

On the Innovative World of Care: Unveiling the Lived Experiences of Nurses in Using an Electronic Health Information System

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Abstract. As healthcare systems worldwide continue to undergo digital transformation, the integration of health informatics has become pivotal in enhancing patient care, communication, and overall healthcare efficiency. The purpose of this descriptive phenomenological study was to explore and understand the experiences of staff nurses using an electronic health information system. A purposive sample of 14 senior nurses were interviewed. Using Colaizzi (1978) phenomenological method, rigor was established through application of verification, validation, and validity. From 205 significant statements, 15 cluster themes emerged. The experiences of staff nurses in employing the electronic information system included struggles during the initial encounter with the new electronic health information system, working with IT support, workflow disruption, issues regarding limited devices and internet connection, need for training, and having staff pay for errors committed. Their means of coping with the challenges of their experiences focused on recognizing workflow efficiency as perceived benefit, changes in the protocol for improvement, support from superiors and hospital management, as well as collaboration and coordination with others. The insights that staff nurses wanted to share with their peers and the nursing practice in general were personal alignment and resilience, upgrading the system, enhancing staff competency, and meeting workforce demands. Nurses adapting to a new electronic health information system echo wider healthcare's digital hurdles. Let's learn from their struggles and resilience to prioritize user-friendly designs, accessible technology, and robust training. This empowers and supports our essential nurses, paving the way for successful health informatics.

Keywords: Nursing; Electronic health information system; Healthcare system; Digitalization.

1.0 Introduction

Like many other countries, the Philippines increasingly adopts electronic health record systems (EHRS) to improve healthcare efficiency and patient care. However, implementing EHRS among staff nurses, the backbone of the healthcare system, presents unique challenges. Entering data into EHRS can be time-consuming and cumbersome, adding to already heavy workloads and potentially compromising patient care time. Nurses struggling with EHRS might spend less time on direct patient care, hindering overall healthcare efficiency. Challenges can lead to nurse frustration and dissatisfaction, potentially contributing to burnout and staff turnover. Salameh (2019) predicted that by 2014, all US hospitals would adopt electronic medical records (EMRs), reflecting the widespread recognition of their benefits in improving healthcare delivery. Given that 2020 has been declared the World Health Organization's (WHO) Year of the Nurse and Midwife worldwide, it is important to consider how nurses now provide care and how that will evolve. Kuek (2019) studied Australian healthcare staff's digital literacy and attitudes towards information systems. While they generally feel confident with ICT and hold positive views on information systems, poor computer skills, and negative attitudes hinder electronic health record adoption. Meanwhile, in Sweden (Persson, 2023), a study showed increased complexity due to

digitalization. Even if some tasks are digitalized, the remaining non-digitalized ones can be cumbersome enough to lower the motivation for use or the feeling of making work more efficient.

Nursing informatics is still a developing field in the Philippines. The impact of incorporating data and communication technology into nursing service delivery systems and nursing informatics on nurse emphasis is still being determined. A deeper comprehension of the historical contributions of nursing informatics to Philippine nursing and the declaration of its implications for Philippine nursing practice, starting from a caring standpoint, must be focused on, and clarified (Faustorilla, 2020). Moreover, specific barriers to adopting electronic medical records in select Philippine hospitals (Ebardo, 2019) have shown that healthcare professionals often experience a learning curve.

In the Municipality of Midsayap, there remains a glaring need for more research on the impact of rolling out electronic health information systems electronic health information system in local hospitals. This study seeks to fill this gap by delving into the lived experiences of staff nurses as they navigate the adoption of electronic health information system software, their development of coping mechanisms, and their implementation of adaptive strategies to ensure continued quality and safety of patient care amidst this digital transformation.

