

## Identifying the Relationship between Nurse Well-Being and Electronic Health Record Satisfaction

**Nada Hassan Alshaif<sup>\*1</sup>, Ayat Ali Al Sawad<sup>1</sup>, Zainab Ali H Alawami<sup>1</sup>, Amna Saleh Al Hamoud<sup>1</sup>, Fatimah Adnan Alawami<sup>1</sup>, Zahra Tayseer Al Saif<sup>1</sup>, Maab Ahmad Abualsaud<sup>1</sup>, Ebtesam Mohsen Farhan<sup>1</sup>, Ohood Hassan Alfaifi<sup>1</sup>, Fatimah Mohammed Al-Bahar<sup>1</sup>, Noura Salman Alnasser<sup>1</sup>, Anwar Ahmed Almubayedh<sup>1</sup>, Hussain Hassan Ahmed Alsheef<sup>1</sup>**

<sup>1</sup>King Fahad Hospital of the University, Al Khobar, Saudi Arabia

**\*Corresponding Author:**

Nada Hassan Alshaif

King Fahad Hospital of the University – Al Khobar – Saudi Arabia

Email ID: [halshaif@iau.edu.sa](mailto:halshaif@iau.edu.sa)

### ABSTRACT

**Background:** Electronic Health Records (EHRs) have improved healthcare delivery but also introduced challenges, particularly for nurses, including increased workload and burnout. Nurse well-being is essential for quality patient care, and satisfaction with EHR systems plays a key role. Factors such as age, experience, and work environment may influence this relationship. Understanding how EHR satisfaction affects nurse well-being is crucial for improving system design and supporting healthcare staff.

**Aim:** To investigate the relationship between EHR satisfaction and the well-being of nurses, and to identify demographic and professional factors that influence these outcomes in a clinical setting.

**Methods:** a cross-sectional study that targets registered nurses of King Fahad Hospital in eastern Saudi Arabia. A total of 276 participants took part in the Satisfaction and well-being survey regarding EHR.

**Results:** Most of the participants were between the ages of 31 and 40 years old (57.2%), females (86.6%), non-Saudi (72.1%), had bachelor's degree (75.7%), working in the inpatient ward (30.8%), (35.9%) and had up to 10 years of experience using HER while. Most nurses reported that EHRs improved efficiency (63.4%) and satisfaction (60.5%). Median relative scores were 73.3% for satisfaction and 60% for well-being. Significantly higher satisfaction was observed among non-Saudi nurses compared to Saudi nurses (42.7% vs. 28.6%;  $p = 0.031$ ) and among those working  $\leq 50$  hours per week (40.7% and 41.0% vs. 0.0%;  $p = 0.047$ ). Higher well-being scores were significantly associated with the age group of 41–50 years ( $p = 0.027$ ), working in ICUs or operating rooms ( $p = 0.011$ ), and having 11–20 years of EHR experience ( $p = 0.032$ ).

**Conclusions:** this study contributes to the growing body of evidence that experience with EHR systems positively influences nurse well-being and, to some extent, satisfaction. Nurses with more than 10 years of EHR experience—especially those in the 11–20-year range—demonstrated significantly higher well-being scores, highlighting the importance of long-term exposure in building digital resilience. These findings underscore the need for structured, experience-sensitive training, mentorship, and system refinement initiatives aimed at optimizing EHR usability and reducing burnout. Future research should investigate how institutional factors, team culture, and workflow design interact with nurse experience to shape satisfaction and health outcomes.

**Keywords:** *Electronic health record, satisfaction, nursing, burnout, well-being.*

**How to Cite:** Nada Hassan Alshaif, Ayat Ali Al Sawad, Zainab Ali H Alawami, Amna Saleh Al Hamoud, Fatimah Adnan Alawami, Zahra Tayseer Al Saif, Maab Ahmad Abualsaud, Ebtesam Mohsen Farhan, Ohood Hassan Alfaifi, Fatimah Mohammed Al-Bahar, Noura Salman Alnasser, Anwar Ahmed Almubayedh, Hussain Hassan Ahmed Alsheef, (2025) Identifying the Relationship between Nurse Well-Being and Electronic Health Record Satisfaction, *Journal of Carcinogenesis*, Vol.24, No.5s, 174-184

