Lived Experiences of Nurses on Utilization of Electronic Health Records on Patients' Safety and Quality Care

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Abstract *– This study investigated the lived experiences of nurses on utilization of Electronic Health Record (EHR) on patient safety and quality care. Phenomenology type of qualitative research had been utilized to explore nurses lived experiences when using EHR for patients' documentation. Nine staff nurses who are currently working in a tertiary hospital in western part of Saudi Arabia were chosen as the informants of the study. Interview with the informants was conducted to assess the lived experiences of nurses on utilization of EHRs. Ethical approval and consent were sought prior data collection. Giorgi's method of thematic analysis was used to analyze the data. Dependability and conformability were tracked through transcripts and notes after each interview and during data analysis. The study elucidates on six emergent themes namely: cognizance on electronic health record, software that offers substantial benefits, efficient delivery of quality patient care, abreast with current patient documentation system, discourse over EHR and paper-based documentation system; and challenges in utilization of EHR. Significantly, EHR contributes to delivering quality patient team-based care through provision of access to all pertinent information in real time. Nurses using EHR demonstrate efficiency, patient-centered care, safety, and collaboration as they provide care to their patients. However, utilization of EHR also has drawbacks which includes interoperability, potential privacy, and cybersecurity issues that need to be addressed by the management. It is therefore recommended that further orientation and training on electronic health records may be conducted among nurses to deliver patients care effectively and safely.*

Keywords – Challenges, Digital Documentation, Electronic Heath Records, Patients' Safety, Quality Care

INTRODUCTION

One of the important tasks of nurses is to make accurate and error-free documentation. This is a requisite to enhance the quality of care, guarantee patient safety, boost efficiency, and promote inter-professional communication. Accurate, concise, and timely documentation ensures quality patient care in a timely manner.

With the workload on bedside care and other nursing tasks, nurses may forget some of the details that happened in an entire shift. In this regard, it is a must for nurses to make clear and accurate patient records that are needed for handoff communication. In this era of technology, the advancement in documentation systems is the Electronic Health Records (EHR) which are utilized in a synchronous manner of updating the healthcare team used as a real-time method of informing the healthcare team about the patients' condition [1].

Nurses play a critical role within interprofessional teams in influencing the use of EHR as an approach of providing quality patient care [2]. Implementation of EHR use can minimize recording time while augmenting patients' interaction, thus elevating the standards of care [1].

Despite the wide implementation of EHR in the hospital, challenges accord with its usefulness. The noticeable efficiency of EHR use was influenced by nurses' experiences, vis-à-vis with computer skills of end users [3], hence, the use of EHR requires constant and periodic monitoring during implementation.

Nonetheless, the 'lack of information technology (IT) support, hardware, and time-consuming data entry' processes are challenges and barriers to full utilization of EHR [4]. Administration support is an important predictor for its successful implementation.

On the other hand, Blijliven et.al [5] posited that a workaround (healthcare providers resort to temporary practices) emerged because of EHR influence that could impact patient safety, effectiveness, and efficiency of care. At the same time, Gesner [6] found out that the impact of regulatory requirements on EHR use can increase the incidence of documentation burden among healthcare providers. On this note, comprehensive orientation, and monitoring in EHR use should be a priority to safeguard the patient's protection and ensure standards of care. 'Optimizing EHR skills has had an impact on patient safety and care. It has begun to lessen the burden of a health care provider's daily work, by improving critical skills and reducing time interfacing with all aspects of a patient's health record' [7].

In the current hospital affiliation of the researcher, a complete transition from mixed documentation (paper-based and electronic) to exclusive electronic documentation became the mandate in midyear 2020. This process of documentation transition creates major changes in the delivery of nursing care. Considering that the nursing workforce in the institution came from different educational orientations where some of the staff were not accustomed to the technological advancement in the documentation system, resistance became transparent. From this perspective, the researcher became interested in investigating the impact of EHR use on patient safety and the delivery of care to nurses. This study will benefit the health institution in redesigning EHR implementation. Likewise, nurses can be reorientated in advancing EHR education and skills to further improve the delivery of efficient and effective nursing care.

Objectives of the Study

This study aimed to explore the nurses' experiences in the utilization of electronic health records for patient safety and quality care.

Materials and Methods

Research Design

This study used a phenomenology type of qualitative research as it explored the nurses' experiences on the utilization of electronic health records on patients' safety and quality of care. Creswell and Poth [8] asserted that 'phenomenological study describes the everyday lived experiences of multiple individuals focusing on what everyone' "has in common as they experience a phenomenon" (p. 75). In this context, nurses' lived experiences provided detailed insights into the impact of electronic health records utilization on the patient's safety and quality of care.

