The Role of Educational Intervention in Nurses' Competence towards Paper-Based Medical Records Documentations at four main Hospitals in Khartoum State – Sudan 2014-2015

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Abstract:

Background: Paper-based medical record is a backbone of all patients' information during admission in the hospital. Growing use of medical records system in hospitals and other medical facilities throughout the world has been driven by the concrete fact that this system can help to improve the quality of health care as medical care gets more complex.

Objectives: To study the role of educational intervention in nurses' competence towards paper-based medical records documentations.

Methods: This is a descriptive, interventional, analytical, hospital-based study recruited 150 nurses working at main hospitals in Khartoum State: Police Hospital in Khartoum North Province, Omdurman Teaching Hospital in Omdurman, Military Hospital in Omdurman Province and Khartoum North Teaching Hospital in Khartoum Province. The study assessed participants regarding their knowledge and performance towards paper-based medical records as well as some criteria training issues. They were subjected to pre-education assessment and post-education assessment and the study used pre-design questionnaire, then the data was analyzed by using statistical package for social sciences (SPSS, Vers. 21).

Main findings: Out of 150 nurses assessed in the current study, females were 130(86.7%) versus 20 (13.3%) males, most of them were in the age of 22-30 years who were represented by 136 (90.7%) and have more than 5 years experience and they represented 118(78.7%) while 32(21.3%) had less than 5 years. Overall scores of nurses' knowledge towards paper-based medical records in pre- and post-intervention assessment were (29.4% and 62.2%) respectively. remarkable improvement in level of knowledge after training was found regarding their believe

that, lack of time is the main reason that documentation does not get done (from 18% - 88%). Overall scores of nurses' performance towards paper-based medical records in pre- and post-intervention assessment were (31.7% and 67.1%) respectively, they showed remarkable improvement regarding the ability to demonstrate knowledge of charting (8%-76.0%). Overall scores of nurses' knowledge and attitude towards training issues in paper-based medical records in pre- and post-intervention assessment were (33.5%% and 62.2%) respectively.

Discussion: Our findings showed a poor level of competence towards paper-based medical records as well revealed the effective role of educational intervention in increasing competence of nurses and the analysis revealed statistically significant difference regarding the pre- and post-intervention evaluation (P = 0.000).

Conclusion: The study concluded that, there is poor knowledge and performance among nurses towards paper-based medical records as well as it revealed that educational intervention is effective in improving competence.

مستخلص الدراســة:

خلفية: إن التدوين على السجلات الطبية يعتبر العمود الفقري لمعلومات المريض أثناء التنويم بالمستشفى. كما أن الاهتمام المتزايد بأنظمة السجلات الطبية في المستشفيات والمرافق الصحية في العالم يُعضد بحقيقة أن هذا النظام قد يساعد على تقديم مستوى رعاية صحية أفضل في ظل تشعب الخدمات الصحية.

الأهداف: يهدف هذا البحث إلى تقييم دور التدخل التعليمي في أداء الممرضين والممرضات تجاه التدوين على السجلات الطبية.

منهجية البحث: هذه دراسة وصفية تفاعلية تحليلية سريرية تمت بمشاركة ١٥٠ ممرض وممرضة يعملون بأربعة مستشفيات رئيسية بولاية الخرطوم (مستشفى الشرطة بالخرطوم، مستشفى بحري، مستشفى أمدرمان التعليمي، مستشفى السلاح الطبي بأمدرمان ومسشتفى بحري التعليمي ببحري). تم تقييم معرفة أداء المشاركين تجاه تدوين السجلات الطبية كما تناولت الدراسة بعض عناصر التدريب. خضع المشاركين لتقييمين قبل وبعد التدريب باستخدام استبيان معد مسبقاً ثم تحليلها باستخدام برنامج الحزمة الإحصائية للدراسات الاجتماعية (النسخة ٢١).