## 1. INTRODUCTION

The adoption of electronic health records (EHRs) has become a widespread practice in healthcare settings to improve patient care, increase efficiency, and enhance data management (Kruse et al., 2018). However, the integration of EHRs into clinical workflows has presented various challenges for healthcare providers, particularly nurses, who play a crucial role in patient care. Nurses often report increased workload, decreased job satisfaction, and higher levels of burnout due to the implementation and use of EHRs. [1] Nurse well-being is a critical factor in the quality of patient care and the overall performance of healthcare organizations. Improved EHR usability can lead to higher satisfaction levels among nurses, which is essential for their mental and emotional health. [2] Nurse burnout, characterized by emotional and physical exhaustion, is often exacerbated by dissatisfaction with EHR systems. When nurses face challenges in using EHRs, it can contribute to feelings of overwhelm and fatigue, further diminishing their well-being.[3] Therefore, addressing EHR usability is crucial in mitigating burnout and enhancing nurse satisfaction. Moreover, clinical workflow efficiency is closely tied to EHR design. Inefficient workflows can frustrate nurses, leading to decreased job satisfaction and well-being. By streamlining these processes through better EHR design, healthcare organizations can foster a more supportive work environment. Training and support for EHR usage are also vital. Comprehensive training programs can significantly enhance nurses' confidence and competence in using EHRs, thereby improving their satisfaction and well-being. [4] Additionally, initiatives aimed at promoting nurse well-being can create a positive feedback loop, where improved well-being leads to better attitudes towards EHRs, further enhancing satisfaction. The objective of this study to assess the level of satisfaction among nurses regarding their use of Electronic Health Records (EHRs); This includes evaluating nurses' perceptions of EHR efficiency, time spent on tasks, and overall satisfaction using validated survey tools, to assess the well-being of nurses who actively use EHR systems in clinical settings involves examining nurses' ability to manage workload, experience of burnout, and psychological impact related to EHR use, and To explore the relationship between demographic/professional characteristics and both EHR satisfaction and nurse well-being; This includes analyzing associations based on age, gender, nationality, unit type, years of experience, and weekly hours of EHR use to identify factors significantly influencing satisfaction and well-being.

## 2. METHODOLOGY

This research is a cross-sectional study that targets registered nurses who actively use EHRs at King Fahad Hospital in eastern Saudi Arabia, focusing on full-time staff with over three months of bedside experience. Participants voluntarily completed surveys about demographics and EHR usage without any compensation. Participants were informed about the survey's aim to explore the link between EHRs and nurses' well-being. Data were collected through brief electronic survey responses. Participation was voluntary, and participants could withdraw at any time. The research team will clarify the study's goals, methods, benefits, and safety measures before obtaining participants' consent. Participants will review and sign a consent form before the survey commencement. All data will be kept confidential, securely stored, and used solely for research purposes.

The questionnaire will be created using existing tools that have been previously crafted.[5] The demographics portion will inquire about participants' age, gender, the unit where they were employed, and their highest educational qualification. Additionally, this section will feature questions regarding the duration of their experience with the EHR and the approximate number of hours they utilize the EHR weekly. Participant satisfaction regarding EHR systems shall be assessed through three inquiries (Q1-Q3) that have been modified from the operational framework of technology utilization in clinical practice assessment. These inquiries employed 5-point Likert scales, prompting participants to evaluate their satisfaction level with EHR on a continuum from strongly unsatisfied to strongly satisfied, and from strongly disagree to agree for the remaining two inquiries strongly. [6] The variable related to well-being will be evaluated through the incorporation of an additional six questions (Q4-Q9). Each inquiry employs a 5-point Likert scale, prompting participants to express their level of agreement with the presented statement by selecting from the options of strongly disagree, disagree, neutral, agree, or strongly agree.[7] The resultant variables encompass the satisfaction score and the well-being score. The satisfaction score will be computed based on participants' contentment with a prominent EHR system, represented by the mean score derived from questions Q1 to Q3. The well-being score will reflect the extent of well-being associated with the nursing EHR as experienced by individual participants, calculated as the mean score from questions 4 to 9. These metrics will be obtained from the arithmetic mean of the cumulative scores across all nine survey inquiries. Within a scale ranging from 0 to 5, it is noteworthy that a lower well-being score indicates a higher propensity for burnout among participants. This study is ethically approved by the Institutional Review Board (IRB) of Imam Abdulrahman Bin Faisal University. The developers were emailed to request permission to use the study instruments. SPSS (Version 25.0, Armonk, NY: IBM Corp.) was used for all statistical analyses. P-values were calculated using the Mann-Whitney or Kruskal-Wallis tests, as appropriate. P-values were calculated using the Chi-square test, except for education, which was calculated using the Fisher exact test.

### 3. RESULTS

A total of 275 nurses were included in the current analysis. The demographic and professional characteristics of the nurses are presented in Table 1. The majority (57.2%) of the nurses were aged between 31 and 40 years. The majority were females (86.6%) and non-Saudi (72.1%). Most of the nurses (75.7%) held Bachelor's degrees, with 22.1% holding Diplomas and 2.2% holding Master's degrees. The most frequent type of units where nurses were working was inpatient wards (30.8%), followed by intensive care units (ICUs)/ step-down units (18.5%), operating room (14.9%), outpatient department (10.1%), dialysis (10.1%), and emergency department (7.2%). More than half (55.4%) of nurses had up to 10 years of experience using HER, while 35.9% had 11-20 years of experience, and 8.7% had more than 20 years of experience. Almost two-thirds of nurses worked between 40 and 50 hours per week using EHRs.

