

Study of readiness and performance of nurses in evaluating clinical care and processes of care and nursing

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ABSTRACT

Background: Clinical care and nursing skills are important issues that can influence the efficacy of treatment, the health of patients, and medical errors. The aim of this study was to investigate the readiness of medical staff in the field of effectiveness and evaluation of clinical care and nursing skills. **Materials and methods:** This descriptive, cross-sectional study was performed on 99 medical staff working in hospitals from August 2020 to December 2021. The instrument used was a checklist for the effectiveness and evaluation of clinical care based on the findings of the nursing reports. Data were analyzed by statistical software. **Results:** The mean age of nurses was 37.5 years. Among the participants, 16.3% were male and 85.7% were female; 56.6% of nurses had completed clinical care. The overall performance of nurses in drug-related care and nursing processes was observed to be acceptable. Nurses were successful in performing many aspects of the nursing processes of repulsion, absorption, and dressing and showed good preparation. In relation to gavage, a high percentage of nurses performed the procedure well. However, in some cases, such as medication-related care, handwashing, and the use of personal protective equipment, where there is a possibility of touching the blood or other body fluids of the patients, the performance of nurses was moderate. **Conclusion:** The findings of this research demonstrated that there are limitations, strengths, and weaknesses in terms of some aspects such as medication, care and nursing processes, compliance with standards, and infection control, which can be considered to improve the performance of nurses in the future.

Keywords: Blood Transfusion, clinical care, nursing processes, nursing skills, reporting

Introduction

With the increase in the incidence of coronavirus disease 2019 (COVID-19) and further attention to the treatment staff, the role of nurses in the health-care system has been extensively considered.^[1] The performance and readiness of nurses as an

effective community in hospitals affect the quality of care, the effectiveness of treatment, and the health of patients.^[2] One of the most important policies for nursing work is to perform the nursing process at the finest possible level, in which the nurse's caring role is completed with two parts of science and art.^[3] Many problems may arise during nursing and care processes. Assessing and recognizing work environment conditions and nurses' skill level can affect nursing performance.^[4] Among these, the nursing process is a systematic problem-solving perspective for providing nursing care. The stages of the nursing process are described in

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different ways, but the most recent stages of the nursing process are the six-step perspective introduced by the American Nurses Association, which includes reviewing and recognizing, nurses' diagnosis, defining expected goals and outcomes, planning, implementation, and evaluation.^[5]

The nursing process is a framework for nursing care that can be used in all health-care settings. If the nursing care proceeds according to the steps of the nursing process, the patients would receive appropriate care in the minimum time and with maximum adequacy.^[6] Failure to use the nursing process as the standard of care leads to reduced job satisfaction, lack of proper evaluation, degradation of nurses scientifically and practically, reduced quality of care, neglect and inattention of some officials to this field, reduced value of the profession, excessive dependence of nurses on physicians, blind obedience, thoughtless engagement in routine practices, one-dimensional care, reduced independence in patients, and high costs due to repetitive practices.^[7]

The nursing process is considered a nursing standard in most health systems and most developed countries. In the USA, all students entering the nursing field are taught to use this model in the first year,^[8] while according to available information, this method is not used systematically in Iran, or it is used to a very limited extent.

The nursing process is a reciprocal and problem-solving process that the nurses use to organize and provide nursing services. The use of the nursing process allows nurses to use critical thinking for their clinical judgments and care activities.^[9] The use of the nursing process as a standard of care is associated with the quality of care.^[10] The criterion for the implementation of the nursing process is the systematic registration of the report and evaluation of the performance and readiness of nurses in this field. It is also important to identify effective frameworks in clinical care with high quality.^[10] Unfortunately, in our country, limited studies have been conducted on the nursing process and its quality in hospitals. Thus, there is no evidence related to its correct and complete implementation.

In Iran, there are many challenges related to nurses, including the lack of human resources and centers to pay attention to their efficiency; Therefore, empowering nursing managers, hiring new workers and retaining expert nurses is effective in increasing their efficiency.^[11] Various studies have been conducted in this field. Also, considering the increase in nursing challenges and the need to pay attention to patients' health, evaluation of nursing care and nursing processes is an important issue in improving the quality of care and treatment. Therefore, the present study was conducted to investigate the readiness of nurses in evaluating clinical care and nursing processes.

