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How Do Jordanian Physicians and Nurses Perceive the Importance of Electronic Health Records' Use in Health Care Quality? A Mixed Method Study

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ABSTRACT

Background: Electronic health records (EHRs) are widely used in hospitals nowadays. Physicians and nurses utilize the EHR system in their daily tasks. Their perceptions of this system are very important in improving the care delivered to the patients. ***Purpose*:** This study aimed to assess the physicians' and nurses' perceptions about the use of EHRs in health care. ***Methods*:** This is an exploratory sequential mixed-method study utilizing both quantitative and qualitative approaches and conducted on physicians and nurses who are working in five governmental and teaching hospitals in northern Jordan. ***Results*:** A total of 601 participants completed the questionnaire, with 67% nurses and 33% physicians. Over 73% agreed that EHRs are essential for medical practice, though 30% disagreed that EHRs reduce workload. Qualitative analysis of 15 interviews identified three themes: EHRs improve health care quality and patient safety, but require system improvements and better inter-hospital collaboration. ***Conclusion*:** This study reveals that young physicians and nurses in Jordan positively perceive EHRs as improving health care quality, efficiency, and patient safety, while also noting that EHRs add workload, reduce direct patient care time, and require ongoing updates and training. However, the findings may be limited by the sampling scope, which focuses on a specific region, and generalizability may be restricted beyond similar health care settings. ***Implications for Nursing*:** The findings of this study highlighted the importance of continuous use and updating of the EHR software by physicians and nurses in order to provide more accurate care to patients. Moreover, this study indicated that more privilege should be given to nurses, so that they can follow the orders properly.

Keywords: Electronic health records, Perceptions, Nurses, Health care quality, Jordan.

What does this paper add?

1. This study is of practical importance to hospital managements because of its results regarding the physicians' and nurses' perceptions of the strengths and weaknesses of the current EHR system.
2. This study highlights the importance of giving nurses more privileges during using the EHR system in their work.

Introduction

Hospitals began to adopt information technology (IT) as early as the 1960s, and yet only during the past decade, Electronic Health Record (EHR) adoption has become widespread (Atasoy et al., 2019). This has transformed the landscape of health care delivery worldwide. These digital repositories of patient health information have emerged as powerful tools with the

potential to enhance the quality and efficiency of health care services (Hillestad et al., 2005). While EHRs offer advantages, like increased access to patient information, their implementation also introduces challenges to clinical workflows and practices. It is important to understand provider perceptions of both the benefits and challenges of working with EHRs to ensure optimal adoption and use.

Physicians and nurses are the main end-users of EHRs, as their use is integrated into their daily practice in medical facilities. Thus, their perceptions and views could be used to inform the development and implementation of EHR policies and practices. Previous studies have explored physicians' and nurses' views of EHRs in various contexts with a variation in their views and perceptions. A systematic review by Boonstra and Broekhuis (2010) analyzed 19 qualitative studies on EHR implementation in hospitals. They found that while EHRs improved access to records, they also increased workload and decreased face-to-face time with patients (Boonstra & Broekhuis, 2010). Another study conducted by Stephen Meigs et al. (2016) reported that while physicians see the benefits of EHRs in improving patient safety, reducing inefficiencies, and improving patient care, they also experienced frustration with the systems' design and impact on their work-life balance (Stephen Meigs & Solomon, 2016). A qualitative study conducted in the United States by Upadhyay and Hu (2022) revealed that while nurses had positive perceptions of the role of EHRs in improving efficiency, other clinicians, like physicians, considered EHRs as time-consuming. The same study also reported that physicians, nurses, and patient safety officers emphasize the role of EHRs in avoiding medical errors (Upadhyay & Hu, 2022). So, many benefits and drawbacks were reported in the literature by physicians and nurses regarding the adoption of EHRs in hospitals.

