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ORIGINAL ARTICLE

USE OF THE PATIENT'S ELECTRONIC MEDICAL RECORD BY THE NURSING TEAM*

UTILIZAÇÃO DO PRONTUÁRIO ELETRÔNICO DO PACIENTE PELA EQUIPE DE ENFERMAGEM

USO DEL HISTORIAL MÉDICO ELECTRÓNICO DEL PACIENTE POR PARTE DEL PERSONAL DE ENFERMERÍA

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ABSTRACT

Objective: to describe the use of the patient's electronic medical record by the nursing staff. ***Method:*** this is a quantitative, descriptive, cross-sectional study in a private hospital with 89 nursing technicians and 11 nurses. A data collection questionnaire was used and processed in the Microsoft Excel spreadsheet and then exported to the IBM SPSS Statistics 20.2 program. ***Results:*** the age group from 18 to 29 years predominated in both professional classes and the length of service ranged from one to four years. It is revealed that most participants had already taken courses in the area of informatics and, in relation to the system used, said to be easy to remember, manipulate and access, however, the biggest difficulty reported was "the error in the system". ***Conclusion:*** the results reinforce the need for investments in relation to "system error" or "connection failure", as this was the biggest problem reported and is identified in the literature as a disadvantage of the electronic medical record. ***Descriptors***: Electronic Medical Records; Nursing Process; Nurse Practitioners; Nursing, Team; Nursing; Nursing Informatics.

RESUMO

Objetivo*:** descrever a utilização do prontuário eletrônico do paciente pela equipe de enfermagem. ***Método*:** trata-se de um estudo quantitativo, descritivo, transversal, num hospital privado, com 89 técnicos de enfermagem e 11 enfermeiros. Utilizou-se um questionário para a coleta de dados, processando-os na planilha *Microsoft Excel*, exportando-os, posteriormente, para o programa IBM SPSS *Statistics* 20.2. ***Resultados*:** predominou-se a faixa etária dos 18 aos 29 anos nas duas classes profissionais e o tempo de serviço variou de 1 a 4 anos. Revela-se que a maioria dos participantes já havia realizado cursos na área da informática e, em relação ao sistema utilizado, afirmaram ser de fácil lembrança, manipulação e acesso, porém, a maior dificuldade relatada foi "o erro no sistema". ***Conclusão: reforça-se, pelos resultados, a necessidade de investimentos em relação ao "erro no sistema" ou "falha na conexão", visto que esse foi o maior problema relatados e está identificado na literatura como desvantagem do prontuário eletrônico. ***Descritores*:** Registros Eletrônicos de Saúde; Processos de Enfermagem; Profissionais de Enfermagem; Equipe de Enfermagem; Enfermagem; Informática em Enfermagem.

RESUMEN

Objetivo: describir el uso del historial médico electrónico del paciente por parte del personal de enfermería. ***Método:*** este es un estudio cuantitativo, descriptivo, transversal en un hospital privado con 89 técnicos de enfermería y 11 enfermeros. Se utilizó y se procesó un cuestionario de recopilación de datos en la hoja de cálculo de *Microsoft Excel* y luego se exportó al programa IBM SPSS *Statistics* 20.2. ***Resultados:*** el grupo de edad de 18 a 29 años predominó en ambas clases profesionales y la duración del servicio varió de 1 a 4 años. Se revela que la mayoría de los participantes ya habían tomado cursos en el área de tecnología de la información y, en relación con el sistema utilizado, se dice que es fácil de recordar, manipular y acceder, sin embargo, la mayor dificultad reportada fue "el error en el sistema". ***Conclusión:*** los resultados refuerzan la necesidad de inversiones en relación con "error del sistema" o "falla de conexión", ya que este fue el mayor problema reportado y se identifica en la literatura como una desventaja del historial clínico electrónico. ***Descriptores***: Registros Electrónicos de Salud; Proceso de Enfermería; Enfermeras Practicantes; Grupo de Enfermería; Enfermería; Informática Aplicada a la Enfermería.