2.0 Methodology

2.1 Research Design

This study utilized the phenomenological type of qualitative research design to obtain a detailed understanding of the experiences of staff nurses who experience using an Electronic Health Information System (EHIS). Specifically, a descriptive-phenomenological study was utilized, which allows the researcher to explore in-depth individual lived experiences of the research and maximize the effectiveness of feedback and workplace learning (Neubauer., 2019). EHIS implementation isn't just about technology; it significantly impacts nurses' work, relationships, and self-perception. Phenomenology seeks to comprehend the meaning and significance these experiences hold for nurses, delving deeper than simply describing behaviors or opinions. The qualitative method provides an in-depth questioning and further probing of the participants based on their responses. The researcher also tries to understand their motivations and feelings (Bhat, 2023).

2.2 Research Participants

The research was conducted in the Municipality of Midsayap, which has a land area of 290.42 square kilometers or 112.13 square miles, which constitutes 3.12% of Cotabato's total area. Its population, as determined by the 2020 Census, was 165,376. Four hospitals in Midsayap are using an EHIS, which are Midsayap Diagnostic Specialist Hospital, Inc., Cohesco Hospital, Fresenius Kidney Care Midsayap, and Anecito T. Pesante Sr. Memorial Hospital. This study employed a purposive sampling strategy to select 14 senior staff nurses with at least two years of experience using an EHIS. Participants' ages ranged from 35 years and above. Although the suggestion of recruiting 10 participants was based on the guidelines from a reference book, the final number of the participants was determined by the point of data saturation. This meant that the researcher continuously recruiting until no new themes or insights were emerging from the data, ensuring that the study captured a comprehensive range of perspectives and information. This criterion ensured we captured the perspectives of nurses who had significant experience leveraging EHIS for patient care, allowing us to delve deeper into its impact on their practice. Data saturation, determined through an iterative process of data collection and analysis in collaboration with my advisor, was reached with 14 participants, indicating that we had gathered sufficient data to explore the research question comprehensively.

2.3 Research Instrument

This study employed a descriptive-phenomenological approach to analyze the lived experiences of 14 senior staff nurses using an EHIS in different hospitals. The researcher used both in-depth, one-on-one interviews with seven participants (1-7) and focus group discussions with the remaining seven (8-14) to gather rich data. Interviews and discussions focused on participants' descriptions, opinions, and reflections on their encounters with the EHIS, allowing us to gain a deeper understanding of its impact on their work and patient care.

In-depth interviews involved one-on-one interactions between the researcher and the participant. The purpose was to gather detailed and comprehensive information about the participant's experiences, opinions, beliefs, or

attitudes on the topic. The focus group discussion on the other hand, allowed exploration of group dynamics and the emergence of shared perspectives. Aside from taking notes of the participant's behavior and emotions, the researcher was recording the discussion as part of data collection needed for the analysis. The participants who participate in the study served as the primary data source, while secondary data was gathered from recent studies, articles, journals, and related literature.

2.4 Data Gathering Procedure

In conducting this study, the researcher followed the procedures for data collection: First, the researcher will secure approval from the Davao Doctors College, Inc. Ethics committee while formulating a research questionnaire. Then after, it will undergo validation with the validators/panelists for reliability testing. The researcher will ask permission from the Program Chair to conduct the study. The researcher will afterward identify target participants. The researcher will formulate and send a letter of authorization to the Medical Director and Chief Nurse of the Hospital of selected health facilities in Midsayap before the interview and then after the scheduling of the interview. The participant's informed consent was given and will be gathered. A brief orientation to the study's preliminary procedures was provided. The researcher will conduct a face-to-face individual interview and focus group discussion that will take 30 to 45 minutes for each participant, depending on the thorough conversation between the participant and the researcher. Participants were informed that the interview was audio-recorded. Following the interview, the audio was transcribed to make sure that the data was reliable. After the interview process, participants received a letter conveying the researcher's heartfelt appreciation for their time, cooperation, and active participation in the data collection process. Respondents were assured that their data and information were kept strictly confidential. The compiled results from all the participant's senior staff nurses for this study were analyzed using Collaizi's method of thematic analysis.

2.5 Ethical Considerations

This research study followed ethical guidelines.