In the context of Jordan, the main providers of health care services are the Ministry of Health, the Royal Medical Services (military), private hospitals, and university-affiliated hospitals. In 2009, Jordan launched its first major eHealth initiative focused on governmental hospitals. Known as the "Hakeem Program", its goal was to digitize patient health records across all facilities run by both the Ministry of Health and the Royal Medical Services. This marked the beginning of Jordan's efforts to adopt electronic health records nationwide (Nassar et al., 2013). Moreover, other EHR systems are being used in private and university-affiliated hospitals. King Abdullah University Hospital, which is considered one of the biggest university-affiliated hospitals in the region, adopted the EPIC EHR system in almost all of its departments and wards. However, a cross-sectional nationwide study conducted in 2017 revealed that the adoption of EHRs remains relatively low in Jordan with emphasis on addressing the challenges and barriers preventing wider adoption of EHRs in the country (Tubaishat & Al-Rawajfah, 2017).

Over the last fourteen years, Jordan began digitizing health records through initiatives like Hakeem. Physicians and nurses may now have greater experience and comfort using electronic systems in their regular work. As such, further research with updated information could provide valuable insights into the long-term effects of EHR adoption on health care quality, patient safety, and other outcomes. Examining the impacts after more than a decade of implementation would help assess progress and inform ongoing optimization efforts. In Jordan, some studies investigated the level of EHR implementation, Jordanian nurses' views on the factors affecting EHR implementation, and the impact of EHRs on the quality of nursing documentation (Akhu-Zaheya et al., 2018; Al-Rawajfah & Tubaishat, 2019; Ghosh, 2016; Nassar et al., 2013). However, little is known about how Jordanian physicians and nurses view the impact of EHRs on the quality of health care services. Understanding their perceptions is important to inform the development and implementation of EHR policies and practices in Jordan. Thus, the main objective of this study was to assess the physicians' and nurses' perceptions of EHRs' impact on health care delivery in Jordan. By addressing gaps in understanding provider viewpoints, this study may contribute knowledge for more successful EHR transitions that improve rather than hinder quality, safety, and satisfaction for patients and clinicians in Jordan.

Methods

Study Design

This study utilized an exploratory sequential mixed method design, which involves the collection and analysis of both qualitative and quantitative data in two distinct phases.

Part One: Quantitative Phase

Population and Sample

The study utilized a convenient sample of physicians and nurses who are working in governmental and teaching hospitals in northern Jordan. G*Power software was used to calculate the estimated sample size and the quantitative data was collected during the period from 1/5/2023 to 1/7/2023.

Study Setting

Five hospitals use the Hakeem system and other electronic health recording systems in northern Jordan: King Abdullah University Hospital, Princess Rahmeh Teaching Hospital, Princess Badea Teaching Hospital, Al-Yarmouk Hospital, and Princess Raya Hospital.

Quantitative Data Collection

The Tool

A 15-minute structured questionnaire containing demographic questions including: job type (physician or nurse), gender, age, hospital name, qualification, department, years of experience, and years of EHR use was used. The second part of the questionnaire assessed the perceptions of EHRs. It is composed of 15 closed-ended questions/stems with a five-point Likert-type scale starting from strongly disagree (1) to strongly agree (5) reflecting the perceptions of physicians and nurses of EHRs. The tool was developed by Shaker, Farooq, and Dhafar in 2015. The reported reliability of the EHR perception questionnaire was good with Cronbach's alpha = 0.86 (Shaker et al., 2015). In this study, the calculated value of Cronbach's alpha was around 0.91, which indicates a good reliability The paper-based questionnaire forms were distributed by the researchers with the help of the heads of the departments in the hospitals under investigation.

Quantitative Data Analysis

Data was imported into the Statistical Package for Social Sciences (SPSS), version 25, for analysis. Descriptive statistics, including frequencies, minima, maxima, and medians, were calculated for each continuous variable. The perception levels for each of the 15 items were categorized as positive (rating of 4 or 5), neutral (rating of 3), or negative (rating of 2 or 1). Parametric and non-parametric tests were used where appropriate. The significance level was set at $p < 0.05$.