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INTRODUCTION

The Electronic Medical Record (EMR) is considered an electronic registration document that aims at the collective use of the health team, since it is possible to access patient data simultaneously in different locations. Furthermore, EMR promotes the storage of all patient's health, administrative and clinical information, and also has relevant advantages, in contrast to conventional medical records, such as safety, since EMR allows backup, if information is lost, and readability, as the entered record allows greater understanding.[1]

It is observed that, in recent decades, there has been a process of transformation and technological innovation in the health field. Technology plays a fundamental role in supporting health prevention, promotion and monitoring, and in the hospital environment, it is common to use EMR, one of the main tools of health information and communication technologies (ICTs) that the team interprofessional has to develop in their daily activities.[2]

The Nursing Process (NP) is configured as the main tool for the systematic practice of nursing practice and a methodological way to support care and establish the basic conditions for performing the actions and documenting the practice. There are currently five stages of the NP, and the registration of all phases is indispensable so that care can be continued and the quality of care computed.[3]

The largest number of health professionals by category is the nursing staff in hospitals, thus being the team with the longest management time to computerized systems in the hospital environment.[2]

EMR is identified as a possibility employed by nursing to register its activities, which is contemplated in the Professional Nursing Exercise Law - COFEN. Article 8 discusses the requirement to use computational resources to plan actions, according to the competencies of each nursing professional group, as well as the necessary preparation for the use of this resource.[4-5]

OBJECTIVE

- To describe the use of electronic medical records by the nursing staff.

METHOD

This is a quantitative, descriptive, cross-sectional study in a private hospital, considered a reference for the population in the municipality of Teresina / PI, Brazil.

The study population consisted of all Nursing professionals, technical level or higher, who had access to the patient's electronic medical record at the study site and, according to the institution, there were 163 nursing professionals, 146 nursing technicians and 17 nurses. The sample size (n) for the population (N) of 163 professionals was calculated, comprising a 5% error margin (E), 95% confidence level (Z = 1.96) and parameter value (P) of 0.50 according to the following formula:

$$n = \frac{z^2.p.q.N}{e^2(N-1)+z^2.p.q} =$$

$$n = \frac{z^2.p(1-P)N}{E^2(N-1)+z^2.p(1-P)} =$$

$$n = \frac{1{,}96^2.0{,}5.0{,}5.163}{0{,}05^2(162)+196^2.0{,}5.0{,}5} = \frac{156{,}48}{0{,}405+0{,}96}$$

$$n = \frac{156{,}48}{1{,}365} \cong 115 \ \textit{professionals}$$

The sample was selected in each type of professional by lot. The 146 technicians (in ascending alphabetical order), as well as the 17 nurses, were listed and listed. Through the BioEstat 5.0 program, the draw was made through a simple channel without repetitions. For the definition of the sample selection process, the following inclusion criteria were considered: being an employee of the co-participant institution, having access to the EMR and being an employee of the nursing team. Professionals on vacation or who were on sick leave and trained professionals with less than three months of employment in the company were excluded. Thus, 89 nursing technicians and 11 nurses were surveyed.

Data was collected from June to August 2018. A questionnaire with closed questions (elaborated by the authors) was used as a data production instrument, which raised characteristics regarding: the professional category; to age group; to length of service in the institution; the educational level; the conduction of courses in the area of informatics; where you use your computer the most; the daily workload in which you usually use the computer; training for the use of the patient's

electronic medical record and if there is difficulty in handling the EMR and what they are.

Then, another questionnaire with adapted questions, based on the Technology Acceptance Model (TAM) model, was applied, from which it was possible to evaluate the perceived ease of use and perceived utility. The response variable used was the Likert scale, which assessed the level of satisfaction.

The Technology Acceptance Model, better known as the Technology Acceptance Model (TAM), presented by Davis (1989), was proposed to verify the reasons that lead users to accept or reject information technology and, with thereby improving acceptance, thereby providing support for predicting and explaining acceptance.[6] The Likert scale consists of several statements that express a point of view on a particular topic. Respondents were asked to indicate to what extent they agree or disagree with the opinion expressed by the statement.[7]

Data initially collected in a Microsoft Excel spreadsheet were recorded and then exported to the IBM SPSS Statistics 20.2 program, which performed data processing. Data was analyzed descriptively, by reading the absolute (nr) and relative (%) frequencies, for the qualitative variable analysis, and by the position (mean) and dispersion (standard deviation) statistics, which should be a quantitative variable. Results were represented in tables and graphs, and the sample distribution between the two professional categories was made according to the professional category.

