Facilitators and Barriers Influencing Patient Safety as Perceived by Nurse Interns

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Abstract

Background: Patient safety is a worldwide concern with limited resources, recent healthcare systems are facing major factors in ensuring patient safety. **Aim:** This study aimed at investigating facilitators and barriers influencing patient safety as perceived by nurse interns. **Research design:** descriptive design was used**. Setting:** This study was carried out at two different faculties affiliated to Al-Azhar and Ain-Shams universities. **Subjects and Methods:** Subjects of the present study included 94 nurse interns from Al Azhar university and 125 nurse interns from Ain Shams university. **The tool:** Nurse Intern's perception of patient safety factors questionnaire. It was consisted two parts as follows: Part 1:" personal data " ;Part 2: include "facilitators and barriers facing interns regarding patient safety". **The main results:** There was no statistically significant difference between two groups regarding to total patient safety factors. **The current study concluded** that the study findings didn't support the study hypothesis, where there is no differences between nurse intern's perception of facilitators and barriers of patient safety at both Ain Shams University Hospitals and Al Azhar University Hospitals. **Recommendations:** Patient's safety competencies must be incorporated in the nursing education programs, which will enable interns to practice patient care safely while their training.

Keywords: Barriers, facilitators, Nurse interns, patient safety, perception.

Introduction:

Although the safety of patient care is a national priority, medical errors continue to occur in hospitals, and patients are frequently harmed. Hospital leaders have responded to this problem with new technology and improved processes that support safe patient care. However, medical errors are fundamentally human errors related to human actions according to a report from the Institute of Medicine. Solutions to this persistent problem lie not exclusively within the field of medicine, but also in the discipline of psychology and theories of human behavior **(Zhou et al, 2018)**.

The concept of patient safety is closely coupled with quality in health care and has been defined by the National Patient Safety Foundation as "the avoidance, prevention, and amelioration of adverse outcome or injuries stemming from the process of health care". Terms used to describe patient-safety vary in the literature, but each term illuminates an aspect of patient-safety. Terms found in the literature include nonpunitive culture, blame-free culture, open and fair culture, culture of transparency, and just culture. The variety of terms reflects the fact that patient-safety is a new and evolving concept and researchers are still in the process of describing and understanding the construct. As a result, patient safety has been described and measured in numerous ways **(Nordin, 2015; Halina, 2017).**

With more than 3 million members, the nursing profession is the largest segment of the nation's health care workforce. The IOM report identified nursing as crucial to improving patient safety and called for individual registered nurses to be active and empowered in hospitals. As workers on the frontlines of patient care, registered nurses may be the last barrier to preventing a medical error. Their knowledge of potential or actual patient safety risks is vital to improving the safety of patient care **(Rajalatchumi et al, 2018)**.

Nurse intern's are the registered nurses in the future and registered nurses are the largest workforce employed in hospitals and are on the frontline of patient care. Nurses are the most likely individuals to be aware of the risk or occurrence of medical errors. As a result, they are in a unique position to identify patient safety risks and to speak up with suggestions to reduce or prevent medical errors. Ineffective communication by registered nurses has a negative impact on a hospital's ability to detect medical errors and learn from mistakes. There are various reasons why registered nurses might remain silent in response to patient safety concerns **(Bellury et al, 2016)**.

Significance of the study:

During the clinical round, the researcher noticed that the majority of nurse interns aren't committed with patient care and they have minimal patient safety competency knowledge and understanding as to when to report adverse events that lead to increase patients experiences harm while getting health care.

Aim of the study:

This study aimed to investigate facilitators and barriers influencing patient safety as perceived by nurse interns at Al azhr University and Ain Shams University.

Research hypothesis

There is a difference between nurse intern's perception of facilitators and barriers of patient safety in the different training settings.

Subjects and Methods:
Research Design:

A descriptive research design was adopted to fulfill the aim of the study and test the research hypothesis.

Research Settings:

This study was carried out at two different University hospitals namely Al-Azhr and Ain-Shams, where the nurse interns in the two universities are having their training.

Subjects:

The subjects of this study consisted of the nurse interns having their training in the aforementioned settings. Their total number was (219) nurse interns: 94 nurse interns at Al-Hussien university hospital and 125 nurse interns at Ain Shams university hospitals.

Tools of the study:

Data were collected using only tool namely:

1- A self-administered questionnaire sheet:

It was developed by the researcher based on the literature review *(Nygren, et al 2014; Hwang et al 2012), it* consists of two parts:

Part 1: It included data pertaining to the socio-demographic characteristics of the nurse interns such as age, gender, marital state, pre university education, previous training and training hospital.

Part 2: It was aimed to investigate nurse intern's perception of facilitators and barriers influencing patient safety with 80 items with responses on a 3-point Likert scale "facilitator, barrier and Uncertain."

❖ **Scoring system:**

Each item of the scale was scored based on three points (facilitator, barrier, uncertain). Subjects with a total score of response in each domain less than 60% were considered low perception; those with between 60%-75% were considered moderate perception and those reaching more than 75% were considered high perception.