Part Two: Qualitative Phase

After distributing the questionnaire forms and receiving the responses, the researchers started to write the interview questions. Firstly, the researchers set 30 questions. Secondly, the proposed questions were sent to three experts (two physicians and one nurse) for evaluation. The experts consolidated some of the questions, resulting in 17 suitable questions. The interview was piloted to assess the clarity of the questions and estimate the time required to complete it.

As a first step in the interview process, each participant was reminded of the purpose of the study, research procedures, expected benefits, the right to withdraw from the study at any time, and the protection of confidentiality. To develop a good rapport with respondents and to demonstrate familiarity with the topic, the researcher identified himself as a master's student. In addition to obtaining written consent, verbal consent was also obtained. All of the interviews were face-to-face and audio-recorded. A research assistant took notes during the interviews, which helped the researcher track key points to revisit later and use during data analysis. All recordings were then transcribed verbatim.

Qualitative Data Analysis

All transcripts were coded by the research team. Open coding was conducted to allow for the identification of areas requiring additional data and/or new lines of inquiry. This initial coding was intended to remain open to any possibilities that could be discerned in the data and to avoid any conceptual leaps as we moved through the analytical work. The interviews were analyzed using qualitative content analysis performed in several steps. First, all transcripts were read through several times to gain a sense of the whole. The text was then reread and divided into meaning units, each representing a single unit of content (Driscoll et al., 2007). The interviews were analyzed using the six-phase thematic analysis process described by Braun and Clarke in 2006, incorporating familiarization with the data, generating initial codes, generating themes, reviewing themes, defining and naming themes, reporting findings (Braun and Clarke, 2006). Initially, two members of the research team independently coded a subset of transcripts to promote intercoder reliability, discussing discrepancies until consensus was reached. The conceptual framework guided initial code

generation, and emergent codes were integrated as new insights surfaced.

No qualitative data analysis software was used; however, organized audit trail documenting coding decisions, theme evolutions, and analytic memos were maintained to ensure transparency. Credibility was enhanced through prolonged engagement, member checking, and peer debriefing. Dependability and confirmability were supported by maintaining an audit trail and systematic coding protocols. Transferability was addressed by providing a detailed description of the setting, participant selection, and data collection context. These steps ensure that the findings are robust, consistent, and meaningful to a broader audience of clinicians, administrators, and policy-makers (Bradshow et al., 2017).

Ethical Considerations

IRB approvals from KAUH (REF-9/1588/2023) and the MOH (REF -MOH/REC/2023/157) were obtained. Written consent was secured prior to participation, and participants were informed of the potential risks and benefits, their rights, the voluntary nature of their involvement, and assured confidentiality. Interviews were conducted in a private, quiet setting within the hospitals to maintain privacy. All identifying information was removed from the received questionnaires and transcripts, and data was stored in a secure, password-protected system accessible only to the research team.

Results

Quantitative Phase Results

Socio-demographic Characteristics of the Study Participants

A total of 601 out of 750 participants completed the questionnaire with a response rate of more than 80%. The study's participants were divided into two main categories: nurses, constituting 67% (n=405), and physicians, constituting 33% (n=196). More than a half of the participants fell within the age range of 26 to 35 years. All participants under 25 years of age perceived using EHR positively. Table 1 shows more details of the socio-demographic characteristics of the study participants. Additionally, more than 50% of the participants were affiliated with KAUH. The median working experience among participants was approximately 10 years, with a median of 7 years of experience in using EHRs.