The study was submitted for evaluation by the Research Ethics Committee of the UNINOVAFAPI University Center; approval was obtained through Opinion No. 2,741,846 and CAAE Number 89501618.7.0000.5210.

Study participants were asked to grant authorization by signing the Free and Informed Consent Term (FICT) to guarantee anonymity.

RESULTS

The study was conducted according to the inclusion and exclusion criteria. From this, 11 nurses and 89 nursing technicians were interviewed. The following sequence was chosen to present the results: characterization of the research participants; identification of knowledge in computer science; identification of difficulty in handling electronic medical records; identification of training sessions; identification of ease of use and utility aspects.

Table 1. Characterization of professionals by occupation. Teresina (PI), Brazil, 2018.

		Occupation					
		Nurse		Nursing technician		Total	
		n	%	n	%	n	%
Age group (years)	18 to 23	3	27.3	25	29.0	28	28.0
	24 to 29	4	36.5	19	21.3	23	23.0
	30 to 35	2	18.1	22	24.7	24	24.0
	36 or more	2	18.1	23	25.0	25	25.0
	Total	11	100.0	89	100.0	100	100.0
Education	Complete Highschool	-	-	69	77.5	69	69.0
	Incomplete higher education	-	-	13	14.6	13	13.0
	Complete higher education	11	100.0	7	7.9	18	18.0
	Total	11	100.0	89	100.0	100	100.0
Service time (years)	Less than 1	2	18.1	16	18.0	18	18.0
	1	3	27.3	28	31.4	31	31.0
	2 to 3	3	27.3	21	23.6	24	24.0
	4 or more	3	27.3	24	27.0	27	27.0
	Total	11	100.0	89	100.0	100	100.0

Table 2. Studies a computer course, where they use it and number of hours of use per day, by occupation. Teresina (PI), Brazil, 2018.

		Occupation					
		Nurse		Nursing Technician		Total	
		n	%	n	%	n	%
Computer course	Yes	9	81.8	76	85.4	85	85.0
	No	2	18.2	13	14.6	15	15.0
	Total	11	100.0	89	100.0	100	100.0
Hours per day	1 to 2	1	9.1	19	21.3	20	20.0
	3 to 4	4	36.3	27	30.4	31	31.0
	5 or more	6	54.6	43	48.3	49	49.0
	Total	11	100.0	89	100.0	100	100.0
Where you use it	At home	-	-	18	20.2	18	18.0
	At work	11	100.0	71	79.8	82	82.0
	Total	11	100.0	89	100.0	100	100.0

Table 3. Existence and type of difficulty in handling EMR by occupation. Teresina (PI), Brazil, 2018.

		Occupation					
		Nurse		Nursing technician		Total	
		n	%	n	%	n	%
Difficuly in access	Yes	1	9.1	13	14.6	14	14.0
	No	10	90.9	76	85.4	86	86.0
	Total	11	100.0	89	100.0	100	100.0
Bigger difficulty	System error	7	63.6	42	47.2	49	49.0
	Difficulty in comprehension	1	9.1	14	15.7	15	15.0
	There is none	3	27.3	33	37.1	36	36.0
	Total	11	100.0	89	100.0	100	100.0
Improves in assistance	Yes	11	100.0	88	98.9	99	99.0
	No	-	-	1	1.1	1	1.0