	<b>Number</b>	<b>Percentage</b>
<b>Age groups</b>		
20-30 years	35	12.7%
31-40 years	158	57.2%
41-50 years	55	19.9%
51-60 years	28	10.1%
<b>Gender</b>		
Males	37	13.4%
Females	239	86.6%
<b>Nationality</b>		
Saudi	77	27.9%
Non-Saudi	199	72.1%
<b>Educational level</b>		
Diploma	61	22.1%
Bachelor	209	75.7%
Masters	6	2.2%
<b>Unit of work</b>		
ICUs/ step-down units	51	18.5%
Wards	85	30.8%
Emergency department	20	7.2%
Operating room	41	14.9%
Outpatient department	28	10.1%
Dialysis	28	10.1%
Others	23	8.3%
<b>Years of experience using EHR</b>		
1-3 years	45	16.3%
4-6 years	58	21.0%
7-10 years	50	18.1%

Identifying the Relationship between Nurse Well-Being and Electronic Health Record Satisfaction

11-15 years	68	24.6%
16-20 years	31	11.2%
21-30 years	24	8.7%
<b>Years of experience using EHR</b>		
1-10 years	153	55.4%
11-20 years	99	35.9%
21-30 years	24	8.7%
<b>Hours using EHR per week</b>		
1-10 hours	45	16.8%
11-20 hours	24	9.0%
21-30 hours	14	5.2%
31-40 hours	17	6.3%
41-50 hours	159	59.3%
>50 hours	9	3.4%
<b>Hours using EHR per week</b>		
<40 hours	86	32.1%
40-50 hours	173	64.6%
>50 hours	9	3.4%

Table 1: Demographic and professional characteristics of the nurses (N=276).

Table 2 presents the answers to questions from the Electronic Health Record-Burnout Survey, as reported by nurses. The most frequently positive characteristics of EHR were improving efficiency (63.4%), high perceived satisfaction (60.5%), and the reasonable time spent on EHR tasks related to direct patient care (55.3%). For well-being questions, the rate of agreement was highest for the ability to manage the amount of my work well (66.7%) and the tendency to think more creative at work (63.0%) while it was lowest with the ability to tolerate the pressure of work very well (40.6%) and not feeling burnout & weary after work (48.6%).

	Strongly dissatisfied	Dissatisfied	Neutral	Satisfied	Strongly satisfied
1. Rate level of satisfaction with EHRs	7 (2.5%)	7 (2.5%)	95 (34.4%)	141 (51.1%)	26 (9.4%)
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2. EHRs have improved my efficiency	2 (0.7%)	7 (2.5%)	92 (33.3%)	152 (55.1%)	23 (8.3%)
3. The amount of time I spend on EHR tasks related to direct patient care is reasonable	4 (1.5%)	21 (7.6%)	98 (35.6%)	136 (49.5%)	16 (5.8%)
4. Usually, I can manage the amount of my work well	8 (2.9%)	15 (5.4%)	69 (25.0%)	156 (56.5%)	28 (10.1%)
5. After my work, I usually feel worn out & weary	1 (0.4%)	27 (9.8%)	106 (38.4%)	90 (32.6%)	52 (18.8%)
6. I can tolerate the pressure of my work very well	15	40	109	92	20

	(5.4%)	(14.5%)	(39.5%)	(33.3%)	(7.2%)
7. Over time, one can become disconnected from this type of work	6 (2.2%)	42 (15.2%)	117 (42.4%)	92 (33.3%)	19 (6.9%)
8. Recently, I tend to think less at work and do my job almost mechanically	12 (4.3%)	45 (16.3%)	117 (42.4%)	89 (32.2%)	13 (4.7%)
9. I always find new and interesting aspects in my work	6 (2.2%)	26 (9.4%)	105 (38.0%)	118 (42.8%)	21 (7.6%)

Table 2: Electronic Health Record-Burnout Survey.

As shown in Figure 1& 2, the satisfaction score ranged between 3 and 15 points, with a median of 11 points (interquartile range, 9-12). The well-being score ranged from 6 to 30 points, with a median of 18 points (interquartile range, 17-20). As shown in Figure 2, the median and interquartile range of the relative satisfaction score were 73.3% (60%-80%). The median and interquartile range of the relative well-being score were 60.0% (56.7%-66.7%).