Social Value. In the conduct of the study, the study aims to ascertain staff nurses' lived experiences with adopting an EHIS software and the switch from traditional method to electronic-based software, as well as how dedicated and committed the staff nurses were to the changes in their workflow, reducing work-related stress, along with the struggles of staff nurses which already adapting to it. The results of this study will provide knowledge on people who have the utmost concern when it comes to the experiences of learners in online physical education classes. The result of the research was disseminated to the community, most specifically to those who will benefit the most.

Risks and Benefits. The questionnaire may ask about the personal experiences of the participants, which entail personal reflections. Rest assured that the study was used for research purposes only. The benefits of this study can help the researchers in initiating intervention activities that can address the experiences the researchers have incurred. This research will serve as a foundation for establishing focused, therapeutic actions by understanding the participants' personal experiences. These interventions will address and enhance the specific experiences the researchers will have faced in their duties and responsibilities, ultimately promoting a more positive and productive work environment for everybody concerned.

Voluntary Participation. The respondent's participation in this study is voluntary. The respondents have the right to refuse to participate if they do not feel comfortable in any way. Moreover, even if the respondents initially decided to participate, they have the right to withdraw from the study at any time without penalty. If the respondents choose to withdraw from the study, all information that they have provided will not be included in the data collected.

Privacy and Confidentiality. In the gathering, retention, and processing of personal data, researchers followed the criteria of transparency, legitimate purpose, and proportionality (Data Privacy Act of 2012). In terms of privacy and confidentiality, the respondents were given the freedom to stay anonymous. Even if the respondents indicated their names and other identifying information, it will not be associated with any part of the written report of the research. The data that was gathered in this study was kept with the utmost confidentiality. If in the future, this research study would be published, any information indicated in the material will not reveal the respondent's

identity in any way. Moreover, the researcher declines to anybody who is not connected with the study who will ask for any information about the data gathered. All the data gathered would be kept strictly confidential and would be accessible only to the researchers. After the study, the participants may be provided with a copy of the results if they ask for it. Lastly, all the raw data would be disposed of accordingly after the study. As part of privacy and confidentiality the data of the participants was stored on a USB drive to ensure easy access and secure handling throughout the research process. This data included personal information and responses necessary for the study. The duration of the storage of this data ended one month after the manuscript was officially approved and hardbound, marking the finalization of the research project.

After this period, strict protocols were followed to ensure the secure destruction of the data. The USB drive containing the participants' information was destroyed by burning it in a fire. This method was chosen to guarantee the complete and irreversible elimination of all stored data, thus protecting the confidentiality and privacy of the participants. This destruction process was carried out with meticulous care to ensure compliance with ethical standards and institutional guidelines.

3.0 Results and Discussion

There were three emergent themes and eight cluster themes resulted from the examination of the participants' overall responses to the lived experiences of the staff nurses that answered these questions: What are the experiences of nurses in the use of EHIS? How do participants cope with the challenges of their experiences? What insights can participants share with their peers and to the nursing practice in general?

Theme 1: Learning Curve and Challenges

The first Emergent Theme is the Learning Curve and Challenges. Implementing EHIS presents a learning curve for nurses, the primary users (Ahmadian, 2017). While EHIS promises improved record accuracy, reduced errors, and faster data access, navigating its features, workflows, and menus can be complex. Nurses must adapt to a new interface, requiring them to learn data entry, documentation practices, and potential integrations. The shift from paper to digital necessitates overcoming cognitive hurdles related to layout, information hierarchy, and interaction methods.

Subtheme: Encountering New Things

The initial phase of implementing a new EHIS presents a learning curve for nurses as they encounter new features, workflows, and data entry methods. This shift from familiar paper-based systems to a digital interface necessitates adaptation and overcoming challenges.