Informants of the Study

The informants of the study were twelve 9 nurses working in a tertiary hospital in the western part of Saudi Arabia who used electronic health records as the only means for patients' care documentation system. Purposive sampling was utilized to choose the participants. Samples were selected based on the following criteria: nurses providing direct patient care, either male or female, at least six months working in the institution, and using EHR for patients' documentation. Nurses who are not providing direct patient care like supervisors and those working in the offices were excluded from the study. Data saturation was used to finalize the participants of the study.

Participant 1 has been working in the ICU unit for almost 4 years. She had previous knowledge of electronic health records when she was working in other areas of Saudi Arabia and was further enlightened when she joined the hospital where she was working. Participant 2, who has been working for 2 years in the medical unit experienced only the use of EHR in the hospital where is currently affiliated since this is her first time working abroad. Participant 3 was assigned to the Emergency Department (ED) for 3 years and had a previous orientation on the use of EHR. Participants 4 and 5 are both working in the surgical units (units A and B). Participant 4 has been working in the current hospital for 3 years, while the latter is 2 years, and both have a previous orientation in the use of EHR in the previous hospitals in Saudi Arabia where they worked. Participant 6 is new in the OR theater. She was transferred to the area for almost eight months but had previous experience in the use of EHR when she was working in the obstetric complex of a hospital in the country. Participant 7 has been working in the orthopedic unit for 4 years in the current hospital but has worked in other hospitals in the country for 14 years. She had an orientation on the use of EHR but is used to doing paper-based documentation on the previous hospitals she worked at. Participant 8 is new in the isolation unit but has been working in the current hospital for almost 2 years in the medical unit and is oriented with electronic records. Lastly, Participant 9 who was assigned to the OPD unit for 2 years had experienced only the use of EHR in the current hospital she is affiliated.

Research Instrument

A semi-structured interview guide was used to explore the experiences of nurses in using electronic health records for patient safety and quality care. The formulated semi-structured interview guide was checked for its trustworthiness through expert panel consultations. Five experts in the field of qualitative research were invited to validate the formulated semi-structured interview guide. Once checked, it was modified based on the comments and suggestions before its finalization.

Data Analysis

The researchers analyzed the data through Giorgi's Method [9]. The steps of the analysis are as follows: 1) reading the transcription of the interview sessions to get a sense of the whole; 2) identifying important cues from participants' description of experiences in using EHR for patient documentation ; 3) re-reading the transcript to ensure understanding of the meaning of each cue identified and highlighted; 4) and finally, synthesizing all cues into a consistent statement regarding participants' experiences (referred to as the "structure of the experience"). The group of cues was expressed at a specific or general level (clustered themes and emergent themes). Dependability and conformability were tracked through transcripts, and notes after each interview and during the analysis of data.

Data Gathering Procedure

Ethical approval from Lyceum of the Philippines University was sought before data collection. Interviews were conducted by the researcher individually with each respondent during July 2023, and they were instructed about the interview process. Participants' consent in the conduct of the study was taken before the start of the interview.

Face-to-face interview was the only method that had been used during data collection. The participants were encouraged to communicate fully and convey their perceptions and experiences in utilizing electronic health records.

Lastly, clarification of data sought from the participants to strengthen the validity. Remarks and all gestures were noted to further support the data analysis; hence, anonymity and confidentiality of the participants was assured.

The researcher conducted the interview twice. This was done to validate the initial results of data gathering. The first phase was the initial interview with nurses who were willing to participate. After which, the data collected was organized, the researcher conducted the second phase of interview to further check the rigor and trustworthiness of the result of the first phase of data collection. Lastly, all the data gathered were transcribed and analyzed using a thematic scheme.

Ethical Considerations

Approval from the Research Ethics Committee of Lyceum of the Philippines University was sought prior collection of data. In this study, the researcher considered the sensitivities that surround the variables of the study. First, data gathering was ensured to be free of discrimination. The full consent of the participants was sought. Privacy protection, confidentiality, and anonymity of participants were guaranteed. Deceiving and miscommunicating the aims of the study as much as possible were avoided. Any form of misleading information and biased representation of data findings were avoided. Lastly, the related literature of the study was cited properly as part of ethical considerations. All information was considered confidential and held in the highest security.

RESULTS AND DISCUSSION

Using Giorgi's method of phenomenological analysis, the researcher analysed the transcripts of the interview from nine informants. From the forty-two significant statements of the informants, sixteen clustered themes/subthemes were derived that give rise to six emergent themes: cognizance of electronic health records, software that offers substantial benefits, efficient delivery of quality patient care, abreast with current patient documentation system, discourse over EHR and paper-based documentation, and challenges in utilization of EHR. These clustered and emergent themes are shown in Table 1.