Table 1. Socio-demographic characteristics of study participants

Variable	Item	Frequency	Percentage	Median
Job Title	Physician	196	32.6	
	Nurse	405	67.4	
Gender	Male	240	39.9	
	Female	361	60.1	
Age (years)	18-25	24	4	
	26-35	301	50.1	
	36-45	208	34.6	
	46-55	57	9.5	
	>55	11	1.8	
Hospital	KAUH	307	51.1	
	Princess Rahmah	74	12.3	
	Princess Bade'ah	56	9.3	
	Al-Yarmouk	93	15.5	
	Princess Raya	71	11.8	
Years of Experience	-	-	-	9.5
Years of Experience in Using EHRs	-	-	-	7

Participants' Responses to the Survey Questions

Table 2 presents the participants' responses to the 15 items of the questionnaire. Notably, item 9, "EHR decreases the workload," received the highest number of responses in the "strongly disagree" category. Conversely, item 5, "Computers are important for practicing medicine," garnered the most "strongly agree" responses. Over 73% of the participants either strongly agreed or agreed that EHRs are essential for medical practice. However, 30% of the participants

strongly disagreed or disagreed with the idea that EHRs might decrease their workload (item 9). Notably, younger participants showed more positive perceptions of EHRs.

Table 2. Participants' responses to the survey questions

Item	SD n(%)	D n(%)	N n(%)	A n(%)	SA n(%)
1. I am generally satisfied with EHR.	27 (4.5)	52 (8.7)	140 (23.3)	262 (43.6)	120 (20)
2. EHR is easy to use.	22 (3.7)	61 (10.1)	123 (20.5)	283 (47.1)	112 (18.6)
3. EHR gives information which helps in better writing.	22 (3.7)	42 (7)	128 (21.3)	284 (47.3)	125 (20.8)
4. EHR increases the comprehensiveness of care which I provide.	25 (4.2)	52 (8.7)	126 (21)	275 (45.8)	123 (20.5)
5. Computers are important for practicing of medicine.	18 (3)	40 (6.7)	104 (17.3)	239 (39.8)	200 (33.3)
6. EHR is comfortable while entering the data instead of writing.	24 (4)	57 (9.5)	132 (22)	261 (43.4)	127 (21.1)
7. EHR improves quality of practice (work life).	23 (3.8)	51 (8.5)	122 (20.3)	276 (45.9)	129 (21.5)
8. EHR increases practice productivity (patient per day).	28 (4.7)	50 (8.3)	159 (26.5)	260 (43.3)	104 (17.3)
9. EHR decreases the workload.	67 (11.1)	119 (19.8)	154 (25.6)	190 (31.6)	71 (11.8)
10. It does not disrupt the workflow.	30 (5)	106 (17.6)	187 (31.1)	207 (34.4)	71 (11.8)
11. Benefits of EHR outweigh the inconveniences.	13 (2.2)	42 (7)	202 (33.6)	253 (42.1)	91 (15.1)
12. EHR does not reduce the communication among the users; i.e., health care providers.	26 (4.3)	77 (12.8)	181 (30.1)	262 (43.6)	55 (9.2)
13. EHR has the benefits of remote access usage and ordering.	23 (3.8)	44 (7.3)	156 (26)	287 (47.8)	91 (15.1)
14. All the orders can be done in one place using EHR.	29 (4.8)	69 (11.5)	153 (25.5)	252 (41.9)	98 (16.3)
15. Typed orders are clear to read leading to less errors.	20 (3.3)	31 (5.2)	128 (21.3)	279 (46.4)	143 (23.8)

SD: strongly disagree, D: disagree, N: neutral, A: agree, SA: strongly agree.

The overall participants' perception of EHR impact on patients' care was found to be positive, as shown in Figure 1.

Qualitative Phase Results

Qualitative Evaluation

The qualitative part of the study involved in-depth interviews with 15 participants including 10 nurses and 5 physicians. The duration of the interviews ranged from 25 minutes to 60 minutes, depending on the participant's responses and circumstances.

After each interview, recorded information was meticulously reviewed, transcribed verbatim, and cross-checked with the recordings to ensure accuracy. Subsequently, the transcriptions were analyzed by breaking down the text into meaningful segments, extracting semantic and coding units, and classifying primary codes into sub-categories. This process led to the identification of three main themes; namely health care quality, patient safety and EHR system improvement.