The participants expressed this cluster through these statements:

"At first, we experienced struggle using Bizbox before because the software is not that user friendly." (SS 1, Participant N1, Lines 2 to 3)

"First, it was very challenging to us because we used to have this previous system, and then here comes another new system again, so it's very challenging to adjust for our staff." (SS 2, Participant N2, Lines 178 to 181)

"At first, we are having difficulty because we are getting used to the old one." (SS 3, Participant N4, Lines 482 to 483)

"The training proceeded smoothly; however, when we began using the system in practice, we encountered difficulties on multiple occasions." (SS 5, Participant N1, Lines 29 to 30)

Introducing a new EHIS has disrupted nurses' routines, necessitating significant adjustments. They faced unfamiliar interfaces, requiring extra time and effort to navigate effectively, adapting to new procedures, and modifying established practices. Yusif et al. (2019) highlighted the challenges nurses encounter during this process, emphasizing the importance of comprehensive support and training. Recognizing these obstacles is crucial for assisting nurses during EHIS adoption, especially given the potential for increased stress from unfamiliar technology, which could exacerbate workload and staffing shortages (Jedwab, 2022).

Subtheme: Confusing Workflow Protocols

Challenges in supporting clinical workflows have plagued the transition from paper to electronic health processes. This has hampered the ability of health nurses to distribute safe and efficient care to patients.

The participants expressed this cluster through these statements:

"But at first, we encounter time delay, in the sense that we easily get confused with our computer-to-patient transition." (SS 14, Participant N1, Line 11)

"At first it is difficult for us and because we have confusion on what to the priority that's why we have a lot of errors in the requisition under medicine bar option." (SS 27, Participant N2, Lines 193 to 194)

"Challenges may be more on charging patient laboratories and medicine in the system because all charges were entered in the system." (SS 28, Participant N2, Lines 193 to 194)

"There is a little bit of disruption if we experience downtime on our end; it will also affect our work." (SS 31, Participant N4, Lines 497 to 498)

"If incorrect spelling or new medication that was not registered in the system, it won't show in the system, so accurate results depend on the patient's charts." (SS 33, Participant N5, Lines 598 to 599)

Unlike initial expectations, EHR's ability to seamlessly enhance clinical procedures and their anticipated integration and strengthening has proven challenging, as Zheng (2021) noted. Implementing EHIS frequently results in substantial disruptions. Nurses encounter challenges adjusting to the new system requirements, which may divert their attention from other vital patient care duties. This learning process disrupts established workflows, affecting efficiency and potentially causing delays in essential care.

Subtheme: Irritating Internet Interruptions

Despite widespread interest in automating health records globally, EHIS system adoption can be overwhelming and financially prohibitive for many healthcare stakeholders, including medical record/health information managers, administrators, and providers. Limited budgets in developing nations often restrict investment in modern IT infrastructure, hindering EHIS effectiveness due to compatibility issues, security risks, and slow performance.

The participants expressed this cluster through these statements:

"Usually, the challenges that I've encountered using the nephroweb is having loss of internet connection, loading so if that happens there will be a delay in our work." (SS 45, Participant N5, Lines 590 to 591)

"That's the reason why it became a hassle on the part of the staff nurse due to the system is delay/slow." (SS47, Participant N1, Lines 42 to 45)

"It is slightly not good, since delays where inevitable circumstances happen like slow loading process or delay issues." (SS 48, Participant N1, Lines 1222 to 1223)

"The workflow will stop/pause if the system experiences a problem since it is connected all in section in the institution." (SS 49, Participant N1, Lines 78 to 79)

"Our internet is running slow; that's the main problem that we struggled with." (SS 50, Participant N3, Line 429)

Developing nations face a significant challenge in implementing and maintaining EHIS systems due to the "digital divide" and resource limitations (Olayinka, 2021). Reliable and high-speed internet connectivity is crucial for EHIS functionality. However, frequent outages, slow connection speeds, or limited access in rural areas plague many developing nations. This instability disrupts data entry, retrieval, and overall system performance. Healthcare providers experience frustration and workflow disruptions, hindering their ability to deliver patient care efficiently.