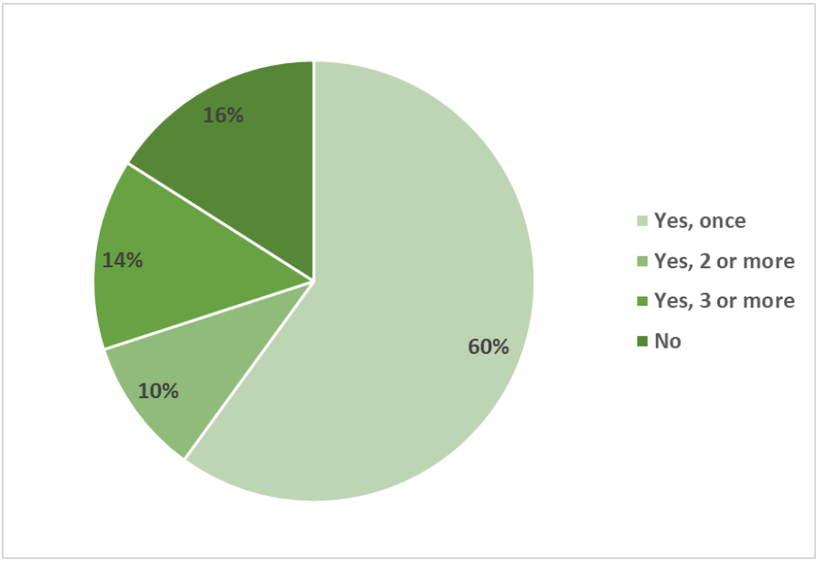

Figure 1. Conducting and frequency of training for the use of electronic medical records. Teresina (PI), Brazil, 2018.

Table 4. Aspects of ease and utility of using EMR by occupation. Teresina (PI), Brazil, 2018.

		Always		Usually		Occasionally		Never		Do not observe		Total	
		n	%	n	%	n	%	n	%	n	%	n	%
Use of EMR is complicated	Nurse	-	-	1	9.1	2	18.2	8	72.7	-	-	11	11.00
	Nursing Technician	-	-	6	6.7	25	28.1	47	52.8	11	12.4	89	89.0
Learning to use EMR was easy	Nurse	6	54.5	2	18.2	3	27.3	-	-	-	-	11	11.0
	Nursing Technician	49	55.0	25	28.1	9	10.1	3	3.4	3	3.4	89	89.0
Interacting with EMR is frustrating	Nurse	-	-	3	27.3	7	63.6	1	9.1	-	-	11	11.0
	Nursing Technician	2	2.2	18	20.2	27	30.4	30	33.7	12	13.5	89	89.0
Ease to remember	Nurse	6	54.5	4	36.4	1	9.1	-	-	-	-	11	11.0
	Nursing Technician	65	73.1	14	15.8	6	6.7	2	2.2	2	2.2	89	89.0
Requires a lot of mental strength	Nurse	-	-	-	-	3	27.3	8	72.7	-	-	11	11.0
	Nursing Technician	5	5.6	4	4.5	4	4.5	66	74.2	10	11.2	89	89.0
Proves the quality of work	Nurse	6	54.5	3	27.3	-	-	2	18.2	-	-	11	11.0
	Nursing Technician	46	51.7	20	22.4	7	7.9	3	3.4	13	14.6	89	89.0
Greater work control	Nurse	7	63.6	3	27.3	-	-	1	9.1	-	-	11	11.0
	Nursing Technician	67	75.3	15	16.8	3	3.4	-	-	4	4.5	89	89.0
Finish tasks faster	Nurse	6	54.5	2	18.2	3	27.3	-	-	-	-	11	11.0
	Nursing Technician	54	60.7	24	27.0	5	5.6	2	2.2	4	4.5	89	89.0
Work performance	Nurse	5	45.4	3	27.3	1	9.1	2	18.2	-	-	11	11.0
	Nursing Technician	53	59.6	25	28.1	8	9.0	1	1.1	2	2.2	89	89.0
Greater effectiveness	Nurse	5	45.4	4	36.4	2	18.2	-	-	-	-	11	11.0
	Nursing Technician	50	56.2	30	33.8	6	6.7	1	1.1	2	2.2	89	89.0
Usefulness at work	Nurse	6	54.5	4	36.4	1	9.1	-	-	-	-	11	11.0
	Nursing Technician	66	74.2	19	21.4	2	2.2	-	-	2	2.2	89	89.0

DISCUSSION

Young subjects predominated in the age group and, as in this study, a study conducted in 2013 in the southern region of Brazil showed that, in the age group, there was a predominance of young subjects in both classes, considering the characteristic of a new generation of individuals starting their professional lives in the age of globalization.[5]