The Generated Themes

The qualitative analysis identified three main themes: health care quality, patient safety, and EHR system improvement. These themes encapsulate both the advantages and challenges associated with EHR use as perceived by the participants. To provide a clear and comprehensive overview of the findings, a table summarizing the themes and supporting quotes is

presented (Table 3). This table highlights representative quotes that substantiate the identified themes and sub-themes, offering insight into participants' experiences and perspectives.

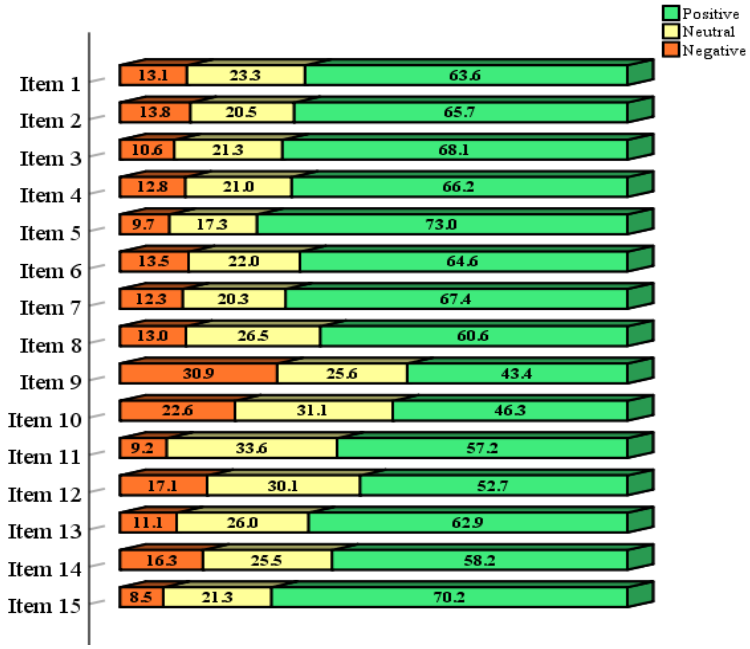

Figure 1. The perceptions of physicians and nurses about EHR impact on patient care

Table 3. Themes and supporting quotes from qualitative data

Theme	Sub-theme	Representative Quotes
Health Care Quality	Positive impact of EHR on organization and clarity	*"All information about the patient will be organized and saved... the physician can make a summary..."* (P8)
	Reduction in handwriting-related issues	*"Writing orders using the computer will make it easier to understand..."* (P3)
	Paperwork reduction	*"EHR will save you the stuff of paper-work... the data will be secured and saved."* (P10)
	Improved communication between departments	*"EHR helps... collaboration with other specialties... to pull information."* (P15)
	Negative impact on speed of interventions	*"In the crowded Emergency Department... EHRs will make things a little bit slower."* (P6)
	Difficulty in editing erroneous entries	*"The disadvantage is that you cannot edit the wrong entry..."* (P3)
Patient Safety	Enhanced detection and prevention of medical errors	*"The medication ordering... will improve the quality of healthcare."* (P14)
	Improved research capabilities	*"Everything is recorded... you can perform any research with ease..."* (P1)
	Barriers such as limited access to research data	*"Retrieving such data... is very hard and exclusive to limited groups."* (P2)
	Concerns about confidentiality	*"It is possible to enter false or incorrect information."* (P5)
EHR System Improvement	Lack of synchronization between systems in different health care sectors	*"Within the MOH, it is good... but outside the MOH, collaboration is poor."* (P11)
	Need for training	*"I suggest training on typing and on ordering... to be familiar with the EHR interface."* (P7)
	System customization for disaster scenarios	*"If there is a tab for such cases, it may secure me and the patient..."* (P11)
	Need for improved technical support	*"I suggest establishing a link... technical supporters being in the hospital on shift..."* (P10)

Health Care Quality:

Participants in our study claimed that using EHRs has some advantages and some disadvantages. For example, the use of EHRs negatively impacts the speed of interventions. Participant 6 claimed that EHR will slow down the work in certain departments, such as the

crowded emergency departments: "*The disadvantage for me, as a physician in the Emergency Department (ER), is that if I have a crowded shift, the computerized EHRs will make things a little bit slower*" (Participant 6).