Subtheme: Paying for Errors Committed

Healthcare professionals provide care as a part of intricate systems prone to mistakes and unfavorable outcomes. Even after little training, since the new system's launch has a timeline, frontline staff are faced with the dilemma that errors may be committed. With every mistake made, staff are expected to shell out money to pay for the lost revenue.

The participants expressed this cluster through these statements:

"That's the only downside: if you forget to charge them, they will look into it, and the nurses will be obliged to pay, so it's unfair on the nurse's part because if they have an effort on a 12-hour shift and then end, they will pay for it." (SS 60, Participant N2, Lines 252 to 253)

"It was a burden to us because it will automatically fall under salary deduction." (SS 245, Participant N1, Line 132)

"The nurse will be paying for that wrong entry or committed error that did not coincide with the doctor's order." (SS 61, Participant N4, Line 536)

Healthcare professionals explore the relationship between protocol adherence and adaptation to complex realities (Zangaro et al., 2023). High-stakes patient care persists despite incomplete information, limited support, and overwhelming workloads. This pressure and the moral distress of not meeting ideal care standards create a challenging environment. Implementing new systems like EHRs can introduce additional errors. These mistakes rarely stem from individual failures; inadequate training, system glitches, and unclear workflows are often the culprits. A culture of blame and financial penalties in response to errors fosters fear and mistrust. This discourages open communication and reporting of issues, hindering system improvement and potentially jeopardizing patient safety.

Theme 2: Adapting the Strategies

The second Emergent Theme is *Adapting the Strategies*. Adapting to new technologies like EHRs requires overcoming a learning curve through training and support (Zadvinskis, 2018). Individual factors and training quality influence how quickly nurses adapt. Their satisfaction, perceived benefits, and ongoing support further impact their acclimatization to the new system.

Subtheme: Benefitting Efficiency

EHRs boost perceived efficiency by offering real-time access to patient data from anywhere. This streamlines communication and care coordination, while automated tasks like medication orders free up clinician time for direct patient care. Less paperwork and more patient focus are the efficiency advantages of EHIS.

The participants expressed this cluster through these statements:

"It somehow becomes easier when it comes to workload and less paperwork." (SS 62, Participant N3, Line 349)

"Compared to the old ways that we have, this is much easier since before we were doing manual charting, writing, and requesting on a prescription pad." (SS 63, Participant N4, Lines 487 to 488)

"It makes the process fast in terms of bills and payments, and in charging as well, because in the system it processes fast, and they can easily be discharged." (SS 67, Participant N3, Lines 373 to 375)

"We entered it in the system, so it's an easy way to store those patient's information." (SS 70, Participant N7, Line 781)

"It's practical for me because, previously, everything was handwritten. Writing prescriptions and making copies was time-consuming. Now, with the system, you click and type a few letters, and everything appears automatically." (SS 71, Participant N2, Lines 208 to 210)

EHIS are linked to improved patient outcomes, including enhanced diagnosis and treatment coordination (Khalifa, 2017). Authorized providers can access patient records remotely, promoting efficient communication and collaboration. EHIS also streamlines documentation, reducing paperwork and allowing more time for patient care.

Subtheme: Improving the Protocols

Implementing sophisticated computer technologies in health services requires adjustments not only to the organizational structure and job descriptions but also to the individual level, as demonstrated by the requirement that staff members modify daily operations. In the current healthcare system, digital technologies are used as an essential component of nursing.

