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Improving Nursing Care Documentation in Emergency Department: A Participatory Action Research Study in Iran

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Abstract

BACKGROUND: Standardization of documentation has enabled the use of medical records as a primary tool for evaluating health care functions and obtaining appropriate credit points for medical centres. However, previous studies have shown that the quality of medical records in emergency departments is unsatisfactory.

AIM: The aim of this study was improving the nursing care documentation in an emergency department, in Iran.

MATERIAL AND METHODS: This collaborative action research study was carried out in two phases to improve nursing care documentation in cooperation with individuals involved in the process, from February 2015 to December 2017 in an affiliated academic hospital in Iran. The first phase featured virtual training, an educational workshop, and improvements to the hospital information system. The second phase involved the recruitment of human resources, the implementation of continuous codified training, the establishment of an appropriate reward and penalty system, and the review of patient education forms.

RESULTS: The interventions improved nursing documentation quality score of 73.20%, which was the highest accreditation ranking provided by Iran's Ministry of Health and Medical Education in 2017. In other words, this study caused a 32% improvement in the quality of nursing care documentation in the hospital.

CONCLUSION: The appropriate practices for improving nursing care documentation are employee participation, managerial accountability, nurses' adherence to documentation standards, improved leadership style, and continuous monitoring and control.

Introduction

In the nursing profession, documentation is a critical part of quality improvement [1], which in turn, is a major factor that affects the transparency of nursing practices [2]. Documentation plays a vital role in the appropriate planning of nursing care services, the accurate recording of daily events, and the satisfaction and well-being of patients [3] [4]. It can also be used to plan and evaluate patient care [3]. The documentation of nursing services is important for some other reasons. It facilitates communication and collaboration [5], organises the nursing care chain [6], smoothens decision making about patient care and safety, ensures professional accountability [7], and provides regulatory and observatory standards that facilitate evidence-based processes [8] [9]. Documentation likewise serves as a tool for research, qualitative assessment, and the provision of records for medical jurisprudence. Written evidence of patients' progress is essential in nursing care because such evidence ensures the organisation of nursing services based on logical thinking for clinical decisions [10].

Despite the criticality of documentation, however, studies conducted in Iran showed that the quality of medical records in the country's hospitals is unsatisfactory [8] [11]. Research that compared world standards with those of Iran revealed that nurses in other countries exhibit more desirable quality regarding adhering to documentation principles and

standards [12]. The insufficient quality of nursing service documentation remains one of the main challenges in Iran's nursing profession [13], with years of clinical interventions failing to achieve significant change [14].

To address this issue, the current study was conducted to improve the nursing care documentation in the emergency department of an affiliated academic hospital in Iran.

Material and Methods

The study was carried out in a 233-bed academic affiliated hospital located in Khorasan Razavi Province. The hospital's emergency department is the major trauma centre in the province and comprises 24 active beds as well as admission, outpatient, radiology, and triage sectors that admit an average of 470 elective patients and 89 inpatients daily. The emergency medical staffs include 32 nurses, 12 nursing assistants, 9 general physicians, and 3 emergency physicians. The documentation system for nursing services is a paper and an electronic system. The 20-year presence of researchers in nursing management positions in this hospital failed to contribute to the total accreditation score of the hospital, which gained only 42.2% in 2014.

The study was of a participatory action research design based on Kemmis's model [15]. For the action research process, the model features a circular structure, with each circle containing four steps: problem definition and planning, action, observation, and reflection. We systematically reviewed 14 articles, among which the action research conducted by Lees et al., [4], Okaisu et al., [16], Corben et al., [17], and Vabo et al., [18] involved the use of revision methods in the correction of evaluation tools, workshops, and documentation forms to improve the documentation of nursing services. The interventions implemented in these works provided valid data and created procedural unity for the process of intervention in nursing care documentation in the examined organisations. The authors indicated that the organisations satisfied the minimum predetermined standards for documentation. As described by Corben et al., [17], the auditing of documentation services has been critical to the legal aspects of documentation and has improved the quality of records. The author believed that auditing is needed to develop legal documentation and improve its quality because such documentation provides evidence that is necessary for care planning and provision and enables access to information. Before auditing was implemented in the organisation examined by the author, interventions and major changes to more than 90% of organisational documents were evaluated as accurate, professional, and concise.