أهم النتائج: من بين ١٥٠ ممرض وممرضة شاركوا في الدراسة بلغ عدد الإناث ١٣٠(٨٦.٧%) بينما كان عدد الذكور ٢٠(١٣.٣%) وكان معظم مجموعة الدراسة في الفئة العمرية ٢٢-٣٠ سنة حيث مثلوا ١٣٦(٩٠.٧%) كما كان أغلبهم لديهم خبرة أكثر من ٥ سنة حيث بلغوا ١١٨(٧٨.٧%) فيما كان لدى ٣٢(٢١.٣%)منهم خبرة أقل من ٥ سنوات.أظهرت الدراسة أن المتوسط الكلي لمعرفة المشاركين تجاه تدوين السجلات الطبية قبل وبعد التدريب يبلغ (٢٩.٤% و ٦٢.٢% على التوالي).

أظهر التدريب تحسناً ملحوظاً تجاه الاعتقاد بأن عامل الزمن هو السبب الرئيسي لعدم كفاءة تدوين السجلات الطبية (من ١٨% إلى ٨٨%). وكان متوسط الأداء الكلي للمشاركين تجاه تدوين السجلات الطبية قبل وبعد التدريب (٣١.٧% و٦٧.١%) على التوالي وأظهرت التدريب أيضاً تحسناً ملحوظاً في قدرة المشاركين على استخدام المعلومات التي تخص التدريب (٨% إلى ٧٦%). وجد أيضاً أن المتوسط الكلي لمعرفة وموقف المرضين والممرضات تجاه بعض عناصر التدريب قبل وبعد التدريب (٣٣.٥% و ٦٢.٢%) على التوالي.

المناقشة: أثبتت نتائج الدراسة ضعف مستوى أداء الممرضين والممرضات تجاه تدوين السجلات الطبية كما أثبتت فعالية التدخل التعليمي في تحسين مستوى الأداء حيث أظهرت النتائج فروقات ذات أهمية إحصائية فيما يخص التقييم قبل وبعد التعليم (القيمة الاحتمالية . ٠.٠٠٥).

الخلاصة: خلصت الدراسة إلى ضعف مستوى معرفة وأداء الممرضين والممرضات تجاه تدوين السجلات الطبية كما أثبتت فعالية التعليم في تحسين مستوى الأداء.

Introduction:

Growing use of medical records system in hospitals and other medical facilities throughout the world has been driven by the concrete fact that this system can help to improve the quality of health care as medical care gets more complex. New information is already overwhelming physicians' capacity to treat patients with latest information. Medical record is the who, what, why, where, when and how of the patient care during hospitalization.[1]

Medical record is an essential tool in the practice of medicine and the entire idea behind it is to provide better care for the patient through careful recording or documenting of every detail having to do with his/her case[1].

The developing world currently faces a series of health crises that threaten the lives of millions of people. Therefore, there is great need for well documented patient's medical record. There is a necessity for a complete record of the progress of the patient in the hospital both for reference and for medico-legal needs. [1]

Paper-based medical record is a backbone of all patients' information during admission in the hospital. The core of health information system in the hospital lies in paper-based medical records. [2] Paper-based medical record is an important primary tool in the practice of medicine. The whole idea behind it is to provide better care of the patient through careful recording of every detail having to do with his/ her case. The medical record is the who, what, why, where, when and how of the patient care during hospitalization. [1]

If the details of examinations and findings on a former admission are accurate and readily accessible, the necessity for repeating many of the examinations done previously may be obviated and valuable information is made immediately available. Additional expenses avoid and the time required for diagnosis is materially shortened, the later, in some cases, being the deciding factor between life and death. [3]

Nurses and Paper-based Medical Record

Paper-based medical record is a communicative tool between nurses and patients. Nurses write their healthcare given to patients in paper-based medical record in clear concise relevant information to be exchanged among the other healthcare team in the unit or department for nurse continuity of care. In both hospital and clinical settings, the paper-based medical record takes the form of a patient chart composed of printed materials in a folder or binder.

