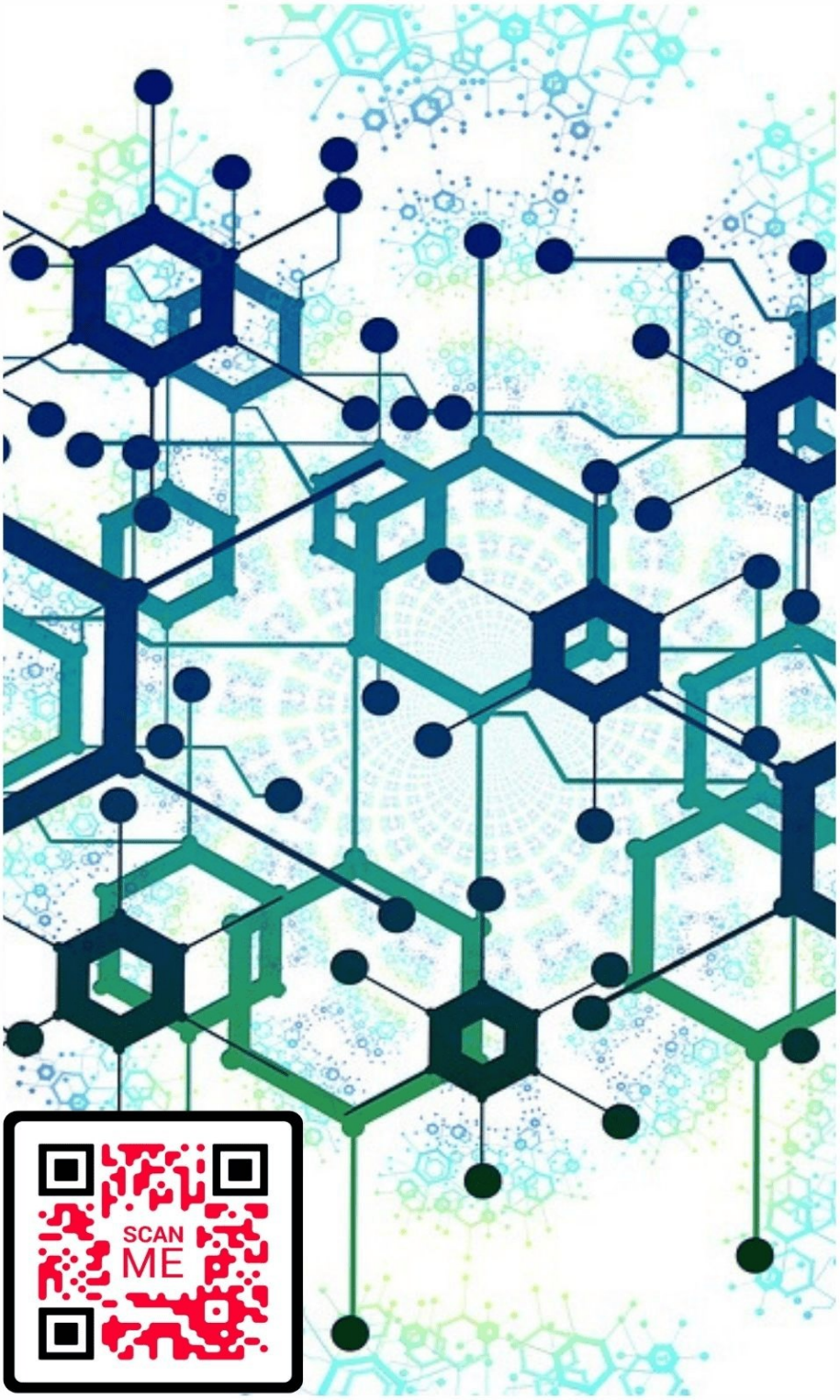

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Digital Adaptation Requirements for Preceptorship of Newly Graduated Nurses

