

## Evaluation of the utilization of nursing process and quality of patient care in Ha'il city, Saudi Arabia



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### ARTICLE INFO

#### Article history:

Received 25 February 2020

Received in revised form

28 August 2020

Accepted 29 August 2020

#### Keywords:

Utilization

Nursing process

Quality of care

Hail

Saudi Arabia

### ABSTRACT

The nursing process is one of the most important tools used by a nurse as a guide, blueprint, and map of care that is provided to patients. This study aimed to determine the utilization of nurses in the nursing process in terms of knowledge, performance, and challenges they faced and experienced while using it. Specifically, it answered the questions a) what are the sociodemographic profile of the participants; b) what is the level of knowledge, performance, and challenges faced by nurses in using the nursing process; c) what is the level of satisfaction of the patients to the care provided by nurses as they utilize the nursing process; d) what is the degree of relationship between the nurses' knowledge of the nursing process to their profile; and lastly E) what is the level of nurses' knowledge, performance and level of challenges in the utilization of the nursing process. The use of the nursing process by the nurses showed that there is a highly statistically significant relation between their total knowledge and performance regarding the use and implementation of the nursing process in their provision of care to their patients. There was an effective use of the nursing process despite some challenges and difficulties experienced by the nurses while utilizing in providing care to their patients.

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### 1. Introduction

Nursing care is the art and science of providing care to patients, depending on their healthcare needs. It is a process that ranges from determining the health to assisting the patient towards full recovery. However, when treatment has been maximized, and yet the patient cannot survive, nurses are bound to render them a dignified death. Nursing care, therefore, refers to the care of others (Semachew, 2018).

The nursing process guides all nurses to provide patient-centered quality care internationally. It is a standard procedure that is being followed by all nurses in the world (Opore et al., 2017). Primarily, the nursing process is a problem-solving approach that uses the signs and symptoms presented by each patient as its guide. The nurse uses the process to guide her in her provision of care. Along the process,

the nurse determines the patient's response to the rendered care and makes necessary modifications as required by the patient's health condition (Adeyemo and Olaogun, 2013). Several of the steps are assessment, diagnosis, planning, implementation, and evaluation are steps of the nursing process accordingly (Toney-Butler and Thayer, 2019). The key to the effective use of the process and complying with all the steps rests with the nurse's use of proper monitoring and follow-up and, most of all, the proper implementation of the care as stated in the process. (Mbithi et al., 2018b).

The patient or customer receiving the healthcare services in the clinical setting is the basis on which the various practitioners from different specialties carry out their practice. Therefore, it includes shared planning, decision-making, problem-solving, setting goals, and taking roles by those professionals who collaborate and work with open communication. The nurse works together and integrates the efforts of other practitioners as an essential part of contemporary practice to maintain synchronous partnerships maximally to benefit the client (Mold, 2017). All throughout the management of the patient's condition, the nursing process of effective utilization will make the care not only effective but also ensure that all care provided is within the

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<https://doi.org/10.21833/ijaas.2021.01.009>

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bounds of the nurse's duty and responsibilities. This will ensure that the nursing practice is safe, sound, and effective. Despite all actions of ensuring that the care is rendered will help the patient achieve its primary purpose, there can be some barriers along with it. These barriers can be nurse related, the management or policy-related nurses' related and the patient factor. These factors can be in the form of insufficient information, belief in doing the patient care according to it, lack of sufficient motivation and skill in using the care process, and absence of collaboration between nurses (Abdelkader and Othman, 2017). Some hospital management factors that could affect the proper use of the process are repetitious replacement of the nurses' shortage of nursing staff, no format for writing, lack of monitoring on the nursing process, and lack of necessary facilities and enough time (Mangare et al., 2016).

Despite all the factors affecting the utilization of the nursing process, it still remains, as of today, the most valuable tool of nurses in providing effective care management and provision to their patients. This study, therefore, aims to 1) determine the sociodemographic profile of the participants such as nurses and patients and correlate them to the focus of the study; 2) determine the knowledge, performance, and level of challenges faced by nurses in using the nursing process; 3) inquire on the patient's satisfaction of the care provided by nurses as they utilize the nursing process; 4) determine the relationship between the nurses' knowledge of the nursing process to their profile, and lastly 5) correlate the level of nurses' knowledge, performance and level of challenges in the utilization of the nursing process.