Table 1. Emergent Themes and Clustered Themes

Emergent Themes	Clustered Themes/Subthemes
1. Cognizance of electronic health record	• Orientated with EHR • Prior knowledge of digital information system
2. Software that offers substantial benefits	• Timesaving • Data sorting • Accessibility of needed information
3. Efficient delivery of quality patient care	• Enhanced data privacy • Integrated care • Easy workflows

4. Abreast with the current patient documentation system	• Up-to-date information • Technological advancement
5. Discourse over EHR and paper-based documentation	• EHR preference over paper-based documentation • Paper-based documentation as a contingency • Paper-based is a preferred documentation system
6. Challenges in the Utilization of EHR	• Technical difficulties • Computer literacy • Resistance to the usage of EHR

Theme 1: Cognizance of electronic health record

Nursing documentation provides evidence of care rendered to a patient, so it must be timely, complete, and accurate. This theme expresses how nurses are being orientated on the use of EHR. Orientation varies among healthcare workers which results in different integrations to the workflow that may affect the quality of patient care. The informants shared their experiences on their knowledge about EHR. The basic knowledge of the use of information during Baccalaureate years makes them cognizant of the digitalization of patient's medical records. Particularly, orientated with EHR and prior knowledge of digital information systems were the subthemes extracted from the following significant statements.

Subtheme 1: Orientated with EHR

Nurse orientation to Electronic Health Records (EHRs) holds immense significance due to its multifaceted benefits. By introducing nurses to EHR systems, they become proficient in utilizing the technology that is now integral to contemporary healthcare practices. This familiarity not only enhances their comfort with daily tasks but also minimizes the potential for errors, ultimately improving operational efficiency.

A thorough orientation ensures that nurses grasp the vital connection between accurate data entry and patient safety, as they learn how to precisely input and access patient information. The following statements further illustrate this finding.

"When I came here to Saudi, our education department taught us everything regarding accessing the system and the types of health records in the system. So, they taught us, and we are following the same." (Participant 1)

"After learning about EHR in our facility, we feel more comfortable using it to organize patient information." (Participant 3)

"My current workplace introduced us to EHR, which is like a digital filing system for all your medical information. It helps me keep track of medical history, test results, medications, and treatment plans in one place." (Participant 6)

The above excerpts support Kinnunen et al., [10] findings which claimed that nurses' education, usage of an 'electronic health record system, familiarity with electronic health record systems, adequate training, greater levels of technical capability, simplicity of use, and usefulness were all related to competency and adequate training'.

On the other hand, some nursing staff were frequently uncertain whether the nursing information in EHR was comprehensive, relevant, correct, and user-friendly [11]. This finding contradicts the result of the current study, wherein nurses as EHR users find it a useful and efficient way of documenting patients' overall information. Those nurses who are having difficulties adapting to digitalization and EHR use might be also having difficulty in computer literacy, which can be found among senior older nurses who are not well versed with the advancement in computer technology.

Subtheme 2: Prior knowledge of digital information system

Prior knowledge of Electronic Health Record Systems (EHRS) is of paramount importance for several reasons. Firstly, it allows healthcare professionals to seamlessly transition into using these systems without disruptions in patient care. Familiarity with EHR interfaces, features, and navigation empowers users to efficiently input, access, and interpret patient data, reducing the risk of errors and enhancing patient safety. This is further supported by the significant statements below.

> *"I learned to use EHRs from seminars that I frequently attended before I used it in a hospital setting. Keeping up to date with the current patient documentation system is crucial for healthcare professionals to provide efficient and high-quality patient care. EHR makes it easier for doctors and nurses to enter, find, and share patient information quickly." (Participant 5)*

> *"I have learned about electronic health records (EHRs) through my training and coursework before using it in a hospital setting." (Participant 9)*

Basic knowledge of computers and informatics is beneficial in the utilization of EHR as part of the digital documentation of patients' records. Thereby, insufficient knowledge of the use of EHR could hinder the workflow of nurses as to patient documentation. The personal involvement of users, coaching, and simulation activities help nurses to become familiar with EHR use, therefore, it lessens their noncompliance and resistance [12]. The capability of nurses to use digital documentation systems primarily relies on their proficiency and competence in using digital technology. They use technology to gather information relevant to patient care. In doing so, prior knowledge is required for them to efficiently deliver their tasks in digital documentation.