Materials and Methods

Study design

In this cross-sectional, descriptive study, 99 nurses working in hospitals were selected from July 2020 to December 2021, after

considering the inclusion criteria. The available sampling method was used in this study, and the samples were selected from different wards of the hospital. A questionnaire was designed to assess readiness based on the approach of recording the reports, and a patient-centered system was analyzed, designed and implemented by the hospital technology team and patient safety coordinator.

Inclusion and exclusion criteria

Inclusion criteria were the nurses from different wards who had completed reporting and professional care cases, nurses who were present in the hospital, and willingness to participate in the study. Exclusion criteria included a history of chronic disease and unwillingness to participate in the study.

Measurement instruments

The instrument used for this study was a checklist for evaluating clinical care and the performance of nurses based on nurses' reporting information. The different areas of this checklist were obtained with the help of data related to the nurses' reporting file. The checklist included nine important areas of clinical care and nursing performance at the time of reporting. The first part of the questionnaire was related to the performance of nurses in terms of absorption and excretion. The second part consisted of four questions related to dressing evaluation. The third section consisted of four questions about the evaluation of gavage. The fourth part consisted of three questions in which the control of vital signs was investigated. The fifth section had five questions about suction. The sixth section had three questions about blood transfusion. The seventh section had standard precautions and infection control. The eighth section included seven questions about medication. The ninth section had six questions about serum therapy and intravenous (IV) therapy. Nurses scored one point for each correct answer and zero points for each incorrect answer. The average score of the questionnaire was between 0 and 100. In this study, participants with scores above 80 showed a high level of readiness. As a result, those who scored between 50 and 80 points were moderately prepared and those who scored below 50 points showed insufficient readiness. During the reporting process, access to the type, field, date, and description of the report was provided in the system. Each section included menu options including safety items, nursing care, and patient health.

The data were recorded in precompiled forms and entered into Excel software for analysis. Data were analyzed as frequency percentage or mean.

Table 1: Demographic characteristics of participants

	Mean/percentage	Quantity
Age (years)	37.5±7.5	
Gender		
Female	83.9%	83
Male	16.1%	16
Nursing process		
Complete	56.6%	56
Not complete	43.4	43

Ethical considerations

In an introductory session, the researcher introduced himself/herself, and the goals, nature, and process of the research were explained to the study population. Consent was obtained from individuals to participate in the research. The studied nurses were assured that the research was descriptive–analytical, and that the information in their questionnaire would be kept confidential. Also, the samples were reminded that if they wished, the research results would be made available to them.

Results

A total of 99 people were examined over a year. The average age of nurses was 37.5 years. Among the participants, 16.1% were male and 83.9% were female; 56.6% of the nurses had completely performed the nursing process [Table 1].

Preparation and functions related to absorption and excretion showed that 83.4% of nurses accurately recorded the amount of serum injected and the amount of serum received at the end of each shift [Table 2]. Also, 91.5% of the respondents stated that the night shift nurse records the total amount of received and excreted fluids in a day in a special sheet as well as a file. Moreover, 88.7% stated that in the case of gavage, the amount of received fluids was recorded by mentioning the hour on the absorption sheet. About 79.8% recorded discharge in the discharge column if the patient had a chest tube or drain tube.

Regarding the nurses' readiness in relation to dressing, the findings showed that 91.3% of nurses used protective equipment and about 63.4% of the nurses cleaned the dressing area and there was no discharge. About 86.4% maintained patient privacy during dressing. Also, 67.4% recorded the date of dressing change [Table 3].

About 93.2% placed the patient in a semi-sitting position during the gavage, and 88.4% of the nurses washed the gavage tube with water after the end of the gavage. Also, 87.3% aspirated the contents of the stomach into a syringe and 74.9% attached the syringe (without piston) to the gastric tube.

