

# Comparison of Medical and Surgical Nurses Attitudes toward Usage of Electronic Health Records

Songul Cinaroglu<sup>1\*</sup> and Keziban AVCI<sup>2</sup>

<sup>1</sup>Hacettepe University, FEAS Department of Health Care Management, Beytepe Ankara, Turkey

<sup>2</sup>Türkiye Yüksek İhtisas Hospital, Atatürk Bulvarı Kızılay, Sokak No:4 Sıhhiye – Ankara-Turkey

## Abstract

**Background:** Health care is an organizational field that information and technology improves quickly. With ensuring health professionals adaptation to this new information and technology environment, it is possible to achieve quality and productivity improvement goal in health care. It is known that different clinical expertises bring differences in presentation of health services.

**Aim:** In this study it was aimed to compare nurses' assessments about electronic health records usage.

**Materials and methods:** Data analyzed by using descriptive statistics, Chi-square test and independent sample student-t test.

**Results:** At the end of the analysis it was found that nurses' assessments about electronic health records usage has a meaningful difference according to different clinical expertise ( $t=2.40$ ,  $p < 0.05$ ).

**Conclusion:** Results of this study shows that surgical nurses' who are forefront with "technical abilities" have more positive assessments about usage of electronic health records when they compared with medical nurses who are forefront with "patient centered" abilities.

**Keywords:** Electronic health records; Medical and surgical nurses; Adaptation to technology

## Introduction

Decision making in healthcare is a complex area [1]. Electronic health records can be a useful tool for dealing with this complexity, reducing medical errors and improving patients' outcomes [2]. An electronic health record refers to the systematized collection of patient electronically-stored health information in a digital format [3] this is a way of health information management. With health information management technologies, it is possible to improve quality of patient care and health services [4]. Electronic health records help healthcare professionals to see uncertainties and risks in health care and make possible to solve complex problems. These records reduce medical errors, makes improvements in health outcomes, health services delivery and patient follow up processes [5]. The development level of health information systems and electronic health records is different between developing and developed countries. Developing countries like Turkey continuing on making investments on health information systems and electronic health records [6]. Turkish health care sector experiencing Health Transformation Program since 2003 [7]. With Health Transformation Program Turkish citizens living changes in health policy, planning and health technology management. In Turkey hospitals improving service quality by using electronic health records and new technologies in a large spectrum of health information systems [8]. Electronic health records are a way of adoption of health information systems and consist of wide range of information technologies. These records have basic and complex informations [2]. A basic system includes information about socio-demographic characteristics of patients. A complex system includes information about medication lists, clinical notes, prescription printing, and laboratory and radiology results. Complex systems are also an important supporting system for health care professionals [9]. Adaptation of electronic health records and health information technologies by health care professionals is still questioning [10].

Physicians are at the center of clinical decision making process

because of that understanding physicians' attitudes towards electronic health records is important [11]. According to Beasley et al. physicians feel stress and anxiety towards electronic health records. These have a potential to influence physicians performance and treat patients safety [12]. Interdisciplinary collaboration is essential for dealing with this adaptation problem of health information technologies and electronic health records [13,14]. Nurses are prominent collaborators of physicians in clinical decision making processes. Effective collaboration between nurses and physicians can improve health outcomes; reduce mortality and morbidity rates [15]. Like physicians nurses also resists to computerization and they see health information systems dehumanizing [16].

Specialties of nurses also influence the adaptation of health information systems by them. Traditionally medical nurses are more patient focus than surgical nurses because of that patients who have humanitarian nature have more close relationships with medical nurses than surgical nurses [17,18]. As a result of the main differences between different specialties the perception of electronic health records is different between nurses [19].