Nonetheless, some nurses struggle with using digital documentation. The scoping review of Weinschreider et al. [13], found that newly graduated nurses have difficulty in the utilization of EHR in terms of knowledge, skills, and attitude, thereby, training simulation must be conducted for the end user to develop competence.

Theme 2: Software that offers substantial benefits

This theme discusses the benefits of using EHR as the primary documentation system in the hospital where the informants are currently working. EHR software is a digital tool that aids healthcare providers in managing patients' comprehensive medical records. It offers a comprehensive package that allows the sharing of information among healthcare providers about the patient's assessment, laboratory results, plan of care, etc. Nurses, being the end users of patients' medical records and responsible for most of the documentation benefited from the use of EHR software. The following subthemes extracted, and significant statements present noteworthy viewpoints of the informants.

Subtheme 1: Timesaving

EHR reduces the time needed to perform nursing activities as divulged by nurses who are using it. This makes them save time in doing nursing documentation, thus, they can focus on other tasks to be accomplished.

> "*It benefits me because in the ICU we are handling 1 is to 2 – 1 is to 3 cases and we are unable to access the paperwork. We cannot make it fast, but in the system, you can do your job easily and completely. You can see pending works. So, the system is making it easier for me to complete my job. It is very timesaving also. It has good benefits and good experience to access the electronic items so it should be used by the nurses." (Participant 1)*

> *"As a nurse by using EHR, it is easier to use and may help in providing you a time-saving way of recording, easy access to patient's record including laboratories." (Participant 6)*

The above statements of the informants substantiate Ommaya et al. [14], declaration that the standards for automatic 'data integration from medical monitoring devices and other IT systems will reduce the load of manual data entry among healthcare providers. In a developed country like America, nurses seem to utilize the nursing process with digital documentation.

Digitalization appears to be an advancement in the field of nursing practice as it allows the integration of patient's overall information in digital records. All nursing staff could easily view the needed information in just a matter of minutes. Generally, nurses perceive the use of EHR as significant for patient safety and enhancing the delivery of patient care [15].

Nurses spent more time on bedside care and less time at station doing documentation. Digital documentation saves time and efficiency of nurses' work, and longer stays at the bedside.

Subtheme 2: Data Sorting

Each section in the digital record which is provided by every member of the health care team provides the needed data for patient care. EHR provides clear organization and great sorting of patient data as informants mentioned in the following significant statements. Informants express their appreciation for how they easily sort data needed for patient care.

"It's mostly helpful for doing everything. For procedures, entering patient details, we can also take previous records easily from the electronic medical device rather than papers." (Participant 2)

In my current hospital, since we have been using the EHR, I can say that using EHR in health care serves as a more organized way of recording patient care data and it is paperless, easy to use, and timesaving." (Participant 6)

Documentation as part of the nurses' everyday tasks was lessened because of the use of electronic recording of patients' information. The components of the client's hard copy of the chart which were transferred to digital records make the nurses easily sort the data pertinent to every nursing activity to be rendered.

It is worth noting that the EHR interface helps to facilitate better and effective communication among health care providers in all levels of care. It supports better management of patients with chronic diseases, effective delivery of preventive care, have been identified as facilitators to effective implementation and use of these systems to support patient health, chronic disease management, reliable delivery of preventive services, and enhanced patient safety thus avoiding medication errors.[16].

In contrast, the study of Mishra et al. [17], contradicts the present findings in a way that nurse 'experience with EHRs and their usability is low regardless of the system'. They recommended designing better EHR training to understand the EHR system better and improving clinical content.

Subtheme 3: Accessibility of information

All information about patient care can be accessed via EHR which makes it easy to get the data needed for patient care. Through EHR, nurses can easily retrieve information pertinent to patient care, organize recordings, and read the data entry of other healthcare providers which is mostly beneficial during emergency times.

"This can help me monitor the patient easily for vitals, previous records, laboratory investigations and I can easily access." (Participant 2)

"I can easily access the patients' files which makes my job easier. It is easy to navigate the system and find the files that I am looking for compared to using paperwork." (Participant 5)

"EHR, in my opinion, enhances patient care by offering precise and current information, enabling improved coordination between healthcare practitioners, and increasing general efficiency in healthcare delivery." (Participant 8)

Nurses appreciate the usefulness of patient-accessible electronic health records (PAEHR) for patients, particularly in terms of enhanced control and the ability to better prepare for visits, and that most patients become more concerned after being able to read notes in their PAEHR [18]. Likewise, the study conducted by Aldosari et al. [19], revealed that the EHR use is directly related to its 'perceived usefulness and reported ease of use', which has a favorable impact on nurses' acceptability.