Another technical disadvantage of using the EHR system is that it does not support editing and correction except for the vital signs. Participant (3) said that:

> *"The disadvantage is that you cannot edit the wrong entry. Sometimes, I write a note for a patient mistakenly, with this system this wrong note cannot be removed or edited. In the old fashion, the paper-based health records, we could write under the error information the word "error" with our signature and the date. To make things more accurate, in Hakeem's system you can only edit the error in the vital signs."*

On the other hand, EHRs can make the work easier and more competent. Participants perceived that EHRs keep clinicians organized by providing them with a systematic way of recording patient information. One of the participants (participant 8) said:

> *"All information about the patient will be organized and saved. After the patient undergoes lab tests or radiology, all the results will be saved and organized. Thus, the physician can make a summary of the patient's condition in a shorter time."*

Moreover, the use of EHRs might override the handwriting issue, which might negatively affect the order understanding. According to participant 3:

> *"Due to that most physicians have a very bad font, so if you write a piece of information, the other Health Care Providers (HCPs) may not understand it. Rather, writing the orders or information using the computer will make it easier to understand. Secondly, due to that our English is not as good as much, so the listed orders with some suggestions will help physicians make more accurate orders".*

Another point that makes EHRs acceptable and with many benefits is that they save a lot of unnecessary paperwork. Participant 10 stated that *"EHR will save you the stuff of paperwork. The data will be secured and saved on the system".*

Practically, EHRs can also help in improving the understanding between providers *via* clearer communication. Participants indicated that the ability to share patients' records between departments saves effort and time. It also makes the physicians' planning and documenting easier. Participant 15 said that: *"EHR helps the patient treatment process and collaboration with other specialties and the department team in itself to communicate with one another and to pull information".*

Patient Safety

The top priority during patient care is patient safety. Participants perceived that having medical history, surgical notes, surgical operation details, and examination details available avoids potential mistakes and improves patient safety. For example, medical errors can be detected if they occur, and the main cause can be figured out to avoid the repetition of errors. Participant 14 said that *"The medication ordering and administering, if accurately applied, will improve the quality of healthcare."* Another participant (13) stated that *"The use of the EHR will reduce medical errors when it is accurately used and applied. To illustrate, you cannot administer the medication except via the patient's ID authorization, so it will facilitate the five rights check".*

Moreover, the EHR system is very important for research purposes; research findings can be utilized to improve patient safety. Participant 1 said: *"Everything is recorded in the notes within the system; therefore, you can perform any research with ease and care, and you know who has seen and who hasn't seen the patient".*

Even though EHRs can facilitate research, they have many barriers. For example, the data is not available for all health care providers. Participant 2 said: *"To be honest, everything is available and programmed on the system. However, retrieving such data for scientific-research purposes is very hard and exclusive to limited groups".*

In contrast to the above positive impacts of EHR on the quality of care provided to the patients, there are some negative impacts, such as lack of confidentiality and the disclosure of the user name and passwords. Participant 5 said: *"So, it is possible to enter false or incorrect information".*

EHR System Improvement

EHR systems utilize many software and have different formats. These systems in different hospitals should be linked to improve collaboration, because in

Jordan some patients have bi-insurance; The MOH insurance, the Royal Medical Services insurance, and sometimes insurance at KAUH. the EHR systems are not linked in these healthcare-providing sectors. Participant 3 said *"But outside the MOH, I do not think so. I do not have access to the interventions done in the Royal Medical Services hospitals"*.

Another participant (12) said *"It is effective in collaborating, for sure, if the receiving hospital has a Hakeem system. For example, if you want to transfer a patient from Princess Rayah Hospital to Princess Basma Hospital, you are forced to deliver the information in a paper form as Princess Basma Hospital does not use the Hakeem system"*.