Both medical and surgical nurses are using information technologies in care processes and their usage of information technologies influenced by their socio-demographic characteristics like gender, nationality, education level and duration of computer usage. Studies show that

\*Corresponding author: Songul Cinaroglu, Hacettepe University, FEAS Department of Health Care Management, Beytepe Ankara, Turkey, Tel: +903124832902; E-mail: [cinaroglus@hotmail.com](mailto:cinaroglus@hotmail.com)

Received May 28, 2015; Accepted August 10, 2015; Published August 17, 2015

**Citation:** Cinaroglu S, AVCI K (2015) Comparison of Medical and Surgical Nurses Attitudes toward Usage of Electronic Health Records. J Health Med Informat 6: 201. doi:10.4172/2157-7420.1000201

**Copyright:** © 2015 Cinaroglu S. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

if nurses have positive experiences about computer usage, they feel more positive about electronic health records usage. Additionally younger, educated, and less experienced nurses have more positive attitudes towards electronic health records than older, uneducated and more experienced ones [16,20,21]. However no articles were found in the literature making a comparison between surgical and medical nurses' attitudes towards electronic health records according to their specialities. Furthermore studies about evaluating usage of electronic health records by nurses are limited in Turkey [22]. Because of this lack of information in this study we aim to compare medical and surgical nurses' attitudes towards electronic health records.

## Materials and Methods

### Research question

In this study our research question is "Is there a difference between medical and surgical nurses' attitudes towards electronic health records?"

### Study design and setting

This study was a descriptive, cross-sectional design to assess attitudes of needs and preferences of 105 medical and surgical nurses' towards electronic health records in one public training hospital located in Ankara.

### Sampling

Easy sampling methods were used in the analysis. Survey gathered from 50 medical and 55 surgical nurses after their patient visits in the clinic. Data collected from April 2014 to June 2014.

### Questionnaire and data collection

The questionnaire which was developed by Scheffer and Rubenfeld [22] was used for measuring medical and surgical nurses' attitudes towards electronic health records. The questionnaire consists of 20 questions. First part of this questionnaire consists of socio-demographic variables. The key variables are age, gender, level of education, years worked in current position, computer experience and years used electronic health records. The second part of this questionnaire consists of questions about understanding medical and surgical nurses' attitudes towards electronic health records. The statements were include accessibility of patient information, ease to use, finding up to date information from electronic health records and, finding patient data at the appropriate level for own purposes. A Likert scale was used to determine nurses' attitudes towards the use of electronic health records (strongly disagree=1, disagree=2, neither agree nor disagree=3, agree=4 and strongly agree=5). For the translation validity process we use cross cultural adaptation. In the first stage 3 bilingual professionals translated the original version of the survey. One of these professionals has clinical background; the others were English teachers in the university. In the second stage inconsistencies in the translations were resolved by discussions between translators. The experts though it is unnecessary to make further modifications to the existing adapted face scale. Face to face interviews was conducted with nurses. Data collected from April 2014 to June 2014.

### Statistical analysis

The questionnaire's internal consistency was assessed by using Cronbach's alpha ( $\alpha$ ). Cronbach's alpha for the overall score was 0.85, these implies that the instrument is highly reliable. Data analyzed by using descriptive statistics, Chi square test and independent sample

student 't' test. Respondents' socio-demographic characteristics were analyzed by using descriptive statistics. Chi Square test was used for comparing medical and surgical nurse's socio-demographic characteristics. For testing the distribution of mean value of nurses' attitudes towards electronic health records Kolmogorov Smirnov test was performed. Moreover independent sample student 't' test was used for making a comparison between medical and surgical nurses' attitudes towards electronic health records. SPSS 20.0 program was used for the analysis.

**Descriptive statistics:** Table 1 presents data about respondent's socio-demographic characteristics. 47.6% of nurses working in medical units, 52.4% of them working in surgical units. Most nurses were between 30-39 (57.1%) of age. This shows us most of our respondents were in the middle ages. The majority of nurses were graduated from school of nursing (63.8%), 30.5% of nurses worked between 11-15 years. 48.6% of them rate "good" for their ability to use computers. 30.5% of them indicate that they are using electronic health records at hospital less than two years.