The above statements were also supported by the study of Gaughan et al. [20], wherein nurses reported a positive experience with the 'use of electronic health records, large databases, crowdsourcing, and bio-surveillance'. Healthcare providers benefited from the use of EHR as they could easily access the 'real-time' information of patients [21].

Subtheme 4: Data Privacy

EHR allows effective use of data without risking the privacy and confidentiality of patient records. The program protects the data with enhanced security measures. Informants value the confidentiality of data that EHR software provides.

"Regarding privacy, some diagnostic tests like X-rays and MRIs can be accessed only by the doctors, we cannot open the X-ray and MRI portal. We have our username and password. If you put in the username and password, it will open for you only and it is confidential. So, before you access anything, you should get permission from your head nurse and the doctors must be consulted. The patient's data and diagnosis are kept confidential." (Participant 1)

"Only the one who has passwords can access the patient's data. Others who are

not part of the care of the patient cannot access the EHR unless you give them passwords and usernames. Confidentiality and privacy are secured." (Participant 4)

"As a nurse, it is one of our responsibilities to keep and maintain the confidentiality and privacy of our patient's data thus as same with the written medical record, we should keep all information private and limited only to health care providers who are involved in patient care." (Participant 6)

"This includes protecting login details, only gaining access to patient data when necessary, and being careful to only communicate patient information in suitable contexts." (Participant 8)

Increasing access to EHR records is a common concern for preserving confidentiality. Practices included intentionally hiding data and employing individualized and unified codes to alert health care teams with the confidentiality of patient's information encoded in HER [10].

Data privacy is one of the big challenges in EHR use. To augment the current finding, a literature review on privacy and confidentiality of data regarding EHRs suggested that regulations and standards be synchronized with an 'efficient encryption scheme' to address confidentiality and privacy issues [22].

Theme 3: Efficient Delivery of Quality Patient Care

This theme discloses that EHR effectively enhances the delivery of patient care by reducing tasks, saving time, and promoting better communication. Among the top priorities of nurses is to provide quality and effective patient care. To do this, nurses should balance their time in every nursing activity, hence, efficient nursing documentation using EHR can help increase time for bedside care.

Subtheme 1: Integrated Care

Electronic Health Records (EHRs) serve as a vital tool in seamlessly integrating patient care across the healthcare spectrum. By centralizing comprehensive patient information, EHRs enable authorized healthcare providers to access a holistic view of an individual's medical history, diagnoses, medications, and test results. This consolidation facilitates smoother transitions as patients move between different healthcare settings, allowing for uninterrupted and well-coordinated care.

"I stay longer in performing bedside care because I have enough time. EHR helps me finish my nursing documentation earlier. I could easily browse the doctor's order and laboratory results needed for my patient's care." (Participant 1)

"EHRs help improve patient care by making patient information easily accessible, improving communication, and ensuring patient engagement and safety." (Participant 4)

"Patients' medical records in the EHR allow doctors, nurses, and other members of the health care team to create a unified plan of care. It makes us easily understand the care needed by browsing the different sections and areas in the patient's digital record" (Participant 6).

The current finding is parallel with the result of the study of Mahdizadeh [23], which implies that a strong culture and teamwork among members of the health team are significant with the use of EHR. Unity in the health care team is a crucial determinant in the implementation and utilization of EHR. There is a direct relationship between the length of EHR documentation hours to integrated patient care.

Further, Vos [24], supports the present study that EHR helps in collaborative care among health care teams through the provision of comprehensive patient records, sharing of data, and outright documentation. The use of EHR further enhances shared decision-making and smooth teamwork.

Subtheme 2: Easy Workflows

EHR plays a pivotal role in simplifying and optimizing workflows within healthcare environments. By consolidating a patient's comprehensive medical information into a single digital repository, EHR provide healthcare professionals with easy access to vital data, such as complete history, diagnostic results, and treatment plans. This accessibility eliminates the need for manual searches through physical records or disparate systems, resulting in quicker and more efficient information retrieval.

"We can know everything through the electronic device. Because the tasks that

may slow me down have now been made easier, I can now focus on giving quality patient care." (Participant 2)

"EHRs improve patient care by making patient information easily available, supporting decisions based on evidence, improving communication, ensuring patient involvement and safety, which improves overall workflow." (Participant 5)

It implies that using a complete EHR is related to improved quality of care and higher usability ratings. Regardless of EHR extent of utilization, the 'hospital work environment' has a substantial impact on how nurses' rate on the usefulness of EHR and how it contributes to improvement of the delivery of safe and quality health care services [25].