In the studies conducted by Dehghan et al., [19], Darmer et al., [20], Ofi et al., [21], Gugerty et al., [22], Lees [4], and Corben [17], a nursing service auditing method was used to provide valid, clear, and encoded data and consequently improve patient care (Lees) and coordination in the process of recording nursing interventions by the treatment team Ofi et al., [21]. Asserted that a nursing audit is an important part of risk management and quality assurance processes because the appraisal of patient records reduces errors and improves poor standards. Documentation is also a powerful tool for improving the quality of nursing care as it paves the way for formulating global standards for care. Ning claimed that electronic documentation designed to enhance the quality of nursing care is somewhat better than paper-based documentation, but such evaluation requires more comprehensive consideration. In the research of Vabo et al., [18] and Lees et al., [4], nursing staff training was found to play an important role in improving the documentation of nursing services. Feng found that although the use of clinical care classification may generate numerous results, it is, in fact, ineffective in obtaining findings regarding the effects of the nursing intervention on patient care quality. The nurses participating in the study use free text to evaluate nursing care outcomes. This intervention style, according to the author, has been unsuccessful in improving the documentation and development of nursing services.

To determine the status quo in the case hospital, an instrument used to evaluate the quality of nursing care documentation was extracted from Esmaeilian et al., [23]. The reliability of the instrument was determined through concurrent validation and comparison with previous instruments in a survey administered to 200 patients discharged from the emergency department of the investigated hospital (Cronbach's alpha=82%). [1] The validity of the instrument was evaluated based on comments from professors at Mashhad University of Medical Sciences and Iran University of Medical Sciences. Validity was confirmed after modifications to the instrument were made. The instrument was scored based on four categories of documentation: white = 0 (no documentation), incomplete = 1 (one required items), illegible = 2, and complete = 3 (full compliance).

After the examination of nursing documentation quality in the second phase [i.e., qualitative study with content analysis (the methods used in the present study) and conventional content analysis (as a data analysis method)], the existing problem and its causes and possible solutions were investigated on the basis of the perceptions and actual experiences of the hospital personnel and the individuals involved in documentation. For this purpose, 22 semi-structured interviews were held with 13 interviewees (In some cases, two or more

interviews were conducted with the participant) at 45-minute sessions [13].

Table 1: Classification of examined indices based on the minimum score obtained by 200 subjects