**Comparison of medical and surgical nurses according to their socio-demographic characteristics and attitudes about electronic health records usage:** Results of the comparison of medical and surgical nurses according to their socio-demographic characteristics and attitudes about electronic health records usage are displayed in Table 2. The normality of the distribution of attitudes towards electronic health records assessed by using Kolmogorov Smirnov test, it is seen that the distribution of perception of electronic health records is normal

Variables	n	%
<b>Clinical Unit</b>		
Medical	50	47,6
Surgical	55	52,4
<b>Age</b>		
20-29	41	39
30-39	60	57,1
40-49	4	3,8
<b>Education Status</b>		
High School	15	14,3
Associate Degree	23	21,9
Bachelor	67	63,8
<b>Years worked in current position</b>		
0-5	28	26,7
6-10	16	15,2
11-15	32	30,5
≥ 16	29	27,6
<b>Ability to Use Computer</b>		
Excellent	9	8,6
Very good	18	17,1
Good	51	48,6
Fair	25	23,8
Poor	2	1,9
<b>Duration of Electronic Medical Records Use (years)</b>		
< 2	32	30,5
2-4	30	28,5
> 4	43	41
<b>Total</b>	<b>105</b>	<b>100</b>
	<b>Mean</b>	<b>Sd.</b>
<b>General Mean of Attitudes Towards Electronic Health Records Usage</b>	1,39	0,2

Table 1: Descriptive Statistics

	Unit				Chi-Square	p
	Medical		Surgical			
Age	n	%	n	%		
20-29	24	19,5	17	21,5	3,632	0,16
30-39	25	28,6	35	31,4		
40-49	1	1,9	3	2,1		
Education Status	n	%	n	%		
High School	6	7,1	9	7,9	0,956	0,8
Associate Degree	10	11	13	12		
Bachelor	34	31,9	33	35,1		
Years Worked in Current Position	n	%	n	%		
0-5	18	13,3	10	14,7	15,656	<0,01
6-10	8	7,6	8	8,4		
11-15	19	15,2	13	16,8		
≥ 16	5	13,8	24	15,2		
Ability to use computer	n	%	n	%		
Excellent	1	4,3	8	4,7	10,852	<0,05
Very good	7	8,6	11	9,4		
Good	31	24,3	20	26,7		
Fair	11	11,9	14	13,1		
Poor	0	1	2	1		
Duration of electronic health records use (years)	n	%	n	%		
< 2	24	15,2	8	16,8	15,050	<0,01
2-4	13	4,3	17	15,7		
> 4	13	20,5	30	22,5		
	Mean	Sd	Mean	Sd	t	p
<b>General Mean of Attitudes Towards Electronic Health Records Usage</b>	1,37	0,18	5,21	1,19	2,40	<0,05

**Table 2:** Comparison of Medical and Surgical Nurses According to their Socio-Demographic Characteristics and Attitudes about Electronic Health Records Usage

( $p < 0.01$ ). Furthermore Chi Square test and t-test was performed for comparing these two specialties. It is seen that medical and surgical nurses' attitudes towards electronic health records has a meaningful difference according to their years worked in current position ( $X^2 = 15,656$ ,  $p < 0.01$ ), ability to use computer ( $X^2 = 10,852$ ,  $p < 0.05$ ) and duration of electronic health records use ( $X^2 = 15,050$ ,  $p < 0.01$ ). Additionally medical and surgical nurses' assessments about electronic health records usage has a meaningful difference according to their clinical expertise ( $t = 2.40$ ,  $p < 0.05$ ).