It was observed that vocational training and educational level influence the handling of EMR and, through the study conducted in 2014, it is observed that ICTs are increasingly inserted in the academic environment and have been incorporated into the teaching and learning process. ICTs are addressed during the training of health professionals and the apprentice can relate the use of technologies with their professional performance.[2]

It was considered that most of the professionals who answered the survey were new collaborators, however, this fact is not related to the knowledge of the EMR, since in this research, most professionals answered that they had no handling difficulties. This is a disagreement with a study conducted in 2013, which found that the difficulties in handling the EMR are related to length of service, as professionals with a short time of work obtained absence or little offer of training. It is also reported that this causes deficiency in the qualification of these professionals, resulting in the breach of the effectiveness of the records of care activities and damage to the quality of care provided.[8]

It was explained that most of the interviewees would have taken courses in the area of informatics and studies indicate that this is the current position of nursing in face of the reality of a computerized world, as well as the search for improvement.[5]

Regarding the amount of hours most professionals use the computer, they stated that more than five hours a day and most of the time in the workplace. In line with this, it was found by a study that 94% of the survey participants answered that they used the computer frequently in their daily routines, in addition, 100% of them have internet access. This demonstrates the involvement with work related to computer science, thus increasing the possibility of their knowledge and mastery regarding the use of computerized tools[9]. In another study, it is stated that there is a tendency that users, with little contact with electronic devices, find it difficult to use these devices, even if they have good usability.[2]

A small portion of subjects who claim to have difficulty handling the EMR were identified, and who, for the most part, are from the technical category of Nursing. In a study conducted in the metropolitan region of Belo Horizonte, as well as in this study, it was found that there is a difference between respondents who have perception, mostly, of the use of technology. It is inferred that, besides pointing out the number of professionals who perceived the utility of using EMR, others considered the system easy to use, in contrast to a smaller portion that indicated difficulty in using the same system.[10]

The main disadvantage of EMR is the failure of the system, ie when the system goes down. According to the researchers, these failures end up hindering access to the patient's electronic documents and, consequently, quality care. There is a need for major investments in systems, equipment and software, as these are essential for failures to be less and less frequent.[11]

It was found that the need for assistance to work with information resources came from not or little training, as approximately 60% of the interviewed professionals received only one training and 16% said they had not received training, showing a weakness. There is a close relationship between training and the use of EMR and its use without difficulty by health professionals.[5]

The results of the survey regarding the ease of use were presented optimistically, as most of the interviewed professionals answered positively to the questions related to ease of use. The ease of using technology is a factor that influences its acceptance, since people with better computer skills manipulate technological tools more easily.[12]

Positive aspects evolved in the questions about the ease of use of EMR, as they showed greater agreement, while the questions that emphasized the difficulty with the use of the system presented intermediate or discordant values. Consistency in completing and completing the survey by respondents, as well as acceptance of the ease of use of technology in the group of stakeholders.[10]

It is observed that the answers about the perception of utility indicate a greater degree of agreement between the statements. It is also emphasized that the last question indicates a greater perception of benefit in general. The usefulness of technology in health is described by several authors,[13-4] which portray that there may be a difference in perception regarding utility.

It is noteworthy that usability, knowledge of Nursing informatics and training in this specialty, given the computational resources in health, are essential for understanding and describing care.[8]

CONCLUSION

This study aimed to analyze, through this study, the use of the electronic medical record by the nursing staff in a private hospital in Teresina / PI, Brazil based on the characterization of the professional, the knowledge and training in the area of informatics, the ease and usefulness of using EMR. This survey was performed by applying a questionnaire based on the TAM model.

Regarding the operating system employed by the researched hospital, it was found that this system is easy to remember, manipulate and access, since only a small portion of the researched population reported difficulty in understanding or handling the EMR. Nevertheless, it is observed that the biggest difficulty reported by professionals is “system error”, which happens when the system goes down or there is a drop in the internet network. It is noteworthy that most professionals, during the study, answered positively to questions related to medical records.

It is concluded, therefore, that the results reinforce the need for investments in relation to “system error” or “connection failure”, since this was the biggest problem reported by professionals and is pointed in the literature as a disadvantage of EMR.