Another participant (11) said *"Within the MOH, it is good in collaboration. But outside the MOH, the collaboration is poor due to a synchronization of the data between the hospitals".*

Training and retraining are essential for the quality assurance of the EHR system. Participant 8 said: *"I think that there should be training on how to use the EHRs"*. Participant 7 said:

> *"At least when the nurse or the physician starts working and using the system, a 5-hour training course should be received. This should include how to write the notes. Also, not all of us have a good typing speed, which is a problem, and an online note may take 15 minutes from the HCP with a slow typing pattern. So, I suggest training on typing and on ordering or to be familiar with the EHR interface".*

EHR systems can be developed, upgraded and used as new options that will improve the provided health services. Participant 11 said:

> *"I recommend establishing a new tab on the system for crises and disaster cases. To illustrate, when we get a multi-causality incidence, honestly, I don't have sufficient time for the triage process on the system nor the notes or providing the medical service. But, if there is a tab for such cases, it may secure me and the patient, when the system requests me to write about specific information, like primary survey".*

Another point of development can be achieved through enhancing the logistics. For example, technical support and hotlines should be more efficient to solve any problem faced by EHR users. Participant 10 said:

> *"I suggest establishing a link between the HCPs and the system administrator or technical support. I think that there are on-call supporters, but not in the hospital. I preferred the presence of such technical supporter being in the hospital on shift to solve any technical errors at any time".*

Discussion

This study aimed to assess the physicians' and nurses' perceptions about the importance of EHR use in the quality of care provided to patients. Physicians and nurses in our study noted the benefits of using EHRs, which are supported by existing literature. They emphasized the multiple benefits of EHR use in terms of efficiency, including the accuracy of patient documentation and the availability of patient information.

An interesting finding of our study is that all the participants who are aged under 25 years perceived using EHRs in health care positively. This age group has utilized the technology properly and has very little experience with traditional filing systems.

One of the interesting findings of our study was that even though the overall perception of the nurses and the physicians was positive, none of the items which were positively perceived exceeded 73%. An explanation of this might be that there was a neutral option in the survey that might make the responders hesitate in the selection.

Most of the physicians and nurses in our study believed that EHR systems would increase the efficiency and the speed of the care provided to patients, because they are generally easy to use, which agreed with Sieck et al. (2020). Sieck et al, reported that physicians in the Midwest of the United States realize that EHR use increased the efficiency and speed of service and provided an accessible source of information (Sieck et al., 2020). In contrast to this, when we interviewed some of the participants, they regretted that privacy and confidentiality of the patient data can be disclosed by abusing the username and password systems. This view agreed with other published reports (Basil et al., 2022; Paul et al., 2023). Basil et al. (2022) reported that the conversion of sensitive patient information into digital format increases the chance of data breaches, while the potential for compromising patient confidentiality emerges as a significant area of apprehension (Basil et al., 2022). Before that, the utilization of EHRs brings forth privacy and security

apprehensions as a plausible drawback, underscoring the substantial hurdles in safeguarding patient data. The necessity for strong technical and administrative measures further underscores the imperative of tackling these concerns effectively (Paul et al., 2023).

Another interesting finding is that around one third of the participants claimed that EHR use will not decrease the workload. The participants' interviews supported this finding; they believe that in the crowded departments, EHR use will use add to their load. This finding is comparable to a study conducted in Japan, where it was reported that the increased time spent on computer-related tasks will increase the workload on physicians and nurses (Alami et al., 2020). Another study conducted in Sweden in 2016 found that even though physicians found EHRs helpful in reducing medical errors, they increased their workload (Grünloh Christiane & Cajander, 2016). In contrast, physicians and nurses in the United Arab Emirates reported that EHRs enhanced the overall patient care and reduced workload (Bani-Issa et al., 2016).