## Discussion and Conclusion

As a result of this study it is seen that nurses' attitudes towards electronic health records is different according to their specialties. Additionally surgical nurses ( $\bar{X} = 5.21$ ) have more positive attitudes toward electronic health records than medical nurses ( $\bar{X} = 1.37$ ). Nurses are at the center of medical care processes, they are a kind of a direct communication channel with patients and their relatives. Furthermore they are effecting patients' behaviors and determining clinical care processes. In other words nurses are frontline care providers and they need to learn more about the use of computer technology in their daily [23]. Understanding pros and cons of nurse's electronic health records usage is important for developing the usage of health information technology management [24].

Nurses who are practicing in medical and surgical units experiencing patient workloads, and patient acuties in different way. Studies from developing countries like Turkey report that nursing services have

been greatly affected by computerization but nurses tend to resist computerization [15] because of that health information researchers need to focus on nurses' attitudes toward electronic health records. As a result of this study it is found that medical and surgical nurses attitudes towards electronic health records has a meaningful difference according to their years worked in current position, ability to use computer and duration of electronic health records usage. These results supports the idea that familiarity with technology usage ability to use computer and duration of electronic health records usage are determinant factors of nurses' attitudes towards electronic health records [25].

According to Salmond and Ropis [26] new technology development is a stress factor for nurses who are working in both medical and surgical units. Although some nurses found that paperwork is time-consuming, some nurses believe that new technologies are important stressors. According to our study results ability to use computer and duration of electronic health records usage are determinant factors of nurses' attitudes towards electronic health records. This result supports the idea that being familiar with new technologies and using them regularly in daily working activities determining nurses' attitudes towards electronic health records usage.

One of the aims of Ministry of Health in Turkey is to establish major health information systems and electronic health records in the country [27]. For achieving this aim we believe that our study results can help policy makers for understanding differences between medical and surgical nurses' attitudes towards electronic medical records. Based on our study results we recommend for further researchers to focus on the reasons of these differences and prepare training programs to help them in their adaptation process to new developments in health technologies and electronic health. These policies can help health policy makers for determining policies to improve usage of health information systems and acceptance of these systems by health professionals.

## References

1. Kushniruk AW (2001) Analysis of complex decision-making processes in health care: cognitive approaches to health informatics. J Biomed Inform 34: 365-376.
2. Brender J, Nohr C, McNair P (2000) Research needs and priorities in health informatics. See comment in PubMed Commons below Int J Med Inform 58-59: 257-289.
3. Gunter TD, Terry NP (2005) The emergence of national electronic health record architectures in the United States and Australia: models, costs, and questions. J Med Internet Res 7: e3.
4. Ludwick DA, Doucette J (2009) The implementation of operational processes for the Alberta electronic health record: lessons for electronic medical record adoption in primary care. Electronic Healthcare 7: 103-107.
5. Linder JA, Ma J, Bates DW, Middleton B, Stafford RS (2007) Electronic health record use and the quality of ambulatory care in the United States. Arch Intern Med 167: 1400-1405.
6. Bates DW (2010) Getting in step: electronic health records and their role in care coordination. J Gen Intern Med 25: 174-176.
7. Sulku SN (2012) The health sector reforms and the efficiency of public hospitals in Turkey: provincial markets. Eur J Public Health 22: 634-638.
8. Gok MS, Sezen B (2013) Analyzing the ambiguous relationship between efficiency, quality and patient satisfaction in healthcare services: The case of public hospitals in Turkey. Health Policy 111: 290-300.
9. Babbott S, Manwell LB, Brown R, Montague E, Williams E, et al. (2014) Electronic medical records and physician stress in primary care: results from the MEMO Study. J Am Med Inform Assoc 21: e100-106.
10. Charles C, Gafni A, Whelan T (1999) Decision-making in the physician-patient encounter: revisiting the shared treatment decision-making model. Soc Sci Med 49: 651-661.
11. Beasley JW, Wetterneck TB, Temte J, Lapin JA, Smith P, et al. (2011)