REFERENCES

1. Lima DFB, Ivo GP, Braga ALS. Nursing in computer information systems: a systematic review of the literature. J res fundam care online. 2013 July/Sept; 5(3):18-26. DOI: 10.9789/2175-5361.2013v5n3p18

2. Cardoso RB, Ferreira BJ, Martins WA, Paludeto SB. Permanent education for the use of the electronic patient health record in nursing. J Health Inform [Internet]. 2017 Jan/Mar [cited 2018 Aug 10];9(1):25-30. Available from: http://www.jhi-sbis.saude.ws/ojs-jhi/index.php/jhi-sbis/article/view/429/302

3. Tannure MC, Lima APS, Oliveira CR, Lima SV, Chianca TCM. Nursing process: comparison of manual versus electronic record. J health inform [Internet]. 2015 July/Sept [cited 2018 Aug 10];7(3):69-74. Available from: http://www.jhi-sbis.saude.ws/ojs-jhi/index.php/jhi-sbis/article/view/337/235

4. Lei N 7.498/86, de 25 de Junho de 1986. Dispõe sobre a regulamentação do exercício da Enfermagem e dá outras providências. Diário Oficial da União [Internet]. 1986 June 25 [cited 2018 June 25]. Available from: http://www.cofen.gov.br/lei-n-749886-de-25-de-junho-de-1986_4161.html

5. Lahm JV, Carvalho DR. Electronic health records: evaluation of usability by the nursing team. Cogitare Enferm. 2015 Jan/Mar; 20(1):38-44. DOI: 10.5380/ce.v20i1.36485

6. Silva PM, Dias GA, Almeida JR. Modelo de aceitação de tecnologia (TAM) aplicado ao Sistema de Informação da Biblioteca Virtual em Saúde (BVS) nas Escolas de Medicina da Região Metropolitana do Recife. In: X Enancib. Anais do X Enancib [Internet]. João Pessoa: PPGCI/UFPB; 2009 [cited 2019 Apr 12]. Available from: http://enancib.ibict.br/index.php/enancib/xenancib/paper/viewFile/3371/2497

7. Fernandes LCL, Machado RZ, Anschau GO. Management of health services: developed competencies and difficulties found in basic attention. Ciênc saúde coletiva. 2009 Sept/Oct;14(1):1541-52. DOI: 10.1590/S1413-81232009000800028

8. Lopes VJ, Carvalho DR, Lahm JV. Kdd in evaluation of usability electronic patient record for nursing professional. Rev Bras Inov Tecnol Saúde. 2016; 6(3):20-31. DOI: 10.18816/r-bits.v6i3.10414

9. Assis MA, Ramos JM. Knowledge of Nursing Undergraduate about Technology use Computerized. J health Inform [Internet]. 2017 Apr/June [cited 2018 Aug 10];9(2):39-43. Available from: http://www.jhi-sbis.saude.ws/ojs-jhi/index.php/jhi-sbis/article/view/442/305

10. Muylder CF, Carneiro S, Barros LC, Oliveira JG. ELECTRONIC medical records patient: technology acceptance by health professionals in Belo Horizonte Region. Rev Adm Inov Hosp. 2017 Aug;14(1):40-52. DOI: 10.21450/rahis.v14i1.3752

11. Rondina J, Canêo PK, Campos MS. Knowing the experience in eletronic health record's implementation at hospital de base in São José do Rio Preto. Rev Adm Inov Hosp. 2016 June;13(1):43-52. DOI: 10.21450/rahis.v13i1.2944

12. Santos MC, Marin HF. Analysing the use of a computerized system by hospital managers. Acta Paul Enferm. 2018;31(1):1-6. DOI: 10.1590/1982-0194201800002

13. Campara M, Muylder CF, Alkimin RA, Dias AT, Mesquita JMC, Falce JL. Implantação do Prontuário Eletrônico de Paciente. RAHIS. 2013; 10(3):61-74. DOI: 10.21450/rahis.v10i3.2127

14. Aramson EL, Barrón Y, Quaresimo J, Kaushal R. Electronic prescribing within an electronic health record reduces ambulatory prescribing errors. Jt Comm J Qual Patient Saf. 2011 Oct;37(10):470-8. DOI: 10.1016/S1553-7250(11)37060-2

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