## 2. Methods

### 2.1. Research design

A descriptive research design was utilized to achieve the aim of the study.

### 2.2. Study setting

We conducted the study at a General Hospital and Tertiary Hospital, as well as Psychiatric Hospital in Hai'l City, Saudi Arabia.

### 2.3. Participants and sampling

A convenient sample included all available 250 nurses and 100 patients selected from the previously mentioned settings. The inclusion criteria included all nurses and patients from both regardless of gender who agreed to agree to take part in the study. On the other hand, the exclusion criteria we used are that the included patients with physical disabilities or unstable psychiatric patients will not become part of the study.

### 2.4. Instrument

There were instruments used in this study. The first was the instrument used in gathering the profile of the participants, and it consisted of four parts. The first part asked about sociodemographic data such as gender, age, levels of education, job, and years of experience, hospitals, and units. While the second part consists of questions about their knowledge of the topics. The researchers designed this part based on the literature review to assess nurses' knowledge about the nursing process. It comprises 7 items, namely definition of the nursing process, purposes, steps of the nursing process, and characteristics of the nursing care plan, definition of nursing diagnosis, short- and long-term goals, and techniques for evaluation of the nursing process. A scoring system was used in each item where a score of 0 is given when the answer was incorrect, a score 1 is given when the answer was incomplete correct, and 2 when the given answer was completely correct. In addition, nurses' total knowledge was converted into total percent and graded as the following Poor <60% of the total score; Average 60 %-< 75 % of the total score; Good knowledge: 75%-100% of the total score.

The third part of the instrument referred to the utilization of the nursing process. This is called the assessment questionnaire adapted from Afolayan et al. (2013) and Mangare et al. (2016) to assess nurses' performance regarding the implementation of the nursing process through checking patients' files. It consists of two sections, which are those that involve nurses' performance, which included seven questions. And the second section asked about the perceived challenges to effective implementation of the nursing process that included nine items, including. These challenges were divided into 2 sub-factors; first; nursing-related factors (workload and inadequate time, nurses' knowledge, inadequate experience, lack of professional qualification, lack of training). The second part is related to non-nursing factors, inadequate staff, and supplies such as administrative in support, lack of documentation, nature of patients' condition.

The scoring system regarding nurses' performance section: We assigned each item a score of zero given when the performance was not done and a score of one given when the performance was done. The total nurses' performance was converted into total percent and graded as unsatisfactory <60% of the total score; satisfactory  $\geq 60\%$  of the total score; scoring system regarding challenges' section. We assigned each item a score of zero given for low challenge, a score of one for the moderate challenge, and a score of two for a high challenge. We converted total levels of challenges into total percent and graded as Low level of challenge <60% of the total score; high level of challenge  $\geq 60\%$  of the total score.

Then another tool was used for the patients' interviews. The patients' interview consisted of two parts. The first part asked about the sociodemographic profile of the participants that

included the gender, age, hospital unit, level of education, the onset of disease, and duration of hospitalization. The second part of this tool is on the quality of patient care. This part was adapted from Martins et al. (2016) and was translated into the Arabic language. It consists of 25 items divided into seven subscales; patient satisfaction items (1-3), health promotion items (4-6), prevention of complications items (7-9), rigor items (10, 11, 12, 13, 17, and 19), well-being and self-care items (14, 15, 16 and 18), functional re-adaptation (20-23), and responsibility and nursing care organization (24 and 25 items). The scoring system used for this part is as follows where unsatisfactory <50% of the total score; satisfactory 50%-75% of the total score; highly satisfactory ≥75% of the total score.

Validity and Reliability of the Instrument: A panel of 7 experts in the Nursing administration, Psychiatric Mental Health, and Medical and Surgical Nursing specialties from the Faculty of Nursing at Ha'il University assessed the validity of the tools. Their modifications were considered and done. Besides the results of the content validity index (CVI) delineated strongly accepting tools, it was (0.87) for instrument 1 and (0.940) for instrument 2. We assessed the reliability of the tools using the Cronbach alpha reliability test for all tools reflected high reliability, and the results showed that the utilization of the nursing process questionnaire or instrument 1 had an alpha level of 0.88 the patient quality of care instrument or instrument 2 was at 0.945.