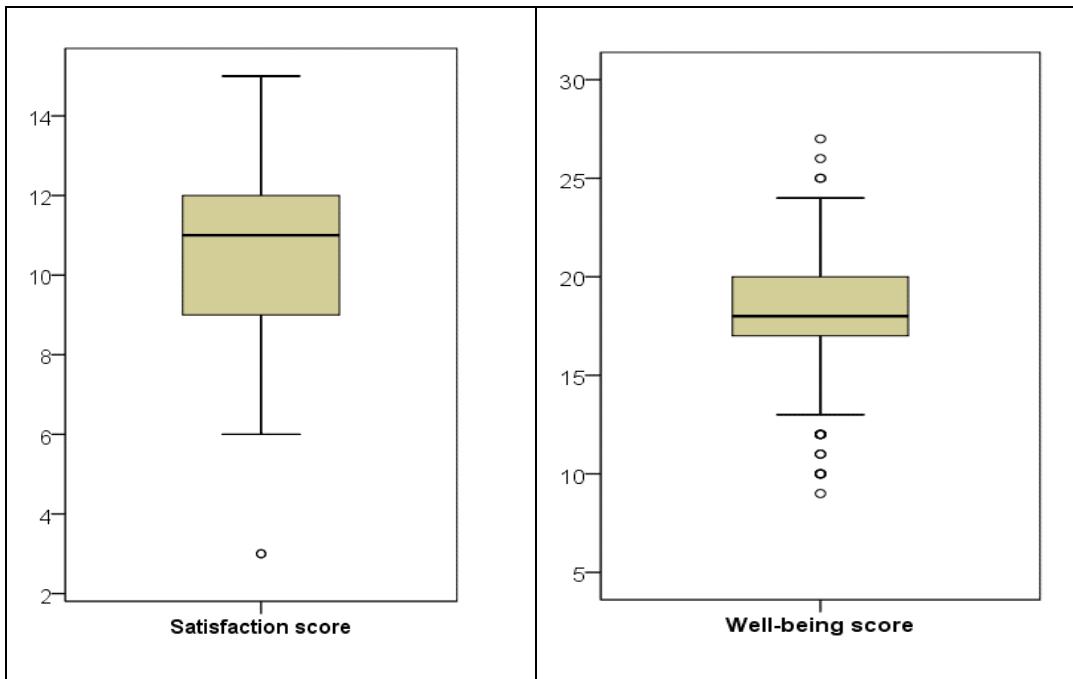


Figure 1: Satisfaction and the well-being scores of nurses about the use of EHR. Satisfaction score ranged between 3 and 15, with a median of 11 points (interquartile range 9-12). The well-being score ranged between 6 and 30, with a median of 18 points (interquartile range, 17-20). Questions 5,7, and 8 were inversely scored before calculating the well-being score.

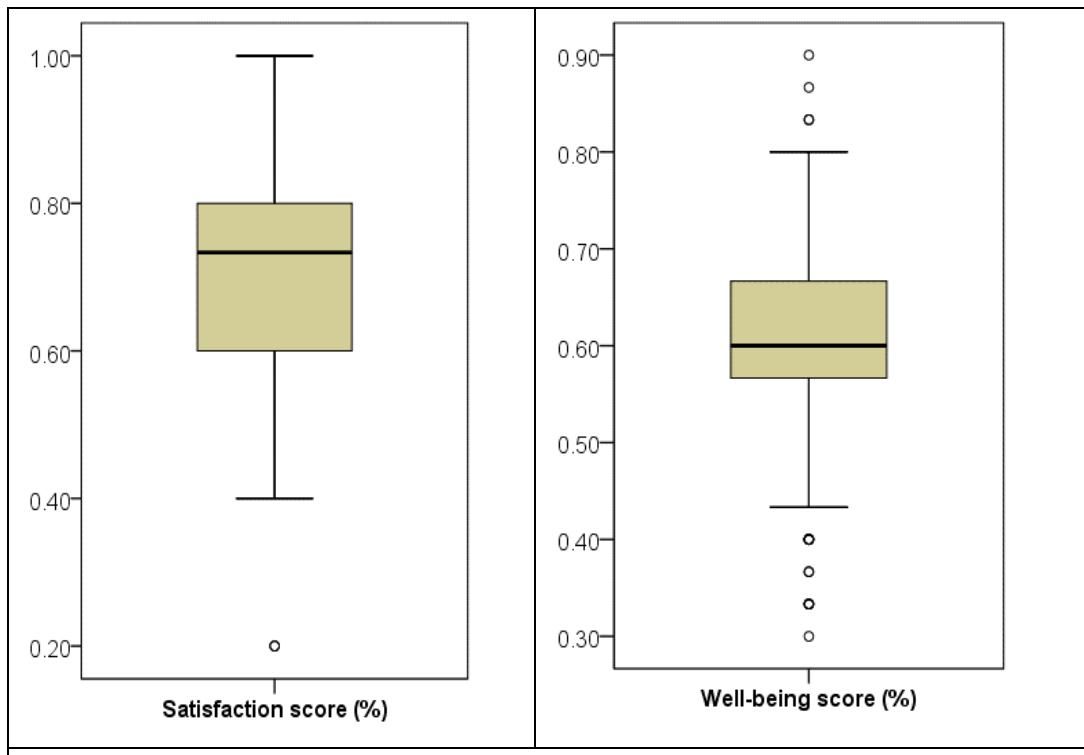


Figure 2: Satisfaction and the well-being relative (percentage) scores of nurses about the use of HER.