Furthermore, the finding of the present study is related to Golay et al., [26] as they found out that features such as 'keyword-based care plan structure and good overview of patient status' in EHR interface enhances learning among nurses. Indeed, this experience influences nurses' feelings and emotions such as achievement of desired outcome, understanding the case and management would likely to decrease risk for errors.

'EHR can also enhance patient safety by detecting missed diagnoses, producing diagnostic error alerts to prevent misdiagnosis, and assisting the practitioner in gathering and synthesizing patient information' [27].

Theme 4: Abreast with the current patient documentation system

Abreast with the current patient documentation system optimizes workflows, reduces errors, and enhances overall efficiency in the usage of EHRs. With fast-changing technology, nurses should be always updated with the latest trends and advanced information systems. The use of EHRs provides easy access to a patient's complete health history, can predict illnesses and disease outbreaks, minimizes costs of resources, and eliminates errors that manual entry may bring.

Subtheme 1: Up-to-date information

Remaining up to date with the use of EHR is a matter of utmost importance with far-reaching implications. The dynamic nature of healthcare technology demands constant vigilance, particularly about patient safety and data security. Understanding and effectively implementing these updates bolsters the utilization of EHR systems, optimizing workflows and reducing the likelihood of errors that could impact patient care.

"In my current job, we are using EHR. They also provide continuous monitoring and evaluation because keeping up with the current patient documentation system is important. EHR helps different medical teams work together better, reducing mistakes and keeping patients safer. Regular training is needed for healthcare professionals to use this system well." (Participant 4)

"I learned to use EHRs from seminars that I frequently attend. Keeping up-to-date with the current patient documentation system is crucial for healthcare professionals to provide efficient and high-quality patient care. EHR makes it easier for doctors and nurses to enter, find, and share patient information quickly." (Participant 5)

The above statements of the informants support the findings of de la Vega et al. [28], wherein they posited that autogenerated ICD-10 codes from EHR technology were utilized in evaluating the determinants of health as part of the program in primary health care. It was noted that systematic use of EHR enables efficient workflow and provides up-to-date information whenever it is needed.

Moreover, the data within the EHR contain overall information about patients' care once consulted and admitted to the health care facility. The data that was stored in the system are long-lasting, 'providing important information on disease development, progression, and response to treatment or intervention strategies' [29].

Subtheme 2: Technological advancement

Technological advancements in the use of EHR have ushered in a new era of healthcare management, revolutionizing how patient information is handled and enhancing the overall quality of care. These advancements have introduced transformative changes that impact various aspects of healthcare delivery. This subtheme is supported by the following excerpts.

"EHRs replace the often cumbersome and space-consuming paper-based records with a digital repository that systematically

organizes patient data. This means no more hunting through stacks of files or deciphering handwritten notes. Instead, you have quick access to a patient's entire medical history, diagnoses, medications, allergies, and test results at your fingertips." (Participant 5)

"With just a few clicks, I can access a patient's entire medical history, lab results, diagnoses, and treatment plans. This instant retrieval of information enables me to focus my time and energy on direct patient care rather than administrative tasks." (Participant 9)

Atasoy et al. [30], confirmed that EHR can prevent duplication of needed laboratory and diagnostic tests once the data is available and can be accessed by various members of healthcare team. It also reduced redundant diagnostics during patients' admission and follow-up visits.

Notably, the extensive utilization of EHR in the health care system provides data that can be utilized in research to improve clinical practice. The capability of the EHR system to excerpt the needed information from patient's progress records will allow generation of automated medical synopses needed for further investigation, thereafter, could be used in evidence-based practice [31].

Theme 5: Discourse over EHR and paper-based documentation

Patient health records must be effectuated at the highest standards, to guarantee that the client could receive safe and quality of healthcare services, either electronic or paper based. This theme provides a feeling of agreement and disagreement on the use of the nursing documentation system as experienced by nurses who utilized electronic health records.

Subtheme 1: EHR preference over paper-based documentation

The precedence of using electronic health records emerged as the informants perceived its usability in patients' documentation. This subtheme affirms that EHR enables nurses to complete their documentation tasks easily. It also provides patient-centered documentation for all healthcare providers.

"*Electronic Health Records are sometimes easier to handle instead of paper, the system makes it easy, and it is saving our time. We can save our documents if we erase them from the system". "The system provides all from top to bottom. Day by day, the quality of care of nurses is increasing, so this is like high-quality care, everywhere you go, you are using electronic items which indicate high-quality care in this specialty hospital. So, it is good, and it is super modern care of the health records. It should be used this way" (Participant 1)*

"From my experience, I prefer electronic health records because it is convenient. With just one click without going through all the papers. It saves a lot because you will not need to bring all those files with you. All you need is the computer and then the patient's information, and you can access it all (Participant 4).