No.	Index of concern in records	White	Incomplete	Illegible	Complete
1	The full demographic information of patients (name, age, place of birth, date of birth) appears on the file cover, and all information is completely documented.	0	100	12	99
2	File documents are arranged by the order issued by the Medical Documents Center (admission letter, physician's prescriptions, nursing reports, para-clinical tests, content letter, history, and patient training).	0	186	0	14
3	All documents on para-clinical measures are attached and checked according to the date in the relevant file.	1	175	1	23
4	A physician's instructions along with the number of items in letters and the time and date come with a signature.	0	183	8	9
5	A physician's instructions are terminated with a straight underline so that nothing more can be added.	0	180	0	20
6	Vital signs are accurately recorded in specified fields on a chart sheet in red (temperature), blue (pulse), black (blood pressure), and green (breath).	3	161	2	34
7	The information requested is completely and accurately documented in tables below the vital signs chart.	4	190	0	6
8	The intervals for checking vital signs registered on a patient's chart sheet should be consistent with the instructions written in the corresponding file.	3	182	0	12
9	Nursing reports are legible with mistakes.	3	81	65	51
10	Nursing reports are written in succession with no blank spaces among them.	0	105	1	94
11	Nursing reports are signed and contain the name of the nurse in charge, his/her position, and documentation time.	0	13	15	172
12	If there is a mistake in the nursing report, it must be marked and then signed and stamped.	0	20	0	171
13	The exact time of specific measures (tests, radiography, physician's visits) is indicated.	124	40	33	3
14	Ambiguous words, such as "good," "normal," and "medium," are not used in the report.	0	42	39	119
15	In the nursing report, the cause, type of disease, and type of referral are mentioned.	0	106	0	94
16	Only the abbreviations approved by the institute are used in medical records.	0	131	28	41
17	There are enough explanations about the general status of a patient (vital signs, level of consciousness, objective and subjective symptoms).	197	3	0	0
18	Sufficient explanations are provided about a patient's excretion conditions (number of times, colour, consistency of symptoms and patient's complaints).	198	2	-	-
19	The report is closing with a straight underline so that nothing more can be added.	186	4	0	0
20	The nutritional status of a patient is denoted with measurable benchmarks (amount of food, total food intake per day).	198	2	0	0
21	Notes on invasive treatments (urinary catheterisation, nasogastric tube, etc.) are provided, along with usage time, the instructor, patient response to the treatment, and follow-up points in the subsequent shift.	9	141	37	13
22	A patient's training sheet is completed and signed according to the measures taken.	193	6	0	1
23	Nursing procedures, including nursing diagnosis, nursing interventions (a type of intervention, patient's behaviour, intervention time), and evaluation of actions (patient's response), are recorded in documentation reports.	93	85	14	8
24	Exact drug prescriptions are documented by mentioning the drug, consumption method, and timing of medication. A nurse's signature should appear in the document.	0	75	14	111
25	Nursing diagnosis is written, and the nursing process is specified at the end of each assessment form.	128	52	14	6
26	The orders in a file accord with a physician's instructions.	0	119	10	71
27	Patient's profile, medical and nursing diagnosis are stored in the file.	0	102	4	94
28	Telephone orders are signed by two people, and the exact time is included.	0	137	3	60
29	A patient's electrocardiography contains the patient's profile and date and is attached to a special sheet.	0	122	0	60
30	Consent forms include explanations about the risks and benefits of treatment or surgical intervention, other treatment alternatives, and measures. It provides some evidence of the fact that a patient or his lawyer are fully satisfied with the surgery or treatment.	8	157	13	22

Results

In the accreditation process implemented by Iran's Ministry of Health and Medical Education in December 2014, the emergency department of the investigated hospital received a score of only 42.2% out of 100%. This outcome, the assessment of the quality of nursing service documentation in the quantitative stage of this study, the explanation of documentation experiences by the emergency department staff in the qualitative stage, the 20-year experience of researchers regarding the observed imperfections of nursing service documentation, and interviews with the head nurse, matron, and nurses working in the emergency department revealed numerous problems in the hospital's documentation process. Accordingly, this action research was conducted to improve the quality of nursing service documentation in the examined emergency department.

Table 2: Main themes and sub-themes extracted from interviews

Main Themes	Sub Themes
Documentation competency	The necessity of effective training
	Need to train documentation standards
	Need to increase skills in reporting
Job burnout	Job stress
	Work pressure
Perceived control	Planned control
	Effective control
Intra-organizational coordination	Improvement of health information system
	Documentation time management
Legal barrier to documentation	Escaping from the law
	Legal liabilities

To plan the quantitative and qualitative stages of the research, a brainstorming session was held with the deputy head of the hospital's Treatment and Care Department, the head of the hospital, the head nurse of the emergency department, the matron, two male and female representatives of the nursing staff, the educational supervisor, the head nurse of the emergency department, and representatives of the quality promotion and accreditation committees. The following interventions were established: virtual training for the nursing staff; staff Management Based On Performance: Application Of A Work Measurement, conducted in three different shifts in the emergency department; a review of any necessary modifications to the hospital information system (HIS); and cooperation regarding implementing continuing codified education.