The median and interquartile range of the relative satisfaction score were 73.3% (60%-80%). The median and interquartile range of the relative well-being score were 60.0% (56.7%-66.7%).

Table 3 examines the associations between satisfaction score and demographic and professional characteristics of nurses. Using the relative satisfaction score as a continuous variable, no significant associations were found between satisfaction scores and the demographic and professional characteristics of nurses ( $p$ -values  $> 0.05$ ). Using satisfaction score as a categorical variable, satisfaction score above the median (i.e.,  $>73.3\%$ ) was significantly higher among non-Saudi nurses compared with Saudi nurses (42.7% versus 28.6%,  $p=0.031$ ). It was significantly higher among those working less than 50 hours per week compared with those working more than 50 hours per week (40.7% and 41.0% versus 0.0%,  $p = 0.047$ ).

	Satisfaction score%	P-value <sup>1</sup>	Satisfaction score		P-value <sup>2</sup>
			$\leq$ median N=169 (61.2%)	$>$ median N=107 (38.8%)	
<b>Age groups</b>					
20-30 years	70.5% $\pm$ 12.6%	0.265	25 (71.4%)	10 (28.6%)	0.334
31-40 years	71.3% $\pm$ 13.0%		99 (62.7%)	59 (37.3%)	
41-50 years	73.2% $\pm$ 11.4%		30 (54.5%)	25 (45.5%)	
51-60 years	75.2% $\pm$ 8.9%		15 (53.6%)	13 (46.4%)	
<b>Gender</b>					
Males	72.4% $\pm$ 13.3%	0.986	23 (62.2%)	14 (37.8%)	0.901
Females	71.9% $\pm$ 12.2%		146 (61.1%)	93 (38.9%)	
<b>Nationality</b>					
Saudi	70.0% $\pm$ 11.5%	0.079	55 (71.4%)	22 (28.6%)	0.031

Non-Saudi	72.7% $\pm$ 12.6%		114 (57.3%)	85 (42.7%)	
<b>Educational level</b>					
Diploma	74.0% $\pm$ 10.9%	0.335	35 (57.4%)	26 (42.6%)	0.793
Bachelor	71.4% $\pm$ 12.5%		130 (62.2%)	79 (37.8%)	
Masters	70.0% $\pm$ 18.7%		4 (66.7%)	2 (33.3%)	
<b>Unit of work</b>					
ICUs/ step-down units	74.0% $\pm$ 10.1%	0.314	30 (58.8%)	21 (41.2%)	0.521
Wards	70.9% $\pm$ 13.5%		54 (63.5%)	31 (36.5%)	
Emergency department	68.3% $\pm$ 12.8%		16 (80.0%)	4 (20.0%)	
Operating room	73.5% $\pm$ 10.2%		22 (53.7%)	19 (46.3%)	
Outpatient department	69.0% $\pm$ 10.9%		18 (64.3%)	10 (35.7%)	
Dialysis	73.1% $\pm$ 13.4%		17 (60.7%)	11 (39.3%)	
Others	73.9% $\pm$ 15.0%		12 (52.2%)	11 (47.8%)	
<b>Years of experience using EHR</b>					
1-10 years	70.9% $\pm$ 12.5%	0.121	101 (66.0%)	52 (34.0%)	0.190
11-20 years	73.1% $\pm$ 12.0%		55 (55.6%)	44 (44.4%)	
21-30 years	73.9% $\pm$ 12.4%		13 (54.2%)	11 (45.8%)	
<b>Hours using EHR per week</b>					
<40 hours	72.5% $\pm$ 10.5%	0.175	51 (59.3%)	35 (40.7%)	0.047
40-50 hours	72.4% $\pm$ 13.2%		102 (59.0%)	71 (41.0%)	
>50 hours	66.7% $\pm$ 5.8%		9 (100.0%)	0 (0.0%)	

Table 3: Associations between well-being score groups and demographic and professional characteristics.

Table 4 examines the associations between well-being score and demographic and professional characteristics of nurses. Using relative well-being score as a continuous variable, well-being scores were significantly higher among those aged 41-50 years (64.6% $\pm$ 10.4%, p=0.027), those working in ICUs/ step-down units and operating room (64.1% $\pm$ 9.3% and 63.4% $\pm$ 8.1%, respectively, p=0.011) and those who had 11-20 years of experience (63.3% $\pm$ 11.2%, p=0.032). Using the well-being score as a categorical variable, a well-being score above the median (i.e., >60.0%) was significantly higher among those working in operating rooms and ICUs/step-down units (58.5% and 51.0%, respectively; p = 0.014).