- Information chaos in primary care: implications for physician performance and patient safety. *J Am Board Fam Med* 24: 745-751.
12. Fewster-Thuente L, Velsor-Friedrich B (2008) Interdisciplinary collaboration for healthcare professionals. *Nurs Adm Q* 32: 40-48.
  13. Maheux B, Côté L, Sobanjo O, Authier L, Lajeunesse J, et al. (2014) Collaboration between family physicians and nurse clinicians: opinions of graduates in family medicine. *Can Fam Physician* 60: e416-422.
  14. Maxson PM, Dozois EJ, Holubar SD, Wroblewski DM, Overman JA et al. (2011) Enhancing nurse and physician collaboration in clinical decision making through high-fidelity interdisciplinary simulation training. *Mayo Clin Proc* 86: 31-36.
  15. Alquraini H, Alhashem AM, Shah MA, Chowdhury RI (2007) Factors influencing nurses' attitudes towards the use of computerized health information systems in Kuwaiti hospitals. *J Adv Nurs* 57: 375-381.
  16. Lentz EM, Michaels RG (1959) Comparisons between medical and surgical nurses. *Nurs Res* 8: 192-197.
  17. Becker R, Döring C, Denecke A, Brosz M (2011) Expectation, satisfaction and clinical outcome of patients after total knee arthroplasty. *Knee Surg Sports Traumatol Arthrosc* 19: 1433-1441.
  18. Saylor J, Bucher L (2014) Health history and physical examination, *Medical-Surgical Nursing*, Elsevier, 9<sup>th</sup> (Edn), Canada.
  19. Simpson G, Kenrick M (1997) Nurses' attitudes toward computerization in clinical practice in a British general hospital. *Comput Nurs* 15: 37-42.
  20. Tornwall E, Wilhelmsson S, Wahren LK (2004) Electronic nursing documentation in primary health care. *Scand J Caring Sci* 18: 310-317.
  21. Top M, Gider O (2012) Nurses' views on electronic medical records (EMR) in Turkey: an analysis according to use, quality and user satisfaction. *J Med Syst* 36: 1979-1988.
  22. Scheffer BK, Rubinfeld MG (2000) A consensus statement on critical thinking in nursing. *J Nurs Educ* 39: 352-359.
  23. Kossman SP, Scheidenhelm SL (2008) Nurses' perceptions of the impact of electronic health records on work and patient outcomes. *Comput Inform Nurs* 26: 69-77.
  24. Hovenga E, Garde S, Heard S (2005) Nursing constraint models for electronic health records: a vision for domain knowledge governance. *Int J Med Inform* 74: 886-898.
  25. Yi MYI, Hwang Y (2003) Predicting the use of web based information systems: self-efficacy, enjoyment, learning goal orientation, and the technology acceptance model. *IJHCS* 59: 431-449.
  26. Salmond S, Ropis PE (2005) Job stress and general wellbeing: a comparative study of medical-surgical and home care nurses. *Medsurg Nurs* 14: 301-309.
  27. Recep Akdağ (2009) Ministry of Health Turkey "Health Transformation Program in Turkey 2009".

**Citation:** Cinaroglu S, AVCI K (2015) Comparison of Medical and Surgical Nurses Attitudes toward Usage of Electronic Health Records. *J Health Med Informat* 6: 201. doi:[10.4172/2157-7420.1000201](https://doi.org/10.4172/2157-7420.1000201)

### Submit your next manuscript and get advantages of OMICS Group submissions

#### Unique features:

- User friendly/feasible website-translation of your paper to 50 world's leading languages
- Audio Version of published paper
- Digital articles to share and explore

#### Special features:

- 400 Open Access Journals
- 30,000 editorial team
- 21 days rapid review process
- Quality and quick editorial, review and publication processing
- Indexing at PubMed (partial), Scopus, EBSCO, Index Copernicus and Google Scholar etc
- Sharing Option: Social Networking Enabled
- Authors, Reviewers and Editors rewarded with online Scientific Credits
- Better discount for your subsequent articles

Submit your manuscript at: <http://www.omicsonline.org/submission>