The participants expressed this cluster through these statements:

"First, if we have new nurses transferred in ER, I make sure that they will receive a proper orientation because not all areas have the same process workflow." (SS 115, Participant N1, Lines 87 to 89)

"We need to make sure that everything is encoded correctly, and there is also a need to double check to avoid such error." (SS 117, Participant N1, Lines 102 to 103)

"That's a reminder I gave to the newcomers: 'Double-check before entering and before saving.'" (SS 118, Participant N1, Lines 112 to 113)

"So, charge nurses' first step is an endorsement, and after the endorsement, they check if there is any IV fluid that is nearly empty, so they request it after so it will not hit on the medication nurse request." (SS 119, Participant N2, Lines 223 to 224)

"When a requisition is made, and doctors have already placed the orders, nurses will proceed with carrying out the order, including laboratory requests. This constitutes the process for assigning tasks to nurses." (SS 120, Participant N2, Lines 224 to 225)

EHRs application provides contrasting views, with some embracing its potential for health promotion, while others fear it diverts nurses from patients (Tsarfati, 2023). However, healthcare professionals can overcome these concerns by focusing on proactive solutions. By adapting protocols to address workflow inefficiencies and pain points during implementation, they can mitigate the negative impacts of EHRs and strategically optimize their use for improved efficiency.

Subtheme: Asking for Help from Management Support

While technology revolutionizes hospital workflows across every department, its true impact empowers nurses, the backbone of patient care. Their satisfaction and efficient adoption hinge on the unwavering support of managers and hospital leadership.

The participants expressed this cluster through these statements:

"Supervisor staff, they usually help check the system every morning, every day and even also in night shift." (SS 128, Participant N1, Line 116)

"And for the supervisors and administrators, every month we are conducting a meeting, and then every month our admin officers are monitoring everything." (SS 130, Participant N2, Lines 269 to 270)

"So, first of all, supervisor and admin, they boost, and they well explained the system to us, and if we encounter errors, they will stay and get some help." (SS 131, Participant N3, Lines 402 to 403)

"Our supervisor checks to see if we experience issues, so they will list all those concerns and raise them with the administration, and the administration will call on the attention of Bizbox personnel through communication to address the issues." (SS 132, Participant N4, Lines 542 to 545)

"Initially, in our administrative roles, our company supports us in adopting the system. We undergo comprehensive training before implementing it, ensuring thorough practice and exploring its functionalities." (SS 135, Participant N8, Lines 791 to 793)

Successful EHR implementation hinges on fostering trust and empowering nurses through comprehensive, tailored training (Cheng, 2021). Open communication and proactive feedback collection are essential for addressing challenges promptly and building a collaborative partnership.

Subtheme: Coordinating with Others

Nurses are inherently team players. Their daily routines are an intricate collaboration dance, with individual work styles influencing the team dynamic. A meticulous nurse might favor highly organized workflows, while another thrives in a fast-paced environment. Recognizing these preferences and fostering an environment that celebrates diverse styles is crucial for a successful and efficient nursing team.

The participants expressed this cluster through these statements:

"Support we received from our colleagues if ever that on our level in station 2 staff if ever they see errors or wrong charging in the system, they call the attention of that staff who committedly wronged so it's easy for them to endorse." (SS 144, Participant N2, Lines 259 to 261)

"Before, they were having conflict, but now they are already open, and they are suggesting which is better in our flow." (SS 145, Participant N2, Lines 267 to 268)

"Every time if there are incidents like that, we used to have a quick huddle to highlight those wrong entries and then what to do to correct it and then to avoid that in the future." (SS 150, Participant N6, Lines 721 to 722)

"We plan ahead of time and then of course with the team, we inform them that this will happen so possible we will experience backlogs so at least we prepare our whole time and staff." (SS 151, Participant N2, Lines 804 to 806)

"Every time we need to admit patients, they update us from time to time so there will also be control, and if the house is full, then we can refer them to other nearby hospitals." (SS 152, Participant N4, Lines 569 to 571)

Coffetti (2023) stresses the importance of teamwork, leadership, and nurse collaboration in effectively embracing EHRs. They note that user resistance frequently contributes to challenges in IT implementation. Moreover, Yuan (2020) highlights the impact of social networks on individual acceptance of new systems, stressing that peer group

views notably affect adoption more than collective beliefs. Thus, fostering collaboration and sustaining transparent communication among nurses is crucial in EHIS implementation to address resistance and achieve successful adoption.