	Well-being score %	P-value <sup>1</sup>	Well-being score		P-value <sup>2</sup>
			$\leq$ median N=156 (56.5%)	>median N=120 (43.5%)	
<b>Age groups</b>					
20-30 years	58.1% $\pm$ 7.9%	0.027	22 (62.9%)	13 (37.1%)	0.115
31-40 years	60.2% $\pm$ 10.6%		96 (60.8%)	62 (39.2%)	
41-50 years	64.6% $\pm$ 10.4%		24 (43.6%)	31 (56.4%)	
51-60 years	61.5% $\pm$ 10.2%		14 (50.0%)	14 (50.0%)	

<b>Gender</b>					
Males	60.5% $\pm$ 9.1%	0.728	23 (62.2%)	14 (37.8%)	0.457
Females	61.0% $\pm$ 10.5%		133 (55.6%)	106 (44.4%)	
<b>Nationality</b>					
Saudi	59.9% $\pm$ 9.9%	0.218	47 (61.0%)	30 (39.0%)	0.346
Non-Saudi	61.4% $\pm$ 10.5%		109 (54.8%)	90 (45.2%)	
<b>Educational level</b>					
Diploma	63.5% $\pm$ 9.6%	0.080	27 (44.3%)	34 (55.7%)	0.071
Bachelor	60.1% $\pm$ 10.2%		126 (60.3%)	83 (39.7%)	
Masters	63.9% $\pm$ 17.2%		3 (50.0%)	3 (50.0%)	
<b>Unit of work</b>					
ICUs/ step-down units	64.1% $\pm$ 9.3%	0.011	25 (49.0%)	26 (51.0%)	0.014
Wards	57.4% $\pm$ 10.9%		61 (71.8%)	24 (28.2%)	
Emergency department	59.8% $\pm$ 11.3%		11 (55.0%)	9 (45.0%)	
Operating room	63.4% $\pm$ 8.1%		17 (41.5%)	24 (58.5%)	
Outpatient department	60.4% $\pm$ 11.3%		16 (57.1%)	12 (42.9%)	
Dialysis	62.3% $\pm$ 8.7%		17 (60.7%)	11 (39.3%)	
Others	62.9% $\pm$ 10.6%		9 (39.1%)	14 (60.9%)	
<b>Years of experience using EHR</b>					
1-10 years	59.5% $\pm$ 9.4%	0.032	94 (61.4%)	59 (38.6%)	0.185
11-20 years	63.3% $\pm$ 11.2%		50 (50.5%)	49 (49.5%)	
21-30 years	60.6% $\pm$ 11.3%		12 (50.0%)	12 (50.0%)	
<b>Hours using EHR per week</b>					
<40 hours	61.2% $\pm$ 10.1%	0.525	49 (57.0%)	37 (43.0%)	0.767
40-50 hours	61.2% $\pm$ 10.6%		95 (54.9%)	78 (45.1%)	
>50 hours	57.0% $\pm$ 8.6%		6 (66.7%)	3 (33.3%)	

Table 4: Associations between well-being score groups and demographic and professional characteristics

#### 4. DISCUSSION

This study sought to explore the relationship between nurses' professional experience and their satisfaction and well-being to EHR use. The national survey by Schnieder et al. (2021) demonstrated that each one-point increase in System Usability Scale (SUS) score corresponded with a 2% reduction in nurse burnout (OR 0.98, 95% CI 0.97–0.99,  $p < 0.001$ ). Their mean SUS score was 57.6, categorized as failure; yet, even modest usability improvements significantly reduced burnout risk. This aligns with our observation that experienced users perceive enhanced system usability, which may buffer against burnout. [8] Notably, our findings revealed that nurses with more than 10 years of EHR experience—specifically those with 11–20 years—reported significantly higher well-being scores ( $p = 0.032$ ) and slightly higher satisfaction scores. However, the latter was not statistically significant ( $p = 0.121$ ). These findings suggest that professional experience with EHR systems may play a crucial role in enhancing usability and mitigating burnout. Our results align with previous studies

emphasizing the positive association between EHR familiarity and perceived usability. [5] Khairat et al. (2020) found that nurses with longer exposure to EHRs were more likely to report satisfaction and lower emotional exhaustion, proposing that accumulated experience enhances proficiency, reduces cognitive load, and improves system navigation over time. This suggests that EHR usability improves not merely with time but with accumulated contextual knowledge of the system's features, workflows, and documentation demands. Moreover, a Finnish cross-sectional study observed that poor EHR usability was significantly associated with information system-related stress and cognitive lapses ( $\beta = .38$  and  $.28$ , respectively;  $p < 0.001$ ), with younger nurses affected most severely. [9] This supports the view that familiarity with EHR functionalities, often developed over time, enhances usability perceptions and reduces stress. A meta-analysis by Liu et al. (2022) confirmed that excessive time spent on EHR tasks—especially outside work hours—is a key contributor to clinician burnout, with an odds ratio of  $2.43$ . [10] Further, Suominen et al. (2019) demonstrated that usability-related stress and error rates were highest among younger nurses, who also exhibited lower digital confidence. Their findings mirror ours, suggesting that as nurses gain EHR experience, they adopt coping strategies and workflows that mitigate usability challenges and reduce cognitive strain. [11] System design and feature accessibility may also influence these trends. In a systematic review, Cahill et al. (2024) found that customization, searchability, and interoperability were among the top features associated with higher nurse satisfaction with EHRs. Notably, experienced nurses reported greater skill in leveraging these advanced features to optimize documentation and clinical decision-making. [12]