### 2.5. Procedures

An official permission letter was obtained from the Dean of Faculty of Nursing, Ha'il University, Saudi Arabia, to the directors of the above-mentioned hospitals, in addition to the approval from the ethical committee after an explanation of the aim of the study.

We carried out a pilot study on 25 nurses and 10 patients or 10% of the sample size, to check the clarity and applicability of designed tools and to estimate the time needed to complete items. We excluded patients and nurses who participated in the pilot study from the main study sample. After the pilot test was done, the data collected from the actual sample commenced. The study was implemented starting in November 2018 to the end of December 2019. It underwent three phases, namely the preparatory phase, which is the first phase. The activities done in this phase are tool or instrument development, validity and reliability checks, and the pilot study. Procuring official permission to conduct this study from the research, administrative and ethics office were accomplished during the first phase as well. Mentioned above. The main activity done during the second phase was the collection of data after taking approval from the participants of the study. The researchers met with nurses and patients in their units after introducing themselves and explaining the purpose of the study.

The researchers collected data on four months, two visits/week (Sundays and Mondays) for each hospital, from 11.00 a.m. to 2.00 p.m. allowing enough time to understand any vigorous item in the tools. While the third and last phase was when the data analysis, discussion of results and conclusion were completed.

### 2.6. Statistical analysis

We performed data analysis using IBM SPSS statistical software version 22. Qualitative variables were compared using the independent T-test and F test as the test of significance. The p-value is the degree of significance. We considered a significant level value when p-value≤0.05 and a highly significant level value was considered when p-value≤0.001, while p-value>0.05 indicates non-significant results.

### 3. Results

Table 1 shows that 87.2% of the studied nurses were females, 53.2% of them aged between 25-29 years, 84.8% works as a licensed practical nurse, 59.6% had 5 years of experience, 78.8% had Bachelor's Degree in Nursing, and 45.2% was working in General Hail hospital with 44.8% at medical units.

**Table 1: Socio-demographic profile of participants, n=250**

Items	No	%
Sex		
Male	32	12.8
Female	218	87.2
Age in years		
20- 24	29	11.6
25-29	133	53.2
30-34	54	21.6
35-39	15	6.0
≥40	19	7.6
Mean ±SD=28.76±7.84		
Job		
Head nurse	17	6.8
Licensed practical nurse	212	84.8
Diploma nurse	21	8.4
Years of experience		
≤ 5 years	149	59.6
6-9 years	67	26.8
10-14 years	12	4.8
15-19 years	10	4.0
≥ 20 years.	12	4.8
Mean ±SD=11.40±8.56		
Level of education		
BSc degree	197	78.8
Diploma degree	48	19.2
Master degree	5	2.0
Hospital		
General Hail Hospital	113	45.2
Hail Psychiatric Hospital	36	14.4
King Khaled Hospital	101	40.4
Unit of work		
Medical Unit	112	44.8
Surgical Unit	102	40.8
Psychiatric Unit	36	14.4

Table 2 reveals that 54% of the study nurses gave incorrect answers regarding the definition of nursing diagnosis. 76% of them had incomplete answers about steps of the nursing process, while 12.4% of

nurses had complete, correct answers about the purposes of the nursing process.

**Table 2: Nurses' knowledge about the nursing process, n=250**

Items	Incorrect	Incomplete	Complete correct
Definition of nursing process	83 33.2%	145 58.0%	22 8.8%
Purpose of nursing process	57 22.8%	162 64.8%	31 12.4%
Steps of nursing process	38 15.2%	190 76.0%	22 8.8%
Characteristics of nursing care plane	122 48.8%	108 43.2%	20 8.0%
Definition of nursing diagnosis	135 54.0%	105 42.0%	10 4.0%
Short and long term goals	126 50.4%	112 44.8%	12 4.8%
Techniques for evaluation of nursing process	115 46.0%	125 50.0%	10 4.0%

Table 3 illustrates that 64.8% of the study nurses were developing nursing diagnoses from the assessment regarding collaborative. While 95.6% of

nurses can't follow the steps of the nursing process during the provision of patient care.