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Abstract

General Background: Digital transformation in healthcare through Electronic Medical Records and hospital information systems requires nurses to possess advanced digital competencies alongside clinicalskills. **Specific Background:** Newly graduated nurses experience transition shock intensified by simultaneous clinical responsibilities and digital system demands, while existing preceptorship programs remain predominantly clinically oriented and lack structured digital integration. **Knowledge Gap:** There is limited evidence on structured preceptorship models that systematically incorporate digital adaptation to address technostress, documentation errors, and competency gaps among novice nurses. **Aims:** This study aims to analyze the requirements for a digital adaptation-based preceptorship program for newly graduated nurses. **Results:** Using a descriptive qualitative case study with interviews and focus group discussions involving 18 stakeholders, three core needs were identified: a safe digital learning environment through training dummy systems, standardized digital literacy for preceptors as technology mentors, and integration of competency monitoring via digital logbooks with real-time feedback. Findings also reveal the emergence of digital transition shock, documentation delays, data entry errors, and mentoring inefficiencies linked to inadequate digital preparedness. **Novelty:** This study proposes a structured digital preceptorship framework integrating psychological safety, simulation-based learning, and competency tracking within clinical mentoring. **Implications:** The findings highlight the necessity of embedding digital adaptation into preceptorship curricula to reduce digital malpractice risks, support nurse well-being, and ensure continuity and safety of patient care in digitally integrated hospital systems.

Highlights:

- Dual clinical and technological demands create significant psychological and operational burden during early professional transition.
- Simulation-based systems provide a safe environment to minimize technical errors and anxiety.
- Structured mentoring with competency tracking improves readiness within digital healthcare systems.

Keywords: Digital Preceptorship, Transition Shock, Electronic Medical Records, New Nurses, Digital Adaptation

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Introduction

With a warm and compassionate approach. RS Siti Khodijah Muhammadiyah Sepanjang Hospital is a Type B Hospital that provides the highest quality care. The hospital is located at Bebekan Sepanjang, Taman, Sidoarjo, East Java.

In the last few years, Healthcare has begun implementing Digital Changes. Digital Changes help improve the quality of service, improve workflows, and increase the accuracy of medical records. The introduction of Hospital Management Information Systems (SIMRS) and Electronic Medical Records (EMR) has rapidly Digital changes which require all Health Workers, especially nurses, to adapt technologically in relation to record keeping. The transition goes beyond the use of clinical applications. Health Workers must understand Electronic Documentation Systems, Health Data Management, Health Data Compliance, and Health Information Security [1]. This shows that Digital Literacy is a vital skill that Health Workers must acquire in today's health care system.

While newly graduated nurses start using digital systems in their daily activities, challenges start emerging. New nurses experience a significant amount of pressure due to having to adapt to a variety of different roles. New nurses are particularly impacted by “digital transition shock” or “technostress.” This is usually due to having to do critical medical interventions while also having to do data entry with the computer; This is a huge source of stress because of the need to do two things at once. This situation is an imbalance which is highly damaging to the nurses’ psychological well being. This is also dangerous because the record keeping is at risk of being incorrect, which is a big part of what nurses do [2].

Transition Shock Theory explains that at a time when nurses are just experiencing shock because there are challenges in the transition period and the adaptation process when entering the professional world of work and these challenges are getting tougher with the implementation of digital service systems, such as EMR, e-Prescribing, SIMRS, and so on which are still not dominant skills in basic nursing education. It is necessary to understand the personal characteristics of nurses because this can affect their performance and adaptation process in the work environment [3].

Because the digital adaptation process in hospitals has not been smooth, several problems have arisen that interfere with the performance of nurses, such as double entry and other technical obstacles that have an impact on work efficiency. A number of new nurses reported delays in completing the documentation process due to ignorance of procedures in SIMRS or EMR, as well as a number of incidents related to data input errors that could affect patient safety. In addition, there is another problem that aggravates the work and adaptation process, namely the lack of a structured guide module that teaches digital system troubleshooting, so that new nurses often have to learn by trial and error. Then, the new nurses also felt confused because they had to learn two things at once, namely hospital clinical procedures and IT systems. This condition is in line with the opinion of which states that, if new nurses still cannot adapt to using EMR properly, then it can affect the risk of burnout and missed nursing care [4].