In contrast, experienced nurses in cohort may have developed coping strategies and system-specific cognitive schemas that reduce stress despite usability challenges. Further, it reported poor usability and excessive EHR time as key burnout contributors. [13] Crucially, the review noted that professional experience moderates this relationship. Our findings extend this work, demonstrating a discrete experience threshold—10 years—where well-being improvement becomes evident. Similarly, Maillet et al. (2015) extended the Unified Theory of Acceptance and Use of Technology (UTAUT) to nursing EHR adoption and reported that performance expectancy—driven by user experience—was the most influential predictor of satisfaction. [1] In their study, nurses with longer system exposure felt that the EHR facilitated their clinical tasks more effectively, supporting our findings that usability perception improves over time. Our study also builds on the work of Shanafelt et al. (2016), who reported that burdens associated with clerical tasks in electronic environments were inversely associated with physician and nurse satisfaction. [6] However, they also noted that efficient EHR use by experienced users may reduce the perceived clerical burden, particularly when institutional support and system training are strong. The implication here is twofold: first, that usability is not solely a system attribute but a dynamic function of user experience; and second, that investing in long-term training may yield cumulative benefits in reducing burnout. Qualitative data from Kutney-Lee et al. (2021) suggest that suboptimal EHR usability exacerbates nurse burnout and contributes to adverse outcomes like turnover and patient readmission. Our study highlights that long-serving nurses with deep system fluency may partially offset these risks, supporting a focus on retention and mentoring. [14] In our setting, where nurse-to-patient ratios are not analyzed, it remains unclear whether these structural variables may have compounded or mitigated the effects of EHR experience. Another possible explanation for our results is the adaptation and coping mechanisms developed by more experienced nurses. As suggested by Bakhamis et al. (2019), senior nurses often develop resilient attitudes and effective time-management skills, which may allow them to integrate EHR tasks more seamlessly into their routines, thereby reducing the psychological toll of documentation demands. [3] Moreover, the positive association between years of experience and well-being echoes findings from Walker-Czyz (2014), who demonstrated that the implementation of integrated EHRs improved perceived care quality and reduced stress among experienced nurses. [4] Her work underscores the need for usability-focused EHR implementations that account for user experience levels. A previous study suggest that utilization of EHRs is a dynamic process: proficiency improves with time, and cumulative usage contributes to a sense of mastery. Systems may initially impose a cognitive load, but as nurses progress beyond the 10-year mark, familiarity allows them to exploit efficiencies such as personalization, shortcuts, and streamlined documentation. These capabilities likely mediate lower stress and better job performance, supporting the conserved resources model. [15] On the other hand, our findings contrast somewhat with research suggesting that even experienced nurses may feel dissatisfaction if the EHR interface is unintuitive or poorly integrated into clinical workflow. For instance, Dall'Ora et al. (2020) highlighted that usability alone cannot counteract the systemic stressors of high patient-to-nurse ratios and organizational inefficiencies. [2] Besides, our findings diverge from studies asserting that younger users adapt more swiftly to technology; while novice users may learn technical functions rapidly, they also lack clinical contextual knowledge, which our study suggests is essential to perceiving EHR usability positively. Experienced nurses bring both technological adaptation and contextual agility, harmonizing workflow demands.

The practical implications of our findings are considerable. Firstly, EHR training should not be a one-time event but rather a continuous learning process, with differentiated training modules tailored to years of experience. For example, novice nurses may benefit from simulation-based, step-by-step guidance, while experienced nurses could engage in advanced optimization sessions focusing on customization, shortcuts, and efficient data retrieval. Secondly, healthcare institutions should consider mentorship models where experienced nurses coach less experienced colleagues in effective EHR use. Such peer-led initiatives may bridge the usability gap and foster a culture of continuous improvement. Research by Shanafelt et al. and Khairat et al. both support the view that shared best practices can alleviate system-related stress and improve team morale. Thirdly, nurse retention strategies should highlight the cumulative benefits of EHR

familiarity. Healthcare managers could use these findings to advocate for structured career progression paths that include informatics competencies, potentially motivating nurses to remain longer in their roles and enhancing institutional knowledge over time. It is also essential to emphasize that usability perceptions are not fixed but evolve with exposure, confidence, and perceived control. As such, EHR vendors and administrators must engage in ongoing dialogue with experienced users to refine system features based on lived experience, thereby improving satisfaction and usability across all experience levels. [5,6,8,14]