The five stages of an intervention planned for the first phase are described as follows.

Virtual training was aimed at retraining individuals involved in the process of nursing care documentation regarding documentation standards, which were loaded into the hospital educational system. After 21 days, a written test was administered to evaluate the knowledge of the employees, who obtained a mean score of 87.23% out of 100%. Given that a score greater than 80% was achieved by the employees; the next stage of intervention was carried out.

The work performed by six nurses in the morning shift, two nurses in the evening shift, and two

nurses on the night shift was observed. The nurses' performance in a given work shift was recorded by a chronometer, after which the data collected were analysed (Table 3).

Table 3: the Average activity of nurses in three different shifts (in minutes)

Direct care	121
Indirect care	178
Miscellaneous (rest, tea, etc.)	58
Documentation in the system	23
Documentation in the case	31
Total	420

The HIS was investigated to reduce the time spent on electronic documentation. Specifically, the system's deficiencies were identified and recorded following the observation of the nurses as they entered records in the HIS and interviews with the users throughout a week.

This stage involved the creation of a specialised team, who conducted a one-day investigation and determined that the average admission time in the emergency department within three working shifts was eight minutes.

A two-day workshop aimed at improving the emergency department staff's standard documentation skills was one of the measures adopted in the first phase of the research. The workshop was intended to train the employees on documentation standards, reviewing and criticising current documentation, carrying out group work, and reviewing nursing documentation and legal regulations on such documentation. Finally, the participants were assigned a standard documentation exercise to evaluate their performance.

The intervention process and its interim and final results were examined in a meeting, during which a decision was reached to run a second phase of the research given that a documentation quality score of 57.2% out of the target 70% was achieved in this stage. The impediments to effective nursing service documentation at this stage were the lack of specific policies regarding the documentation process, the lack of a reward and penalty system for enhancing documentation, the necessity of reviewing nursing documentation forms, the absence of appropriate interaction between the medical and nursing teams, and the lack of support from the nursing director in efforts to enhance the documentation process.

The interventions implemented in the second phase of the research are discussed as follows.

A decision was made to establish continuous documentation monitoring by a team in three working shifts. The team was also tasked to submit their weekly reports to the matron and nursing director. A channel was created on the Telegram instant messaging service to coordinate control and monitoring actions.

A two-day specialised workshop was planned to review standard documentation and eliminate the deficiencies identified in the first phase of the research. The workshop was conducted with the full cooperation and assistance of the Neyshabur Department of Medical Sciences and its faculty members.

Following consultations with the head of the hospital's human resources department and approval from the deputy, applicants requesting for a renewal of the available staffing, especially emergency department employees, were accepted. Hence, four nurses were provided a plan renewal and two nurses working in other departments of the hospital were instructed to initiate work in the emergency department.

To establish a structured reward and penalty system by collective wisdom, a decision was made to assign a point to the employees' total work and annual evaluation scores for the quality of nursing service documentation. Two points out of the 17 points in the worksheets were assigned for annual evaluation scores, and 5% of the professional skill score in the annual evaluation was allocated to quality.

The previous version of the patient education form was based on compulsory selection scores, and the nurses used to complete this form carelessly and attach it to files. To increase accuracy and improve patient education, a new version of the form was developed. The new version contains fields for recording the intervention education that nurses provide to patients (i.e., descriptions of interventions). The new version was sent to the Ministry of Health and Medical Education for approval.

A meeting was held with the nursing staff and emergency department physicians. The challenges facing the health team was raised and discussed in free exchange. Another meeting was held with the head of the emergency department, the matron, the researchers, and a representative of emergency department nurses to improve interactions between physicians and nurses.