While RS Siti Khodijah Muhammadiyah Sepanjang is digitally integrated as an adaptable healthcare institution, new nurses’ orientation processes show room for improvement. Most of the current preceptorship programs continue to focus on the manual clinical competency training. Support on the technological side is still very limited and uncoordinated. The field issues that stand out are extensive delays in document completion, lacking some SOAP notes, and heightened system-related anxiety derived from the risk of compromising patient data. The staff seems to have failed purposeful mentoring aimed at new nurses and the hospital's digital ecosystem. [5].

The gaps found show a need to rethink how the preceptorship program is designed to include more innovative approaches to mentoring. This particular study will go beyond the boundaries of conventional clinical supervision by focusing on the digitally oriented preceptorship programs. This research is unique in its application of the concept of “Psychological Safety” due to the inclusion of organized curricula, step-by-step guidance, and simulated learning (training dummy) to teach risk-free nursing. This study hopes to develop standards for future digital hospitals regarding the pre and post competencies of nurses by integrating the perspectives of management, IT, preceptors, and mentees.

Method

This study uses a descriptive qualitative design with explanatory case studies, FGDs, and in-depths interviews. This method was chosen because the researcher aims to study thoroughly and deeply the extraordinary complexity of a phenomenon of digital adaptation as a phenomenon that is subjective and contextual. This study focuses on the investigation of the “felt need” of the stakeholders involved at RS Siti Khodijah Muhammadiyah Sepanjang concerning the need for the revitalization of the preceptorship that is still done in a traditional way. In this study, these differences were analyzed by paying attention to the burden of adaptation to digital technology (*Transition Shock Theory*), the perception of the convenience and benefits of digital systems (TAM), and the need for guidance according to the level of competence of new nurses (*Benner's Theory*). *Needs assessment* is an important step to identify the difference between existing practices and desired practices, which is then used as a guideline for designing professional development programs [6].

The data analysis was done using thematic analysis, which was done with four steps: (1) data immersion involving multiple readings of the transcripts to build rapport with the data. (2) Initial coding to highlight important digital needs, (3) theme construction where the similar codes were grouped, and (4) theme refinement, in order to check that the themes correlate with the study objectives.

This study established trustworthiness through source triangulation by collecting and comparing data from the manager,

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new nurses, preceptor, and IT staff, and conducting member checking through the participants to confirm the results of the analyses to avoid misinterpretation. Concerning research ethics, the study obtained ethical clearance from RS Siti Khodijah Muhammadiyah Sepanjang. All participants signed informed consent forms, and data were kept confidential. The data were collected through a series of interviews (30-45 min per interview) and Focus Group Discussions (FGDs). The FGD format was semi-structured to promote discussion among participants to confirm and/or challenge one another's accounts of experiences related to shocks stemming from digital transitions.

Results and Discussion

A. Definition of Preceptorship and Digital Adaptation

Preceptorships as a form of clinical teaching holds that experienced nurses become the primary mentors for the new nurses as they do their orientation. Preceptorships in nursing stems from the professional learning theories that have matured since the 1980s from the emphasis on guided practice and experiential learning and situated mentorship. This has taken form in the clinical learning model that preceptorships establish in which senior qualified nurses (preceptors) offer direct guidance, clinical supervision, and emotional support (mentorship) to assist new nurses (preceptees) in their journey from the educational to the professional [7]. Currently in nursing, preceptorship not only serves as the transfer of clinical knowledge, but also serves as an organizational framework to maintain patient safety, ensure practice standardization, and improve the retention of employees.