Documentation in paper-based medical record by the nurses ensures doctors' orders followed and nursing process followed to be legal record to assure patient's safety and nurses' defensibility and facility in a legal situation. Documentation has moved from a medical focus to whereby nurses documented their care to ensure that doctors' orders were followed to a nursing focus in which nurses initiate nursing care and ensure that nursing process is followed.

Paper-based medical record dissected into five primary components, including medical history, laboratory and diagnostic test results, the problem list, clinical notes and treatment notes. Physicians and other healthcare providers use this format as a method for their documentation.

The medical history includes patient's identification, chief complaint, past medical history, family history, social history, allergies, mediation history, review of system and physical examination. Laboratory test includes diagnostic test. Problem test includes nursing progress notes. Clinical notes include physician's progress notes, consultation notes, off service notes, transfer notes and discharge summary. Treatment notes include medication notes, surgical procedure documentation, radiation treatment and notes from auxiliary practitioners. [4]

Objective:

General objectives:

- To study the role of educational intervention in nurses' competence towards paper-based medical records documentations.

Specific objectives:

- To evaluate the knowledge of nurses towards paper-based medical records documentation before and after educational intervention.
- To assess the practice of nurses towards paper-based medical records documentation before and after educational intervention.
- To identify the knowledge and attitude of nurses towards training issues in paper-based medical records documentation.

Material and Methods:

This is a descriptive, interventional, analytical, hospital-based study recruited 150 nurses working at main hospitals in Khartoum State namely: Police Hospital in Khartoum in

Khartoum North Province, Omdurman Teaching Hospital in Omdurman, Military Hospital in Omdurman Province and Khartoum North Teaching Hospital in Khartoum in Khartoum Province. The study assessed participants regarding their knowledge and performance towards paper-based medical records as well as some criteria training issues. They were subjected to pre-education assessment and post-education assessment. The assessment was applied through a two days workshop in Khartoum Continuing Education Center for People of Ministry of Health (KCECPMH).

The data of pre- and post-intervention assessment was taken by using pre-design questionnaire, then analyzed by using statistical package for social sciences (SPSS, Vers. 21). Evaluation of level of knowledge and performance (competence) was calculated by choosing the positive/correct answers and considered as percentage score. Overall scores of knowledge/ performance and attitude towards training issues were calculated by the sum of positive answers and divided into the number of questions and presented as percentage also. Paired sample t-test was applied to compare the results of pre and post-questionnaire, and the significant difference was considered at P value $\leq$ 0.05 and 95% confidence intervals. An ethical clearance was obtained from the university and provided for permission consents to the Ministry of Health, to the studied hospitals and to director of (KCECPMH).

Results:

The current study recruited 150 nurses working at four main hospitals in Khartoum State, and aimed to assess their competence towards paper-based medical record documentation. Males were 20 (13.3%) and females were 130 (86.7%), age distribution showed that 136 (90.7%) of nurses were in the age of 22-30 years and 14 (9.3%) were in the age of 31-40 years. Distribution according to experience showed that, 118 (78.8%) had more than five years experience, 32 (21.3%) had less than five years. Overall scores

of nurses' knowledge towards paper-based medical records in pre- and post-intervention assessment were (29.4% and 62.2%) respectively. Overall scores of nurses' performance towards paper-based medical records in pre- and post-intervention assessment were (31.7% and 67.1%) respectively. Overall scores of nurses' knowledge and attitude towards training issues in paper-based medical records in pre- and post-intervention assessment were (33.5%% and 62.2%) respectively.

Table (1): Background Characteristics of nurses assessed for their competence towards paper-based medical record

Respondents' Characteristics	N	Percent
Gender		
Male	20	13.3%
Female	130	86.7%
Total	150	100%
Age Intervals		
22-30	136	90.7%
31-40	14	9.3%
Total	150	100%
Years of Experience		
More than 5 years	118	78.7%
Less than 5 years	32	21.3%
Total	150	100%

Table (2): Knowledge of nurses towards paper-based medical records at 4 hospitals in Khartoum State