Regarding vital signs control, 76.3% of nurses performed vital signs' control at the prescribed hours. In total, 75.4% of nurses charted vital signs in standard colors on file. About 59.8% reported that if the symptoms were abnormal, the follow-up measures were reported in the nursing report.

Regarding suction, 91.6% of nurses adjusted the appropriate suction pressure. About 93.4% of nurses hyperventilated t3 with 10%–20% higher fraction of inspired oxygen (FIO₂) compared to baseline FIO₂ [Table 2]. Also, 76.3% of nurses rotated the catheter while removing it. In total, 68.6% of nurses performed each suction for a maximum of 10–15 s.

Findings related to nurses' readiness for transfusion of blood and related products showed that 73.7% of nurses had completed

the blood products request form completely. About 86.8% were aware of the report form of unwanted complications of blood transfusion [Table 2] and 90.7% were aware of the process of blood transfusion.

Regarding precautions, 92.4% of nurses wore gloves when they were in contact with patients' blood or other secretions. In 95.3% of nurses, personal protective equipment was used

Table 2: Findings of readiness and performance of nurses according to the checklist

Checklist items	Questions	Grouping	Percentage	
Absorption and excretion information	Does the nurse carefully record the amount of serum injected and the amount of serum received at the end of each shift?	Yes	83.4	
		No	16.6	
	Does the nurse record the total 24-h fluid intake and excretion in a special sheet as well as the file?	Yes	91.5	
		No	8.5	
	In case of the use of gavage, was the amount of gavaged fluids recorded in the excretion and absorption sheet by mentioning the time?	Yes	88.7	
		No	16.8	
	In case of the use of a chest tube or a drain, were the discharges recorded in a different discharge column?	Yes	79.8	
		No	20.2	
	Dressing evaluation	Does he/she use protective equipment (mask, gown, etc.)?	Yes	91.3
			No	18.7
Is the dressing area clean and free of discharge?		Yes	63.4	
		No	36.6	
Does he/she protect the patient's privacy during dressing?		Yes	86.4	
	No	14.6		
Gavage	Is the date of dressing change recorded?	Yes	67.4	
		No	32.2	
	Does he/she put the patient in a semi-sitting position?	Yes	93.2	
		No	6.8	
	Is the gavage tube rinsed with water after the end of the gavage?	Yes	88.4	
No		11.6		
Control of vital signs	Does he/she aspirate the contents of the stomach into the syringe?	Yes	87.3	
		No	12.7	
	Does he/she attach a syringe (without a piston) to the gastric tube?	Yes	74.9	
		No	25.1	
	Are vital signs monitored at regular hours (routine, postoperative, doctor's instructions, product injections, etc.)?	Yes	76.3	
		No	23.7	
	Are vital signs charted in standard colors in the file?	Yes	75.4	
		No	24.6	
		If the symptoms are abnormal, are the follow-up measures listed in the nursing report?	Yes	58.9
	No		41.1	

Table 3: Findings of readiness and performance of nurses according to the checklist

Checklist items	Questions	Grouping	Percentage	
Suction	Does the nurse adjust the proper suction pressure?	Yes	91.6	
		No	18.4	
	Does the nurse hyperventilate the patient with FIO ₂ 10%-20% more than the baseline FIO ₂ ?	Yes	93.4	
		No	6.7	
	When the catheter is removed, does the nurse rotate it in a circular motion?	Yes	76.3	
		No	23.7	
	Does each suction take a maximum of 10–15 s?	Yes	68.6	
		No	31.4	
	Transfusion of blood and related products	Does he/she fill in the blood products request form completely?	Yes	73.7
			No	26.3
Is he/she aware of the report form of unwanted side effects of blood transfusion?		Yes	86.8	
		No	13.2	
Is he/she aware of the blood transfusion process, and does he/she perform the injection correctly if needed?		Yes	90.7	
		No	9.3	
Standard precautions and infection control		Does he/she wear gloves when in contact with the patient's blood or other secretions?	Yes	92.4
			No	7.6
	Does he/she use personal protective equipment when there is the possibility of bleeding or discharge of other body fluids?	Yes	45.3	
		No	54.7	
	Does he/she refuse to recap and cover the needles with both hands?	Yes	49.7	
		No	51.3	
	Does he/she provide an appropriate explanation to patients considering the type of isolation?	Yes	97.5	
		No	2.5	
	Is he/she aware of the process of occupational exposure?	Yes	89.1	
		No	10.9	
Does he/she collect sharp and needle tools in a special container (safety box with date)?	Yes	93.4		
	No	6.6		
Does he/she consider the types of isolation and the necessary measures?	Yes	62.5		
	No	37.5		
Does he/she explain the types and methods of hand disinfection?	Yes	77.8		
	No	22.2		
Does he/she know where the personal protective equipment is stored?	Yes	95.7		
	No	4.3		