An example of a balanced program preceptorship would have as a framework a program with learning outcomes, a program with an evaluative component, and preceptors with delineated and defined roles. The nature of the relationships created, the degree to which communication is unambiguous, and the absence or presence of support have an impact on the program's outcomes. According to [8] preceptors are more than educators; they are a role model, socializer, and professional standards gatekeeper. Thus, the success of preceptorship is heavily determined by the preceptor's ability to integrate pedagogical aspects, communication, and management of stressors experienced by new nurses.

As an example, preceptors must show proper EMR documentation, not take shortcuts. The senior-junior relationship has a Socializer (who tells about the culture of the workplace) and Educator (who teaches digital competencies) roles [9]. Preceptors are digital role models who, rather than just telling you what to do, show you how to do nursing care documentation in real time.

Preceptorship reduces turnover, improves clinical results, and keeps the quality of service consistent. This is important in this time of competition for health care human resources and when the hospitals are having big problems finding and keeping nursing staff. Using good preceptorship strategies not only helps new nurses learn clinically, it also improves the nursing care and the satisfaction of the nurses within the hospital [10].

Nurses go through Digital Adaptation when they have to make changes to their thinking and behaviors in order to incorporate Information and Communication Technology (ICT) into their everyday practices. Digital Literacy is defined as the ability of the nurse to understand, evaluate, and utilize the information and the resources created and modified using the technologies available in a digital format, especially as it relates to healthcare [11]. Within a hospital, a nurse is digitally literate when they know how to work with SIMRS/EMR, keep the information about patients secure and confidential, and access digital information for making decisions about patients. According to [12], new nurses seem to have general tech knowledge, but almost lack all the informatics knowledge needed for the hospital, which is why there is a great need for structured interventions.

Nurses digital competence has to be improved and has a positive effect on the safety of the patients and the communication among the members of the clinical team [13]. Mentors call themselves as 'Co-pilots'. The preceptor has to have Digital Clinical Coaching, which is the ability to integrate teaching clinical logic into a system digitally, and not just general IT knowledge [14].

B. Findings of Thematic Analysis

The researcher collected information from 18 individuals, which includes 2 nurse managers, 8 new nurses, 5 nurse preceptors, and 3 IT staff members. The data showed a wide range of years in the nursing profession, from novice nurse (Ismail) who has less than 3 months of experience, to a nurse manager who has 34 years of service, and a senior IT staff member who has 26 years of experience. Such variety of informants depicts a rich data set of all possible ways SIMRS/EMR technology can be viewed from different personal and professional angles.

1. Manifestation of Digital Transition Shock

The researcher, through careful study and detailed interviews, confirms that new nurses at RS Siti Khodijah Muhammadiyah Sepanjang are experiencing a change in the phenomenon of transition shock. This transition shock, is no longer a simple adjustment to the hospital's clinical culture or social environment, as it has fundamentally changed to a 'dual burden' due to complications with the integration of information systems. The researcher described the new nurses' fear as acute technical anxiety, resulting in her a loss of confidence as a nurse, because her professional competency is being challenged as she gains or lacks knowledge to satisfy overwhelming and burdensome digital efficiency. Concurrent to an ongoing, urgent, and critical medical situation, this digital efficiency driven psychological suffering is compounded by the presence of

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inefficacious work procedures in which some nurses feel it is necessary to ruggedly document manual charts rather than rely on an electronic record for which they are concerned to document their information.

Field dynamics also point out that digital adaptation over individuals is not uniform. A significant gap was observed between the “fast-learner” nurses and those who had a more considerable lag. The repercussions of this lag range from minor mistakes to not doing essential elements of daily work. In the other hand, psycho barriers impede the K transfer; new nurses often get stuck in the middle of wanting to ask question because of the fear to disturb the preceptor's work burden. They want to do the tasks on time and do not want to ask, and then they become waiters for the “right time,” which is a situation that creates work burden and goes down the hierarchy of care.