A remarkable finding of our study is that EHR use can waste time and reduce the actual contact with patients. Nurses claimed that documenting through using EHRs can be useless, because in crowded wards, you spend most of your time looking at items and ticking, which agreed with (Kalkhajeh et al., 2023; Maillet et al., 2015). A study by Maillet et al. (2015) found that the shift from paper-based records to EHRs significantly increased the time that nurses spend on documentation rather than on direct patient care, causing dissatisfaction among some nursing professionals. Kalkhajeh et al. (2023) reported that nurses expressed concerns about system usability and the time needed to enter data into EHRs (Kalkhajeh et al., 2023). Our participants in the interviews reported that some departments may not benefit from EHRs. In certain departments, such as the ED, there are a lot of patients and the use of EHRs will obstacle the provided interventions.

A noteworthy finding of our study is that most of the participants positively perceived that typed orders lead to less errors; the interviewed physicians and nurses thought that their organization and efficiency were improved through EHR-generated work lists, new order and medication alerts, and updated medication administration records, especially when these are synchronized with an automated medication-dispensing system, which can reduce errors.

The interviewed participants in our study also claimed other downsides of using the EHR system, such as insufficient EHR use training, which prevents them from fully benefiting from EHR systems. EHR has created a dependency for providers, which may generate potential issues if the system is down, which agreed with Ting et al. (2021) and Akhu-Zaheya and Etoom (2024), who found that comprehensive training programs and regular audits (Akhu-zaheya & Etoom, 2024)) are needed to lessen physicians' and nurses' anxieties about EHR use (Ting et al., 2021). Moreover, our study revealed that physicians and nurses suggested some improvements in the EHR systems by employing IT support teams and continuous upgrading of the systems. This opinion agreed with a study conducted in Finland in 2014 that highlighted the need for wireless technology and interdisciplinary collaboration to support the effective use of EHRs and improve patient care (Laitinen et al., 2014).

Furthermore, it is important to note that the use of convenience sampling in our study, while allowing access to a large sample (n=601), may introduce biases that limit the generalizability of the findings. Convenience sampling could affect the representativeness of the data, as participants were not randomly selected. Future research should consider employing stratified sampling methods to ensure broader representativeness and minimize bias. Additionally, comparative studies between different EHR systems in Jordanian hospitals could provide insights into system-specific challenges and benefits.

One barrier for our study about the EHR systems is that, for confidentiality violation reasons, we were incapable of asking the participants to indicate the software implemented in their hospitals.

Implications for Nursing

The findings of this study should be shared with the nurses and the nursing decision makers in hospitals and the Ministry of Health, to enhance the role of nurses in EHR use. Moreover, the study findings highlighted the important of continuous training for nurses to use EHRs, ending up in improving the quality of care provided to patients. Jordanian health care facilities could adopt new strategies to improve EHR experiences, such as targeted training or system customization for high-demand departments.

Conclusion

The findings of this study broaden our understanding of the physicians' and nurses' perceptions of the importance of using EHRs in improving the health care quality in Jordan. The findings revealed that young physicians and nurses have positive perceptions of the importance of using EHRs to provide quality health care to patients in hospitals. The results also revealed that the use of EHRs improved the efficiency and speed of patient care and reduced medical errors. On the other hand, the findings revealed that physicians and nurses view EHR as an extra workload, wasting time, and reducing the amount of time used for direct patient care, as well as needing continuous improvement and staff training to keep up to date with the advancements in practice.

EHR use is new to Jordan, and not all hospitals are using EHRs, including the governmental hospitals. All hospitals should be encouraged to use EHR systems to improve the quality of care provided to patients and to enhance the collaboration among different health care settings. To ensure the proper use and utilization of the technology in health care settings, proper training and support are needed for all staff members.

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Data Availability

The data generated and/or analyzed during this study is not publicly available due to concerns about compromising participants' privacy and consent. However, data can be obtained from the corresponding author upon reasonable request.

Conflict of Interests

All authors declare that they have no conflict of interests regarding the conduction of this study.

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