**Table 3: Nurses' performance in the utilization of the nursing process, n=250**

	Done		Not done	
	No	%	No	%
Do nurses follow the steps of nursing process during provision of patient care?	11	4.4	239	95.6
Does data collection take place during the assessment phase?	26	10.4	224	89.6
Do nurses develop nursing diagnoses from the assessment?	19	7.6	231	92.4
Actual	56	22.4	194	77.6
Risk	143	57.2	107	42.8
Possible	158	63.2	92	36.8
Wellness	160	64.0	90	36.0
Collaborative	162	64.8	88	35.2
Are nurses preparing a care plan based on a diagnosis?	33	13.2	217	86.8
Are nurses implementing the care plan have developed?	27	10.8	223	89.2
Are nurses evaluating the effectiveness of the intervention?	27	10.8	223	89.2
Are nurses documenting the nursing intervention?	29	11.6	221	88.4

Table 4 reveals that 68% and 65.2% of the study nurses had a moderate level of challenges related to the nature of patients' condition and staff

experience, respectively. However, 56.4% of them had a high level of challenge related to workload.

**Table 4: Levels of challenges in the utilization of the nursing process, n=250**

Items	Low		Moderate		High	
	No	%	No	%	No	%
A. Nurses related Factors:						
1. Workload and inadequate time	10	4.0	99	39.6	141	56.4
2. Nurses' knowledge of the nursing process	32	12.8	135	54.0	83	33.2
3. Inadequate experience	89	35.6	115	46.0	46	18.4
4. Lack of professional qualification.	33	13.2	158	63.2	59	23.6
5. Lack of Training						
B. Administrative Factors						
1. Inadequate staff and supplies	50	20.0	115	46.0	85	34.0
2. Administrative insupport	23	9.2	163	65.2	64	25.6
3. Lack of documentation	36	14.4	142	56.8	72	28.8
4. Nature of patients' condition	36	14.4	170	68.0	44	17.6
Total	63	25.2	151	60.4	36	14.4

Table 5 shows that responsibility and rigor had the highest mean score of 24 among all the items for the quality of care, while nursing care organization had the lowest mean score of 8. The items patient care, health promotion, and prevention of

complications have the same mean score of 12. Table 5 manifest the different items regarding the quality of care that should be received and provided by and to the patients.

**Table 5: Patients' satisfaction with the quality of care, n=100**

Items	Total score	Mean±SD	Minimum	Maximum
Patient care	12	7.4900±2.16723	4.00	12.00
Health promotion	12	7.6300±2.18653	3.00	11.00
Prevention of complications	12	7.9000±2.33333	3.00	12.00
Well-being and self-care	16	10.7700±2.92621	4.00	16.00
Functional re-adaptation	16	11.4000±3.06166	4.00	16.00
Nursing care organization	8	5.6800±1.63843	2.00	8.00
Responsibility and rigor	24	16.4100±4.30197	9.00	23.00
Total satisfaction	100	67.2800±12.906	41.00	91.00

Table 6 shows that there is a highly statistically significant relation between total nurses' knowledge score and hospital. Also, there is a significant

statistical relation between total nurses' knowledge score and nurses' gender, unit of work, and level of education, while there no statistically significant

relation between nurses' age, years of experience, and job.

**Table 6:** Correlation between nurses' knowledge of the nursing process and their sociodemographic profile

sociodemographic characteristics	Mean ±SD	Total knowledge score	
		Statistical test	P-value
Gender			
Male	4.1128±2.33915	3.03	<0.05*
Female	5.6875±3.13603		
Hospital			
General Hail Hospital	4.3762±2.21744	6.08	<0.001**
Hail Psychiatric Hospital	5.2222±2.12618		
King Khaled Hospital	5.5133±2.65288		
Unit of work			
Medical Unit	4.4953±1.96850	4.35	<0.05*
Surgical Unit	5.4579±2.89528		
Psychiatric Unit	5.2222±2.12618		
Age in years			
20- 24	5.3793±2.87121	0.534	>0.05
25-29	5.1203±2.47422		
30-34	4.7778±2.48518		
35-39	4.7333±2.01660		
≥40	4.5789±2.00875		
years of experience			
≤ 5 years	4.8658±2.53265	1.95	>0.05
6-9 years	5.4328±2.54787		
10-14 years	5.9167±1.78164		
15-19 years	4.9000±.99443		
≥ 20 years.	3.6667±1.92275		
Level of education			
BSc degree	4.7817±2.40918	4.72	<0.05*
Diploma degree	4.8000±2.77489		
Master degree	5.9792±2.46239		
Job			
Head nurse	5.9375±2.76812	1.73	>0.05
Licensed practical nurse	5.0000±2.45718		
Diploma nurse	4.4286±2.15804		

P-value <0.001\*\* highly significant, p value <0.05\* significant

Table 7 shows that there is a highly statistically significant relationship between nurses' total knowledge and performance regarding the nursing process.