More specifically, the Electronic Medical Record (EMR) system admits mistakes. Studies show that common mistakes recording medical actions, as well as choosing the wrong doctor’s name in the system. While these mistakes seem to be only minor clerical mistakes, in fact there is a much larger impact. They create blockages in service workflows and if large enough, can lead to medical mistakes that only junior nurses can confirm. The researcher suggests that for novice nurses, the most challenging aspect is the extremely high mental demands of having to do the clinical tasks and the data entry. This is in congruence with transition shock as theorized by Duchscher (2008) in which the first year is extremely crucial for system and environmental adjustments, and if perceived as unfriendly, can lead to great mental exhaustion [15].

Digital unreadiness impacts the quality of services offered in hospitals. New nurses experience what the researcher calls delays in their documentation which signifies a major break in the work rhythm of new nurses. The researcher calls it a break in work rhythm and highlights the administrative aspect of the issue, but rather a real threat to patient safety. Because real-time updates of medical information are not available, erroneous actions could be taken in handovers, which at best are nursing handovers and at worst are fatal. If the system does not ensure real-time patient information, continuity of care is compromised, which from a professional nursing perspective is the greatest risk.

The researcher found the need for more adjustment in precepting students hands-on as a way to address the new nurse's complex feelings. New nurses demonstrated a need for practice-based learning more than lecture, as new nurses need support for “visual mentoring” along with “Illustrated Technical Guidelines.” New nurses need the ability to reference supportive documents when stuck at the computer. New nurses at the research site demonstrated, as the Benner Theory (1984) suggests, the Novice attribute. They are the most beginner level group and rely on strict and detailed guidance [11]. This is why the study participant wanted more “Illustrated Technical Guidelines.” New nurses cannot prioritize in a complicated system, which means they think all the information is immediately urgent. In this sense, the preceptor becomes a “navigation compass” to aid in finding the critical information flow within the information system in order to allow clinical service to take precedence[12].

2. Competency Gaps and Mentoring Dynamics

The researcher noted the rapid changes in information technology systems and the lack of digital literacy among the staff at RS Siti Khodijah Muhammadiyah Sepanjang. From the IT department perspective, the negative impact is not from the technical systems, but from the nurses having little knowledge of the basic logic of the systems and the rules of data security. The researcher believes that a digital preceptorship program cannot incorporate sophisticated clinical functionalities, but must build a solid framework of basic computer literacy first. Without data privacy and digital ethics knowledge, new nurses may commit data integrity breaches[13]. This illustrates the necessity of layering the orientation curriculum. basic operational proficiency must be a prerequisite before nurses are allowed to access more advanced and critical nursing care modules.

Repetitive task completion can be frustrating and counterproductive to the purpose of digital systems. Digital systems always should create supervisory transparency, but in the field, preceptors are still required to do manual re-checks of every mentee's work. Digital systems should be streamlining preceptors’ work, but instead are creating ‘double validation burdens’ that make the task more difficult. Preceptor fatigue was often attributed to these cross-checking systems. If repetitive, manual, cross-checking systems are not addressed, they will reduce the overall effectiveness of mentoring and create additional bottlenecks in the care units[14].

A more flexible yet documented policy to employees was also noted as “delayed departure”, that most of the new nurses were operating under. New nurses spend an extra 30 to 60 minutes after work, EMR-ing and finishing work they didn’t get to during the work day. This circumstance illustrates that loyalty to the preceptor as the primary mentor, mentor, frequently conflicts with the primary mentor, during the operational/service hours in the hospital. The “delayed departure” condition demonstrates the employee is correct in their assumption that the digital tools have yet to been assimilate on an ongoing basis to the rhythm of the clinical work. Digital tools remain an additional work burden, on an already tired new nurse, that will most likely contribute to potential burnout.