Knowledge	Score	
Incomplete hospital paper-based medical records reflect the actual care that is provided to patients	Pre-	Post-
	30.0%	51.3%
Hospital paper-based records contain too much duplication in recording patients care	44.7%	57.3%
Recording is an important priority for me.	65.3%	69.3%
Requirements for completing patient documentation need more time to be spent beyond scheduled work hours	16.7%	72.0%
When dispute raises between the nurse and the doctor it should be indicated in the patient's file.	35.3%	76.7%
Most of nurses believe that properly written in paper-based hospital records can support and protect staff in legal procedures before they attended the hospital documentation	6.0%	75.3%
Written discharge instructions are given when the patient is transferred	16.0%	50.7%
Goals should be accurately written in paper-based medical record to reflect patients' problem	33.3%	80%
I am familiar with documentation policies and procedures.	34.0%	75.3%
Lack of time is the only reason that documentation does not get done	18.0%	88.0%
Accurate, brief and complete Hospital documentation nurses produced before attending the hospital documentation course	0.0%	50.0%
My ability to demonstrate knowledge during emergency charting needs to be increased	62%	78.0%
Well- documented progress notes demonstrate continuity of patient care	33.3%	61.3%
There are policies pertaining to documentation of nursing care in my nursing un0its	31.3%	52.0%
I think there is too much responsibility placed on me to accurately and comprehensively document patients care	66.7%	77.3%
Abbreviations used are accepted medically or nursing as approved	41.3%	38.0%
The process and requirements for patient care documentation reduce and directly affect the amount of time spent in providing direct patient care	32.7%	55.3%
Nurses progress notes are meaningful	47.3%	70.7%
Progress notes are written for exception reporting	24.7%	71.3%
Reports are objectively written	22.7%	56.7%
Overall score of knowledge	**29.4%**	**62.2%**

Table (3): Performance of nurses in paper-based medical records at 4 hospitals in Khartoum State

Practice	Score	
	Pre-	**Post-**
4. I can demonstrate knowledge of the purpose of paper-based medical records (ways they can be used in).	16.7%	57.3%
5. I can demonstrate knowledge of quality of paper-based medical records	48.0%	71.3%
6- I can list what should be recorded in nurses' progress notes	32.7%	71.3%
7- I have ability to list Admission request form	20.7%	44.7%
8- I have ability to list and explain the abbreviations and Symbols in paper-based medical records.	32.0%	70.0%
9- I can list paper-based medical records standard forms that filled by doctor or by nurse or by both	40.0%	72.6%
10. I can list and explain the abbreviations and Symbols in paper-based medical records	32.0%	81.3%
1. I can demonstrate knowledge of Terminal digit filling system (TDFS)	6.0%	73.3%
12. I can demonstrate knowledge of charting	8.0%	76.0%
13. I can demonstrate knowledge of paper-based medical records Legibility	34.6%	79.4
14. I can demonstrate knowledge of proper use of abbreviations and Symbols in paper-based medical records	40.0%	72.7%
25. I can list factors that affect the nursing documentation process	74.7%	94.7%
36. Do you use electronic documentation in your practice?	26.7%	8.0%
Overall score of practice	**31.7%**	**67.1%**

Table (4): Knowledge and attitude of nurses towards training issue about paper-based medical records at 4 hospitals in Khartoum State

Training	Pre-	Post-
21.Training needs on the guidelines for hospital paper-based medical records	40.7%	75.7%
24. Medical documentation should be taught at nursing school	52.7%	92.7%
Receiving in-service training in paper-based medical documentation	10.0%	10.0%
28. Medical documentation should not be taught at nursing school but it should be given as training in service. (pre)	52.7%	72.7%
31. I would promote medical documentation if I get documentation training in service	48.0%	68.7%
33. Periodic training on Legal aspects of medical documentation training should be provided	27.4%	47.3%
30.I am ready to train others on medical documentation	36.7%	88.0%
42. I train others on paper-based medical documentation	22.0%	42.7%
Overall score of knowledge and attitude towards training issues	**33.5%**	**62.2%**

Discussion:

Role of intervention in knowledge:

Nurses were assessed regarding their knowledge about paper-based medical record documentation in pre- and post-intervention phases. According to nurses' answers, educational intervention revealed an effective role in raising their knowledge; they reported a poor level of knowledge in pre-intervention assessment (29.4%), however, this was significantly increased to an average level of knowledge after education (62.2%) indicating an increase of 111.6% in post-intervention phase. Also, our findings showed a variation in level of knowledge regarding the different criteria assessed in pre-

intervention phase, the same was observed regarding the post-intervention phase as well as a variation in the magnitude of change occurred after educational intervention.