"EHR is more convenient because it is the digital representation of a patient's paper chart that is accessible securely by authorized individuals and contains up-to-date, patient-centered information". (Participant 8)

To support the above remarks, Akhu-Zahey et al. [32], posited that 'electronic health records were better than paper-based health records in terms of process and structure. In this context, the implementation of an electronic health record (EHR) with structured and standardized recording of patient data can improve data quality and reusability [33].

The benchmark on the impact of electronic health records vs. paper-based records reported 'poor outcomes each quarter that may be a result of the paper-based documentation system. These outcomes include patient safety, patient satisfaction, and cost-effectiveness' [34].

Finally, Abed et al. [35], study supported the present findings that nurses who have patients with stable cases and with good nurse-patient ratio demonstrated more positive attitudes toward utilization of EHR than those assigned to intensive units and other floors who have heavy workloads.

Subtheme 2: Paper-based documentation as a contingency

In every situation, a contingency plan matters most. When computer glitches and some technicalities arise, the use of paper-based documentation is necessary to augment the use of EHR. It is important to have a plan when computer downtime happens as technology also have imperfection.

> *"We cannot predict that it should be continuously working. Sometimes the server will not be able to reach the system, it will shut down sometimes when we need to open the system. So, for temporary periods, we will use the papers and we will fix the file." (Participant 1)*

> *"If we are not able to use the devices, we can use the papers." (Participant 2)*

> *"We have alternatives, we experience also shutdowns in this facility, we are using the papers." (Participant 4)*

During EHR downtime and computer glitches, effective vertical communication helps multi-disciplinary health teams to safely transition back to paper-based documentation [36]. Thus, contingency planning and training are essential for ensuring safe and effective management of technology downtime events.

Most healthcare institutions nowadays with continuous and advanced EHR utilization are aware of the importance of contingency plans for both planned and unintended downtime situations [37]. It is important to update contingency plans, create drills, and provide more training to address EHR downtime. During EHR system downtime, the paper-based documentation becomes the best substitute.

Subtheme 3: Paper-based as the preferred documentation system

Senior nurses were accustomed to the use of traditional documentation systems. The usual way of doing things in nursing documentation creates some resistance to changes when a new method is being introduced like electronic health recording. This is supported by the following statements of the participants;

> *"As someone who uses traditional documentation more than EHR, I experience a lot of confusion and difficulty when it comes to using EHR. It takes time to learn it and the time that I spend learning it affects my work." (Participant 7)*

> *"I am used to using papers more than EHR, so I do not find it difficult to adjust whenever the EHR experiences malfunction." (Participant 9)*

> *"For me as a young staff, this electronic health record is easy but sometimes there are technical issues regarding the signal and the shutdowns. The signal and the connection can delay our tasks, so I prefer using paper-based recording." (Participant 3)*

Some nurses had increased everyday dissatisfaction over EHR as they experienced insufficient time for documentation which added to daily annoyance specifically for those having difficulties with technology, so they preferred paper-based recording rather than used of electronic ones [38]. For Akhu-Zahey et al. [32], in terms of 'quantity and quality content, paper-based records were better than electronic health records.'

Theme 6: Challenges in Utilization of EHR

This theme exposes the challenges experienced by nurses in the full utilization of EHR in their respective units of assignment. Despite the potential usefulness of a new program, the end user may resist and misunderstand it, and this is common to old senior healthcare practitioners like nurses. The clustered themes/subthemes are as follows; technical difficulties, computer literacy, and resistance to the usage of EHR.

Subtheme 1: Technical Difficulties

When computer glitches and other technical difficulties arise during EHR use, nurses' workload increases, consumes time and resources, and hinders their smooth workflow. The following significant statements of the informants explain this subtheme.

> *"Sometimes when we are receiving the admissions from the other department, we will find some inadequate documents in the system, they will not be fulfilling, we will take the time to fill up, sometime the server will not be able to connect properly, and we are not able to put the notes sometime. Sometimes we cannot open the system." (Participant 1)*

"The recent issues are internet problems. Sometimes we cannot get to the internet easily and it can delay our work. Sometimes, there is a shortage of electronic devices in some areas." (Participant 2)

"Sometimes there are technical issues that regard the signal, and the shutdowns. The most difficult situations I have encountered are shutdowns and signal errors." (Participant 3)

"Technical problems or downtime is one of the things that affect the work of the health care providers. It will give more time and workload to the health care providers having technical problem in the middle of working time/hours." (Participant 6)

The present finding is associated with interoperability issues. This interoperability challenge was linked to various other difficulties, including increased workloads, inadequate training, and the perceived necessity for workarounds [21].