**Table 7:** Correlation between knowledge of and the performance of nurses using the nursing process

Variables	Studied nurses total performance score	
	r	P-value
Studied nurses total knowledge score	0.510	<0.001**

P-value <0.001\*\* highly significant

#### 4. Discussion

The nursing process is a deliberate problem-solving approach for meeting patients' needs, and it helps to improve the quality of patient care. Reduced quality of nursing services can increase costs, length of hospital stay, mortality risk, and patients' pain. The first step to improve quality is to use care standards that increase care quality, improve patient outcomes, and reduce costs. One of these standards is using the nursing process. So, this study aimed to evaluate the utilization of the nursing process and the quality of patient care. Regarding knowledge scores of the study nurses, the results of the current study display that more than two-thirds of studied nurses had poor total knowledge scores regarding the nursing process as more than one half of them gave incorrect answers regarding definition of nursing diagnosis and more than three-quarters of

them had an incomplete answer about steps of the nursing process, while, less than one-fifth of nurses had complete, correct answers about the purposes of the nursing process.

These findings are like the results of Hagos et al. (2014) and Mbithi et al. (2018a), who established that most of the respondents had poor knowledge about the nursing process. However, these findings are incongruent with the results of Abebe et al. (2014), who reported that most of their respondents had good knowledge scores regarding the nursing process. We might relate these different findings to a different level of education of the study subjects and different studies' settings. As regards the nurses' performance regarding the utilization of nursing process, the results illustrated that most of the studied nurses couldn't follow the steps of nursing process during provision of patient care, and they couldn't develop a nursing diagnosis from the assessment data. Nurses are not preparing a care plan based on a diagnosis or testing the effectiveness of intervention but should be based on the clinical presentations of the patient. However, documenting nursing intervention should be an important consideration. We support these findings with the findings of Mbithi et al. (2018b), who were assessing utilization of the nursing process among nurses in selected public health care facilities in Kenya, wherein the study results showed that utilization of each step of the nursing process was poor. This is because only less than thirty percent of them could use each of the steps according to the set protocols.

Overall, only over one quarter, 28.5% of the respondents showed proper utilization of the nursing process, which translated to poor utilization of the nursing process among the respondents since documentation is the only evidence that the planned care was provided.

In relation to levels of challenges that affect the implementation of the nursing process, the results of the current study represent that most challenges were related to inadequate time, supplies, and staffing. These results go in the same line with [Mangare et al. \(2016\)](#) and [Opore et al. \(2017\)](#), who stated that factors that hinder using the nursing process to a great extent included inadequate supplies and inadequate staffing, and lack of materials. These challenges could be modified or decreased with time by providing adequate staffing and supplies. In addition, the results revealed that over two-thirds of the studied nurses had a moderate level of challenges related to patients' conditions and needs. We may relate this to the urgency of care needed according to patients' conditions. The result of the present study revealed that most of the studied patients were satisfied with the quality of care provided. This result reflects that most of the studied nurses were not following the steps of the nursing process. The quality of care given to patients was depended on fulfilling patients' needs. This result is accepted by [Rajeswarit \(2011\)](#), who mentioned that around three-quarters of the patients reported quality of nursing care was good, the information given by nurses was good, and overall nursing care was good. Also, [Lyu et al. \(2013\)](#) reported that patient satisfaction was independent of hospital compliance with surgical processes of quality of care and with overall hospital employee safety culture. The result showed that there is a highly statistically significant relationship between the total quality of care and all studied hospitals. We may relate this result to all studied hospitals already apply criteria and standards for quality of care. One of these criteria is applying the nursing process. We accept this result so of [Rastian et al. \(2016\)](#), who showed that nursing process implementation could improve the quality of nursing care. Also, these findings are consistent with the results of the studies by [Akbari and Farmahini \(2009\)](#) that found the implementation of the nursing process enhanced quality of care. The result revealed that there is a highly significant statistical positive relation between total quality of care and length of stay. We relate this to the effective implementation of the nursing process, which increases the quality of care and decreases the length of hospital stay. This result is accepted by [Kossovsky et al. \(2002\)](#), who concluded that in patients with CHF, there is a significant association between length of stay (LOS) and the quality of the treatment provided, and with readiness for discharge. Reorganization of processes of care should accompany attempts at reducing LOS to avoid detrimental effects on the quality of care. This result is not accepted so of [Change et al. \(2006\)](#), who found no relationship between patients'