Theme 3: Upholding the Need for Change

The third Emergent Theme is *Upholding the Need for Change*. Nurses embraced the EHIS, anticipating benefits like clearer documentation, improved patient safety, and better care delivery (Alrasheeday et al., 2023). Sharing real-world experiences can expedite learning and system refinement by identifying strengths, weaknesses, and workflow bottlenecks.

Subtheme: Encouraging Willingness to Learn

This highlights a critical factor in successfully deploying EHIS within hospitals. User acceptance, particularly among nurses who constitute the majority of EHIS users, is essential for maximizing the system's benefits. Transitioning from paper-based records to a new digital system involves a significant learning curve. Nurses must acquire new skills and adapt existing workflows to utilize the EHIS effectively. A willingness to learn is essential for overcoming this initial hurdle.

The participants expressed this cluster through these statements:

"Skills and knowledge, maybe first, enhance my critical thinking skills because when we are so emotional in the things we do, we will get confused about what they are supposed to be, so critical thinking skills mean you don't need to panic, so we do troubleshoot skills in terms of systems and computers that we can resolve." (SS 160, Participant N2, Lines 276 to 279)

"First of all, you will become a computer wizard. Like before, you are not very familiar with those shortcuts on the keyboard, computer, how to install, etc., so your skills will develop extra knowledge you can appreciate." (SS 162, Participant N3, Lines 415 to 417)

"You need to be more flexible when it comes to experiencing delay issues." (SS 164, Participant N4, Line 549)

"Another thing is they need to start to show a willingness to learn when someone is teaching them so that they can use it and they can share it with their colleagues." (SS 169, Participant N5, Lines 635 to 637)

Understanding the value of health information systems impacts nurses' fulfillment, as evidenced by the significant link between perceived usefulness, attitude, and satisfaction (Barzekar, 2019). However, transitioning to a new system requires the resilience of the organizations and frontline nurses.

Subtheme: Upgrading the System

Big data requires good internet connectivity and modern equipment. EHIS relies on real-time data access and exchange. A strong internet connection ensures minimal lags, quick data transfer, and uninterrupted workflows for nurses and other healthcare professionals. Modern equipment with intuitive interfaces and minimal lag can significantly improve user experience and encourage nurses' acceptance of the new system.

The participants expressed this cluster through these statements:

"Maybe I can only suggest upgrading and have no logging issues so we can't have system breakdowns, and it also initiates diagnostics, like if a problem occurs, it automatically diagnoses it." (SS 222, Participant N3, Lines 452 to 453)

"If the internet connections work smoothly, maybe we have a large server capacity because the server that we have should be exposed to heat and overheating because it works 24/7." (SS 223, Participant N3, Lines 454 to 457)

"Perhaps if the hospital purchased a system, it should be in the full package even though it is slightly more expensive, but the processes are smoother, unlike a limited package that was purchased, which also has limited access to the system, so the struggle is on the staff, whereas with a full package, you can access everything, and it will be faster." (SS 224, Participant N3, Lines 473 to 476)

"Second, internet connection, it's not necessary to have a very faster connection, but it should not always be slow, even if you are expert, so it needs to give in." (SS 225, Participant N5, Lines 662 to 665)

"I think they need to explore the system and research, not just relying on the training that was given to them but also advising them to research so that it's easier for them to use the system." (SS 226, Participants N13, Lines 1165 to 1167)

In healthcare, big data comes from sources like hospital records, patient files, test results, and IoT devices (Dash, 2019), offering opportunities and challenges for organizations aiming to enhance patient care and efficiency. The steps critical to the implementation's success are understanding the methodology and the company's

requirements. Healthcare workers are happier when the optimal strategy, technique, backup system, and training are used, significantly reducing the likelihood of impaired usability (Aguirre, 2019).

Subtheme: Training Enrichment Program

While technology promises to revolutionize healthcare, its success hinges on the human touch. Training and competency are crucial in how nurses adapt to Health Information Technology (HIT), like EHIS.