## 5. LIMITATION

The study was conducted in a single hospital setting in Saudi Arabia, which limits its generalizability to other cultural or organizational contexts. Moreover, we relied on self-reported measures of satisfaction and well-being, which are subject to response and recall bias. Future studies should incorporate objective performance data (e.g., time-on-task metrics or documentation error rates) to triangulate self-reported findings. Another limitation involves the cross-sectional design, which restricts causal inference. While it is plausible that greater EHR experience leads to higher satisfaction and well-being, the reverse may also be true—nurses who are more satisfied or resilient may be more likely to remain in roles that allow them to accumulate EHR experience. Longitudinal studies would provide deeper insights into these directional dynamics.

## 6. CONCLUSION

This study contributes to the growing body of evidence that experience with EHR systems has a positive influence on nurse well-being and, to some extent, satisfaction. Nurses with more than 10 years of EHR experience—especially those in the 11–20-year range—demonstrated significantly higher well-being scores, highlighting the importance of long-term exposure in building digital resilience. These findings underscore the need for structured, experience-sensitive training, mentorship, and system refinement initiatives aimed at optimizing EHR usability and reducing burnout. Future research should investigate how institutional factors, team culture, and workflow design interact with nurse experience to shape satisfaction and health outcomes.

## REFERENCES

- [1] Maillet É, Mathieu L, Sicotte C: Modeling factors explaining the acceptance, actual use and satisfaction of nurses using an Electronic Patient Record in acute care settings: An extension of the UTAUT. *International journal of medical informatics*. 2015, 84:36-47.
- [2] Dall’Ora C, Ball J, Reinius M, Griffiths P: Burnout in nursing: a theoretical review. *Human resources for health*. 2020, 18:41.
- [3] Bakhamis L, Paul III DP, Smith H, Coustasse A: Still an epidemic: the burnout syndrome in hospital registered nurses. *The health care manager*. 2019, 38:3-10.
- [4] Walker-Czyz A: The Impact of an Integrated Electronic Health Record Adoption on the Quality of Nursing Care Delivered. 2014.
- [5] Khairat S, Xi L, Liu S, Shrestha S, Austin C: Understanding the association between electronic health record satisfaction and the well-being of nurses: survey study. *JMIR nursing*. 2020, 3:e13996.
- [6] Shanafelt TD, Dyrbye LN, Sinsky C, et al.: Relationship between clerical burden and characteristics of the electronic environment with physician burnout and professional satisfaction. In *Mayo clinic proceedings*. Volume 91. Elsevier; 2016:836-848.
- [7] Maslach C, Jackson SE, Leiter MP: *Maslach burnout inventory*. Scarecrow Education, 1997.
- [8] Melnick ER, West CP, Nath B, et al.: The association between perceived electronic health record usability and professional burnout among US nurses. *J Am Med Inform Assoc*. 2021, 28:1632-1641. 10.1093/jamia/ocab059
- [9] Kaihlanen A-M, Gluschkoff K, Hyppönen H, et al.: The associations of electronic health record usability and user age with stress and cognitive failures among Finnish registered nurses: cross-sectional study. *JMIR medical informatics*. 2020, 8:e23623.
- [10] Wu Y, Wu M, Wang C, Lin J, Liu J, Liu S: Evaluating the Prevalence of Burnout Among Health Care Professionals Related to Electronic Health Record Use: Systematic Review and Meta-Analysis. *JMIR Med Inform*. 2024, 12:e54811. 10.2196/54811
- [11] Masthead. *Clinical Cardiology*. 2004, 27:fmi-fmi. <https://doi.org/10.1002/clc.4960270101>
- [12] Cahill M, Cleary BJ, Cullinan S: The influence of electronic health record design on usability and medication safety: systematic review. *BMC Health Services Research*. 2025, 25:31. 10.1186/s12913-024-12060-2
- [13] Alobayli F, O’Connor S, Holloway A, Cresswell K: Electronic Health Record Stress and Burnout Among

Clinicians in Hospital Settings: A Systematic Review. *Digit Health*. 2023, 9:20552076231220241. 10.1177/20552076231220241

[14] Kutney-Lee A, Carthon MB, Sloane DM, Bowles KH, McHugh MD, Aiken LH: Electronic health record usability: associations with nurse and patient outcomes in hospitals. *Medical care*. 2021, 59:625-631.

[15] Alobayli F, O'Connor S, Holloway A, Cresswell K: Electronic Health Record Stress and Burnout Among Clinicians in Hospital Settings: A Systematic Review. *DIGITAL HEALTH*. 2023, 9:20552076231220241. 10.1177/20552076231220241

---