when there was a possibility of spillage of blood or other body fluids. According to the report, 85.2% of nurses refused to recap and cover the needles with both hands. About 97.5% had given appropriate isolation training to the patients. Findings also showed that 89.1% were aware of the process of occupational exposure and about 93.4% had collected sharp tools and needles in a special container. Also, 62.5% of nurses expressed the types

of isolation and necessary measures, 77.8% explained the types and methods of hand disinfection, and 93.2% knew the location of personal protective equipment.

As presented in Table 3, the results of readiness of nurses in relation to medications showed that in 91.3% of nurses, the drug preparation and injection time were observed. The following observations were made: 97.8% controlled the drug in terms of the expiration date; 48.7% of nurses washed their hands at the beginning of the medication therapy process; 83.6% of nurses prepared and injected the drug by a sterile method; 88.5% of nurses checked the venous catheter location for swelling, redness, and history; 61.5% of nurses completely recorded the date and time of drug therapy on the remainder of the drug solution; and about 63.6% of nurses completed the adverse drug reactions (ADR) form and sent it to the nursing office if they noticed any side effects.

Findings related to the field of serum therapy and IV therapy showed that 83.2% paid attention to the hygiene of the treatment room. Also, 91.8% of nurses followed sterile tips during serum therapy. In 71.4% of cases, the serum label was accurately and completely recorded and affixed to the serum. Serum flow was adequate in 81.7% of subjects during the shift, and 89.4% had no symptoms of phlebitis at the injection site [Table 4].

Discussion

Better performance of nursing processes and care practices, in addition to patients' health, also affects the health of nurses.^[12] Nurses should be educated about care strategies, and they know the principles of care scientifically.^[13] The present study is based on the findings of nurses' reports in hospitals of Iran. It shows that nurses were successful in performing many aspects of the excretion, absorption, and dressing processes and showed appropriate preparation. However, only about 63.4% of the nurses cleaned the dressing area and there was no discharge; thus, keeping the dressing area clean should be considered in this regard. The findings of our study also showed that if the symptoms were abnormal, only 58% of the participants stated the follow-up measures in the nursing report, which should be considered. Overall, our findings showed that 56% of nurses have completely performed the nursing process during the study. A systematic study was performed in 2021 to examine the performance of nursing processes, and the findings showed that only half of the nurses in Ethiopia performed the nursing processes during patient care. The authors stated that paying attention to influential factors such as stressful environment, lack of facilities, and access to education can be effective in improving care and nursing processes.^[13]

Our findings regarding compliance with standards and infection control showed that the use of personal protective equipment was moderately observed when there was a possibility of bleeding or discharge of other body fluids, and only 45% of nurses paid attention to this issue. Recent similar findings have found it

Table 4: Findings of readiness and performance of nurses regarding medication and serum therapy