The participants expressed this cluster through these statements:

"Training is a big help and everyday continuity of your work for you not to forget what lecture you have in training and of course also seminars for a refresher to refresh you for all those things they taught you so it will maintain and sustain if what are the needed things you will do." (SS 229, Participant N6, Lines 728 to 731)

"As a unit head in our company, if we have newbies, then we have training before they hand on the system if they need a buddy, so we are also doing that to prevent mistakes and future problems." (SS 230, Participant N7, Lines 816 to 817)

"As a staff nurse, the only thing that I can suggest making the job of a staff nurse easier and more bearable if maybe they will have training." (SS 232, Participant N5, Lines 638 to 643)

"In the nursing administration, we should embed technical skills in orientation and training because it will improve everything. Sooner or later, everything will update that technology, and the same will happen with the system, so there is a need for training." (SS 233, Participant N2, Lines 341 to 343)

"More training, seminars, and improvements to the system will also make our daily transactions smoother." (SS 235, Participant N4, Lines 580 to 581)

Nurses advance in proficiency with each EHIS training session, maximizing their capabilities (Zadvinskis, 2018). Investing in their skills is crucial, as EHIS effectiveness relies on user competence. Unlike basic tutorials, effective training bridges the gap between paper and digital, leading to smoother workflows and better patient care.

Subtheme: Increasing a Need for Manpower

Implementing a new EHIS often means additional tasks and workflows for nurses and other staff. Coupled with the need to learn a new system, this can lead to increased workload and stress due to the learning curve, the more reason there is to meet the workforce demands.

The participants expressed this cluster through these statements:

"I think if there is enough workforce, nurses really can do it. But if most facilities now lack nurses, I think it's a struggle for nurses even as we experience it. It is an additional task for nurses, so it is important to have enough workforce." (SS 242, Participant N6, Lines 735 to 737)

"We need to consider that we have staff who file resignations, so maybe we must conduct a meeting session regarding Bizbox usage. An open forum is also possible." (SS 243, Participant N4, Lines 581 to 582)

"If you apply this in your institution, there should be enough nursing staff; otherwise, care plans will not be effective due to minimal manpower support." (SS 244, Participant N6, Lines 758 to 760)

Human resource management techniques secure adequate staffing levels (Kilgore, 2020). This involves strategies to recruit, retain, and deploy personnel effectively, ensuring the right people are in the right roles when needed. Implementing a new EHIS demands technological preparedness and effective personnel management. Ensuring affirmative staffing during this critical phase relies on fostering trust, motivation, and engagement among staff through positive HR practices.

4.0 Conclusion

EHIS in nursing research have opened new doors for data-driven inquiry. Staff nurses contribute to the generation of evidenced-based practices by balancing the complexity of information within electronic health records. This facilitates extensive studies, promoting a more comprehensive understanding of patient outcomes, treatment efficacy, and healthcare trends. Through these electronic systems, nurses are not only enhancing the quality of patient care but also transforming the point of view of nursing education and research. In addition, qualitative research offers guidance for exploring different aspects of staff nurses' experience with the EHIS and allows a better understanding of nursing practice, nursing education, and nursing research in the innovative world of care. The methodologies employed in this study, including survey instruments, qualitative interviews, or observational approaches, can be refined, or adapted to suit the specific contexts of other healthcare settings.

Comparing the findings across different institutions or healthcare systems can lead to a more comprehensive understanding of common challenges and best practices in health information system implementation. Collaborative efforts among researchers, where insights and methodologies are shared, can foster a collective understanding of the complex dynamics surrounding health information systems in healthcare. As a result, the study not only contributes to its specific field but also opens avenues for a broader discourse on optimizing technology in healthcare settings.

5.0 Contributions of Authors

AA - Conception, design of the study, manuscript writing, data collection, data analysis, interpretation of the results, revision of the manuscript.

BA - Data Analysis, literature review, study coordination, interpretation of data and reviewed the manuscript.

CA - Final Approval of the manuscript.

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7.0 Conflict of Interests

No conflict of interest.

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