In pre-intervention assessment, nurses showed most poor knowledge regarding the time of producing accurate, brief and complete documentation (before attending the hospital), their knowledge in pre-intervention was (0%) and jumped to 50% in post-intervention, Also they showed not much of them were believing that properly written in paper-based hospital records can support and protect staff in legal procedures (6%), but their attitude jumped to (75.3%) in post-intervention assessment. post-intervention assessment in general showed an increase in level of knowledge towards the different criteria of paper-based medical record documentation, where they reported an excellent knowledge regarding their believe that, goals should be accurately written in paper-based medical record to reflect patients' problem and lack of time is the only reason that documentation does not get done (88% and 80% respectively).

The study of Mohamed and El-Naif (2005) in Kingdom of Saudi Arabia reported a higher mean score of knowledge among nurses and physicians about medical documentation (66% and 61.25% respectively)[5].

Although electronic medical record system is preferred nowadays due to many benefits, the studied hospitals lack applying such type of record system, and this exclude electronic medical record system as a reason of poor knowledge in paper-based medical record documentation.

Many studies in literature reported the predomination of interest with electronic medical records when compared with paper system, they discussed that, not only do they have access to patients′ records with the press of a button but they also have easy access to information on drug interaction, care protocol and other information that they would have had to look up in the paper records[6-10].

Role of intervention in Practice:

The study depended on interview with nurses about their performance in paper-based medical records and informed to provide honest answer. Mean of practice in different issues associated with documentation was found poor in pre-intervention assessment (31.7%) and jumped to (67.1%) in post-intervention assessment indicating an increase of (111.7%) suggesting the effective role of education of health providers' performance. Nurses showed least practice in pre-intervention assessment regarding their ability to list and explain the abbreviations and symbols in paper-based medical records (6%) and demonstrating knowledge of charting (8%), but positive effect of educational intervention was shown when they reported higher score in post-intervention assessment (81.3% and 73.3% respectively).

Post-intervention assessment revealed excellent knowledge among nurses about their ability to list factors that affect the nursing documentation process (94.7%) and list and explain the abbreviations and Symbols in paper-based medical records (81.3%).

This is compatible with what is reported by Bjorvell C.E. (2002) in Sweden who revealed that, interventional education is positively effective in causing a significant audit score increase in quality and quantity of nursing documentation in the intervention wards[11].

Knowledge and attitude towards training issues:

Different issues of competence related to training in paper-based medical records were evaluated among nurses in pre- and post-intervention phases; they showed poor overall score in pre-intervention assessment (33.5%), but jumped to (62.2%) in post-intervention assessment.

One of the main problem observed in our findings which impact proper performance in paper-based medical records is lacking the training in the this aspect; only 10% said they have received in-service training in paper-based medical documentation and of course

they didn't have the experiment of training others in paper-based medical documentation (22%).

Feeling the confidence to train others was reported poorly in pre-intervention assessment (36.7%), while a remarkable effect of education was reported in post-intervention assessment; since 88% of them said they are ready to train others in paper-based medical education.

The study of Mohamed and El-Naif (2005) reported a similar findings of poor mean score about training in medical records (47%)[7]. The same study recommended training to improve performance on medical records reporting that, the skills and knowledge of the staff should be developed through training, incentives and the adequate budgetary allocation[5].

Conclusion:

The study concluded that, there is poor knowledge and performance among nurses towards paper-based medical records, but educational intervention revealed a remarkable improvement in their competence.

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