From a managerial perspective, the researcher speculated that a mentoring ratio of 1:4 (one Team Leader for four new nurses) is a rather poor scenario for the transfer of deep digital skills. Because the formation of technological literacy is a personal and intensive one-on-one mentoring relationship, this ratio compels the preceptors to do only cursory and generalized mentoring. Nursing management honestly acknowledged this. While they do have a mentoring policy, the of digital learning SOP checklists needs to be strengthened. The researcher concludes that the quality of digital adaptation for new nurses will only be based on the personal initiative of the preceptors in each unit. There will be no systemic quality assurance from the organization, and in absence of firm audit tools and standard competencies in all wards, it will remain a varying (and poor) quality.

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3. System Innovation for Performance Enhancement and Safety

The researcher believes the Training Dummy or sandbox environment innovation is more than just a tool; it helps promote Psychological Safety for newly graduated nurses. Because digital malpractice poses a significant threat, this simulation space is a siloed “mental lab“ for new nurses, where making mistakes is part of the learning journey (fail-safe). The researcher identified that the absence of real patient data to compromise eliminates the fear of data loss and the mental barriers of anxiety and tech apprehension [11]. The researcher believes that the ability to explore a space helps strengthen digital self-efficacy. Therefore, when participants move to a real service environment, their technical fears are not present. Instead, they are remapped to a digital EMR process.

Additionally, the pressure role impediment phenomenon was described by the researcher in the case of preceptors at RS Siti Khodijah Muhammadiyah Sepanjang. With no previous formal training in digital pedagogy, these clinical instructors are, by all means, “instructed” by the circumstances to become tech mentors. This creates a phenomenon of role ambiguity where clinical preceptors are expected to assume a disproportionate amount of clinical preceptorship responsibilities while also haranguing themselves to deconstruct and explain complex information systems. The researcher insists that the case of preceptors lacking digital competencies and no pre-determined goals is the most critical factor that inhibits success. In the absence of clear and standardized competencies, mentoring will invariably remain a by-product of the personal, and often arbitrary, capabilities of individual mentors, thereby creating gross disparities in the quality of novice nurses produced in various hospital units[15].

The researcher sees the urgent need to document the programs using more current instructional design models. Given the current system's complexity, "organic" learning or simply shadowing the preceptor, is no longer relevant. The researcher believes that the chronic issue of delayed documentation may be alleviated through the use of more structured, modular, step-by-step guides. The researcher theorizes that such guides will make the orientation process more quantifiable and objective while also decreasing the need for the preceptor to be present. This sort of program formalization will empower new nurses to take control of their learning, and, improve preceptors’ ability to focus on their supervisory roles by lessening the relational burden of repetitive, time-consuming, instructional activities.

Conclusion

By analyzing the findings, the author concludes that the constraints of the preceptorship system and digital adaptation of nurses at RS Siti Khodijah Muhammadiyah Sepanjang, are significant. These constraints are barriers to optimum performance, and in turn, to the outcome, and demand innovations and developments of different kinds.

The researcher states that the transition shock that new nurses previously experienced has changed into a digital transition shock. The psychological burden of having to master the clinical tasks and learn the EMR system at the same time is extreme. This can result in diminished self-esteem and the phenomenon of delay documentation. The data turnover velocity of health information systems far surpasses the digital literacy readiness of the nursing workforce. This is compounded by a poor mentoring ratio of 1:4, and the “pulang mundur” unofficial policy of delayed departure to complete digital administrative tasks, and is a sign that current preceptorship programs have not started assimilating digital elements into the clinical work processes. The greatest need, therefore, has been the structuring of mentoring to include instruments that provide psychological safety. The SIMRS Training Dummies and the accompanying illustrated technical guideline instructional modules are on the right track to help new nurses develop autonomy without compromising access to real-time patient data.

This research was done at one hospital only (RS Siti Khodijah Muhammadiyah Sepanjang). This may affect how the results fit with other types of hospitals. Also, it looked mainly at the first 12 months of nursing transition. Other studies can take a longitudinal approach, to evaluate the effect over time of the proposed digital preceptorship model on nurse retention and what it improves clinically at various healthcare organizations.

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