Throughout the intervention process and at the end of the second phase of the research, the interventions and their interim and final results were evaluated and analysed in a meeting held with the process owners. Because of the performance of the participants at the end of the second phase, the documentation quality score of the hospital increased from 41.75% to 72%.

Discussion

Organizational culture is a system of common understanding by members toward an organisation

and distinguishes organisations from one another. Argyris defined organisational culture as a living system characterised by the behaviours that individuals manifest, the way they think and feel, and the method through which they interact [17]. In Iran's hospitals, organisational culture is a combination of providing an appropriate environment for enhancing employee creativity, knowledge, and productivity. Managers play the most critical role in establishing a desirable organisational culture because their behaviours significantly affect such culture [19]. This study endeavoured to create fundamental change in the organisational culture of the investigated hospital by enhancing collaboration between the employees and nurses by the principles of Kemmis's model [15]. The specific achievements of the research in this regard were the improvements to cooperation and coordination between the managers of the organisation and the adherence of nurses to documentation standards through continuous training workshops and the employment of experienced nurses in the emergency department.

Given the lengthy process of admission in the investigated emergency department, the process of documentation was equally accompanied by delays and errors. The research involved improving the patient admission process through interventions such as enhancing computer software, installing a new printer, and informing patients regarding the availability of a national ID number for patients. These interventions reduced admission time from 8.1 minutes to 3.2 minutes. The key factors that affected the performance improvement of novice employees were the nature of the workplace, sufficient empirical and scientific support for the novice employees, their willingness to learn, adaptation to work cultures, and adaptability to others' expectations [19]. In this study, the scientific and practical potential of the novice employees regarding standardised documentation was increased by enlisting the help of experienced staff and assigning them to different shifts alongside the non-experienced employees. With the return of two experienced nurses to the emergency department and the elimination of the human resource problem, the issues arising from the new nurses' lack of experience were partially resolved. In the current setup, one experienced nurse is assigned to three novice nurses in each work shift.

With reference to the comments of the nursing staff, the brainstorming meetings held with the hospital authorities, and the viewpoints of the faculty members of the hospital's Department of Nursing and Midwifery, the patient education form was checked in terms of the compulsory selection process, the signing of a form, and its attachment to a file. Training was provided for this purpose, but continuing registration inaccuracies and evaluations from patients admitted to the emergency department indicated the low effectiveness of the training. Correspondingly, the form was revised through a professional process based on international standards into a descriptive report form and sent to the Ministry of Health and Medical Education for final approval. The experiences of the nurses in the qualitative stage and the work observation sessions revealed that the average time spent on completing electronic documentation in the hospital is longer than the regional standard level (an average of 4 minutes). In two meetings with the hospital's information technology officials, the matron, the director of the radiology department, and the director of the laboratory and the pharmacy of the therapeutic center, the existing panels were examined, non-practical panels for the emergency department were removed from the system, and a number of nursing care packages were developed and added. These solutions, along with the improved computer systems and the installation of updated operating systems, reduced documentation time to 3.2 minutes.

About the qualitative results, one of the problems identified was the lack of control and supervision by the authorities. This problem was solved in the two phases, namely, the coordination of and reflection on the comments provided by the nurses and individuals involved in the documentation process and the formation of a supervisory and control committee consisting of researchers, four nurses with more than 5 years of work experience, and the matron. In all the working shifts, the committee assigned one selected nurse to control and monitor the work process and submit a report to the committee every other two weeks. These interventions directly affected the assessment of payments and salaries and influenced the nurses' awareness and understanding of the significance of documentation.

In conclusion, the results of this study indicated that the staff training and awareness development effectively improved the quality of documentation provided by the nurses in the examined emergency department. Continuous and planned monitoring and control, along with incentive policies, influenced the continuation of staff behaviours. Changing the authorities' attitudes toward the importance of improving documentation was also a fundamental factor. Finally, the interventions were confirmed to be successful by credible evidence and the experiences of the staff working in the emergency department.

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