To further support the above statements, the study by Strudwick et al. [39], reported that nurses had difficulties utilizing the EHR, notably those relating to navigation, functionality, organizational standards, documentation workload, and system performance and response time.

Also, interruptions were the most common unintended effects of electronic health record use, followed by a larger burden owing to the electronic health record, changes to the workflow, and disrupted communication patterns [40].

Subtheme 2: Computer Literacy

Nurses who are used to paper-based documentation exhibit difficulties in EHR use. Furthermore, those nurses who have low literacy with information system manifests a lack of enthusiasm to adapt and utilize electronic documentation. Informants share their experiences through the following statements.

"I am used to paper-based documentation because I am often confused as to how to use the EHR and I am not as techy as the younger nurses." (Participant 7)

"I think that EHR is great, but I think it is not very user-friendly. I find it difficult to navigate the system and I often need to rely on my workmates just to use it." (Participant 9)

Insufficient training for those nurses who have insufficient skills in technology and computer use makes them difficult to adapt to the transition of electronic health records from traditional paper-based records [20]. Poor computer skills and poor attitudes toward information system is a barrier to EHR adoption, especially for older senior nurses [41].

Moreover, resource limits, inadequate training, and a lack of technical/educational assistance for users, as well as weak literacy and technological abilities were the problems identified that hinder the full utilization of electronic health records [42].

Subtheme 3: Resistance to Usage of EHR

Initial difficulties in using EHR lead to discouragement and resistance specifically among nurses who are not accustomed to computer use and the technicalities of EHR. Resistance is often experienced among staff if they are disoriented, unprepared, and have inadequate skills for new programs/processes. This can be seen in the following excerpts.

"Before the usage of EHR was mandated, I did not usually use EHR to accomplish my tasks because I found it troublesome when technical difficulties occur, but now, when I encounter these problems, I seek help from my colleagues. (Participant 7)

"I used to have trouble using EHR so I try to avoid using it altogether, Now, when I encounter difficulty in using it, it makes my job harder to accomplish." (Participant 9)

Resistance to change, perceived usefulness, and perceived ease of use were among the factors that contribute to resistance behavior toward EHR use as identified by Cho [43]. In a mandatory implementation of EHR use, staff do not have the choice of whether to use it or not use it, which might lead to inappropriate use of the system. At the same time, it will be on the disadvantageous part of the management, that is why comprehensive orientation and training is recommended.

Additionally, Strudwick (2018) reported that nurses had difficulties utilizing the EHR, notably those relating to navigation, functionality, organizational standards, documentation workload, and system performance and

response time. An increased workload, insufficient training, and a perceived need for workarounds were among the challenges in the utilization of electronic health records [21].

Looking for a vast amount of information was difficult for some nurses as it was time-consuming. Information was judged to be dispersed and fragmented, making it difficult to identify the sequence of events and link it to the clinical significance of various facts. The electronic health record was viewed as a barrier by nurses when it came to contextualizing and synthesizing information, engaging with other clinicians, and managing patient care [44].

CONCLUSION AND RECOMMENDATION

Utilization of electronic health records has pros, cons, barriers, and challenges for both health care providers and administration. Themes generated such as cognizance of electronic health records, software that offers substantial benefits, efficient delivery of quality patient care, abreast with current patient documentation system, discourse over EHR and paper-based documentation, and challenges in utilization of EHR support the perceived experiences of nurses on digitalization of patients record.

Significantly, EHR contributes to delivering quality patient team-based care through the provision of access to all pertinent information in real-time. Nurses using EHR demonstrate efficiency, patient-centered care, safety, and collaboration as they provide care to their patients. However, utilization of EHR also has drawbacks which include interoperability, potential privacy, and cybersecurity issues that need to be addressed by the management.

EHR documentation system being the mandate of the Ministry of Health brought significant changes among the end users. Nurses' orientation and training on EHR use significantly contribute to the successful implementation of the program.

Lastly, continuous training and updates on EHR use may be conducted among nurses for them to effectively use digital recording. Mentoring those nurses who have fewer skills in information technology may be considered a priority before the actual utilization. Policies may be formulated to ensure quality nursing documentation that focuses on improving nursing knowledge, and informatics competencies, enhancing the work environment and nursing. Future nurses may be oriented and maybe given hands on exposure to the use of electronic health records aside from actual simulation before clinical exposure. Further research may be done by involving other participants (medical health professionals) and other variables like documentation errors, timeliness, etc. about electronic health records.

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