Checklist items	Questions	Grouping	Percentage
Medication	Does he/she observe the time of preparation and injection of the medicine?	Yes	91.3
		No	9.7
	Does he/she control the drug in terms of expiration date?	Yes	97.8
		No	12.2
	Does the nurse wash his/her hands at the beginning of the medication therapy process?	Yes	48.7
		No	51.3
	Is the drug prepared and injected sterile?	Yes	83.6
		No	16.4
	Does he/she check the venous catheter site for swelling, redness, and history?	Yes	88.5
		No	11.5
	If the solution remains in the vial for subsequent injections, will the date and time be completely recorded on it?	Yes	61.7
		No	38.3
	In case of drug side effects, does he/she fill in the ADR form and send it to the nursing office?	Yes	63.5
No		36.5	
Serum therapy and IV therapy	Does he/she pay attention to the hygiene of the treatment room?	Yes	83.2
		No	16.8
	Does he/she follow sterile tips during serum therapy?	Yes	91.8
		No	8.2
	Does he/she record the serum label accurately and completely and affix it to the serum?	Yes	81.4
		No	28.6
	Is the serum flow received during the nurse shift appropriate?	Yes	81.7
		No	18.3
Does the injection site show no symptoms of phlebitis (warmth, swelling, redness)?	Yes	18.4	
	No	10.6	

IV=intravenous

important to pay attention to the observance of standards and their proper implementation, especially during the COVID-19 pandemic.^[14] Mitchell *et al.*^[15] conducted a study of nursing students and reported that nurses need to be familiar with health protocols of infectious diseases, infection control guidelines, and preventive measures in health-care settings. A study by Kim *et al.*^[16] in 2021 showed that in order to protect patients and to prevent and reduce infection and transmission, the use of appropriate personal protective equipment in the workplace is essential. Also, educating students can be effective in preventing infection.

The results of the present study also showed that the general readiness and performance of nurses regarding care and nursing processes related to medications were acceptable. But the performance of nurses in relation to hygiene and handwashing was moderate at the beginning of the drug therapy process. Also, the performance of the nurses regarding mentioning the date and time of the remaining medicine in the vial and also completing

the ADR form was average and about 40% of them did not comply with these items. Therefore, these results showed that nurses need more training, control, and management to increase their readiness in preventing the risks of drug side effects and medication errors. Recent similar studies indicate that cases of medication errors, the most important of which is due to drug side effects, are not well observed among nurses,^[17] which is consistent with the findings of this study.

Our study showed an appropriate level of readiness in nurses in relation to various aspects of gavage. The nurses were also well prepared for suctioning and transfusion of blood and related products, but some of them needed to become more familiar with the instructions for blood transfusions and related products. Consistent findings have shown that the implementation of training programs, empowerment planning and support programs could improve the performance of nurses in various fields and enhance their efficiency.^[18]

According to the present study, in general, a high percentage (90%) of nurses followed the tips related to sterilization during serum therapy, treatment room hygiene, attention to the injection site, date of drug use and time of drug injection. However, more than 38% of them did not pay attention to handwashing at the beginning of the medication therapy process. Similar studies have shown that attention to handwashing has been minimal among nursing staff.^[19] Nalule *et al.*^[20] demonstrated the importance of handwashing and hygiene of the medical staff in reducing the incidence of nosocomial diseases and disease transmission.

Of course, paying attention to the psychological and emotional conditions and needs of nurses can be effective in increasing the quality of services and improving nursing processes. In their study conducted in Iran, Azimilola *et al.*^[21] stated that providing quality services to hospitalized patients would undoubtedly increase their satisfaction with the hospitals. Given that nurses have the most interaction and contact with patients compared to other health-care providers, they have a key role in achieving this goal. Thus, performing appropriate psychological interventions to manage workplace stressors and reduce nurses' burnout will be a step towards increasing the quality of nursing care.

Our study generally focused on the performance and readiness of nurses in relation to nursing processes. The findings demonstrated that recognizing the strengths and weaknesses of the nursing staff in relation to nursing care and performing the processes, as well as providing educational facilities should be a priority.

Conclusion

Findings of the study showed that nurses were sufficiently prepared for procedures such as suction, blood transfusion, serum therapy and IV therapy. Also, more than half of the nurses completely performed the care processes. However, several limitations, strengths and weaknesses were observed in

some aspects such as medication, care and nursing processes, compliance with standards and infection control, and attention to these issues can help improve the performance of nurses in the future. It is suggested that descriptive–analytical studies be conducted in the future with the aim of identifying more effective cases in improving nursing processes.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published, and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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