experience and the quality of clinical care among elderly patients in 2 managed care organizations. The findings of this study showed that there was a highly statistically significant relationship between the total knowledge scores and all studied settings. We may relate this result to recruitment rules in a studied hospital that depends on attracting different, highly qualified nurses from different countries. These recruitment rules determine high knowledge, practical, and efficiency levels for nurses to deal with different patients' needs. The first step to determine and achieve patients' needs is the nursing process.

We relate this result to the findings of [Akpan-Idiok et al. \(2017\)](#), who revealed that nurses do not perform practice nursing processes often inwardly. Most times, we only do it for patients who are critically ill. Also, this finding agreed with the results of [Lopes et al. \(2010\)](#), who found out that data collection of history was more frequent on the admission day. [Ballack and Poldosky \(2008\)](#) also identified in their study that nursing process steps are mostly accomplished within the first 48 hours of admission. The result of the study showed that there is a significant relationship between total nurses' knowledge score and nurses' gender, unit of work, and level of education. This may be related to the nurses' knowledge about the nursing process that is needed for nurses, either male or female, also needed in different and all units of work, either medical or surgical or psychiatric, to assess patients' condition and fulfill patients' needs. In addition to the level of education, BSc, diploma, or Master leads to increase the nurses' knowledge level.

The findings of this study revealed that there is a highly significant statistical correlation between nurses' total knowledge and performance regarding the nursing process. We may relate this finding to implementing the nursing process in clinical settings needs primarily knowledge about the steps of the nursing process and how to apply these steps. Also, applying nursing process needs training about how to assess patient condition through physical examination, how to judge on patient condition through diagnosis, how to put a plan to satisfy patient' needs then implement this plan as you decided and finally how to test the effectiveness of this plan and these steps. So, performing an effective nursing process depends on efficient and effective knowledge. We accept this finding with the findings of [Akpan-Idiok et al. \(2017\)](#), who showed that nurses had good theoretical knowledge of the nursing process. It also conformed to [Afolayan et al. \(2013\)](#), who opined that trained nurses have good theoretical knowledge of the nursing process. The finding of this study was not accepted by [Momoh and Chukwu \(2010\)](#), who suggested that nurses had poor knowledge of the nursing process and skill of writing care plans.

## 5. Conclusion

The nurses' utilization of the nursing process created some difficulties and challenges when there

is not enough knowledge of its use. Acquiring enough knowledge in the sue of the nursing process demands many requisites on the part of the nurse, such as basic or foundational knowledge about the nursing process. Since the nursing process is composed of various parts and entities, the familiarity of the information required in each of these components is a pre-requisite for its effective and efficient use.

From the data gathered in this study, there were problems in its utilization, which can be related to any of the mentioned pre-requisites as a missing link between the nurse difficulty and the nursing process proper utilization. Whatever the reasons may be, the nursing process is a vital component of nursing practice, and all nurses should have the required competencies to properly and appropriately utilize it.

## 6. Implications to nursing practice and education

1. Training courses for nurses about how to implement steps of the nursing process.
2. Motivate nurses to implement all steps of the nursing process to promote the quality of patients' care.
3. Assure nurse managers to understand how to deal with challenges that affect nursing process implementation.
4. Enhance quality patient care through effective implementation of the nursing process.

## Funding

This study was funded by the University of Ha'il in Saudi Arabia, with funding reference number 160758.

## Compliance with ethical standards

### Ethical consideration

We considered all ethical issues before conducting the study, and we assured each nurse and patient that the data collected remained confidential and that any means needed no personal identification. We obtained oral consent from each participant. The researchers assured that participation in the study was voluntary, and they may withdraw at any time.

### Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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