Content Validity:

To achieve the criteria of trustworthiness of the tools of data collection in this study, the tools were tested and evaluated for their face and content validity, and reliability. Face and content validity was tested by five professors (Jury) from Nursing Administration Department at Faculty of Nursing, Ain Shams University (two professors and one assistant professor) and two assistant professor from Nursing Administration Department at Faculty of Nursing, Cairo University. They reviewed the tool for clarity, relevance, comprehensiveness, simplicity, understanding and applicability. More than 85% of the experts have agreed upon the tool. The required corrections and modifications were done.

Preparatory Phase:

It included review past, current, local and international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines to develop tools for data collection.

Pilot Study:

A pilot study was undertaken after the adaptation of the tools and before starting the data collection. It was conducted on (22) nurse interns representing about 10% of the study sample ,13 nurse interns from Ain Shams university hospitals and 9 nurse interns from Al Azhr university hospitals. Pilot study examines sequence of items, applicability, feasibility, and clarity of language. In addition, the nurse interns took 10 to 15 minutes to fill in the questionnaire. After obtaining the result of the pilot study, there were no modifications done. Those participants in the pilot study were excluded from the main study sample.

Fieldwork:

The actual fieldwork started at the beginning of Auguset 2019 until beginning of October 2019. Data were collected in 4 days per week in the morning shifts from 9am to 2pm, from 7 nurse interns a day. Each questionnaire took 10-15 minutes, depending on the response of the participants .The nurse interns were asked to give oral agreement to participate in the study; the investigator explained the aim and objectives to the participants. The confidentiality of any obtained information was assured, and the subjects were informed about their right to participate or not in the study. The participants were also assured about anonymity, and that data will only be used for the purpose of the study.

Ethical Considerations

Oral informed consent was obtained from each participants. They were informed about all rights to refuse or withdraw from the study with no consequences. They were reassured about the confidentiality of the information collected, and that it would be used only for the purpose of scientific research.

Administrative Design:

Official letters were issued from the Faculty of Nursing, Ain Shams University to obtain the permission from each hospitals director of the four hospitals of Ain Shams University to collect the data for the study. And other letter was issued from the Faculty of Nursing, Ain Shams University to obtain the permission from hospital director at Al Hussien university hospital of Al Azhr University. The letter explained the aim of the study, the tool, and process of data collection, and asked for permission to collect data from nurse interns. Then, the researcher met with each of these directors to explain the purpose of the study and to obtain their help and cooperation.

IV. Statistical Design:

The data were collected and coded. Then the collected data were organized, analyzed using appropriate statistical significance tests using the Computer Statistical Package for Social Science (SPSS), version 21. Data were presented using descriptive statistics in the form of frequencies and percentages. Chi square test was used to compare the frequencies and the correlation between study variables.

Degrees of significance of results were considered as follow:

P-value > 0.05 Not significant (NS)
P-value ≤ 0.05 Significant (S)
P-value ≤ 0.001 Highly Significant (HS)

Results:

Table (1): Demonstrates that the demographic characteristics of the studied nurse interns, as regards to gender more than three quarters of the studied nurse interns (93.6%) were females, As regards to marital status more than one half of them (72.6%) were single, Regarding to previous training, less than one half of them (46.1%) had years of experiences, As regards to training hospitals, the highest percentage of them (57.1%/) had training at Ain-Shams university Hospital, while less than one half of them (42.9%)had training at Al-Hussien university Hospital.

Figure (1): As clarified in figure (1), about more than three quarters of the studied nurse interns (93.6%) were less than 24 years old with total mean(23.61±1.07), while less than one third of them (6.4%) were (>24-25) years old

Figure (2): As clarified in figure (2), about more than three quarters of the studied nurse interns (79.5%) were had general secondary as regards to pre university education, while less than one third of them (20.5%) were had nursing technical diploma.

Table (2): Shows generally percentages of perception, the highest barrier factors being upon the ''patient factors'' (39.2%) , but the highest facilitator factors being upon the '' Work environment

factors'' and ''Organizational and management factors'' (56.8%),(56.0%) at Ain Shams university hospitals . On the other hand ,at Al-Azhr university hospitals, the highest barrier factors being upon the '' Individual staff factors'' (41.5%) , but the highest facilitator factors being upon the ''Team factors''(47.9%), there was no statistically significant difference between two groups regarding regarding to total domains of patients safety factors.

Table (3): Clarified that at Ain Shams university hospitals, more than one half of the studied nurse interns (52.0%)were perceived that all domains of patient safety factors are facilitate patient safety, while more than one third of them (32.8%) were perceived that all domains of patient safety factors are barrier to patient safety, as regards to Al-Azhr university hospitals, less than one half of the nurse interns (46.8%) were perceived that all domains of patient safety factors are facilitate patient safety, while more than one third of them (38.3%) were perceived that all domains of patient safety factors are barrier to patient safety.

Table (4): Shows that there were statistically significant relations between the studied nurse interns perception with the patient safety factors and their socio-demographic characteristics as regard to marital status and previous training.
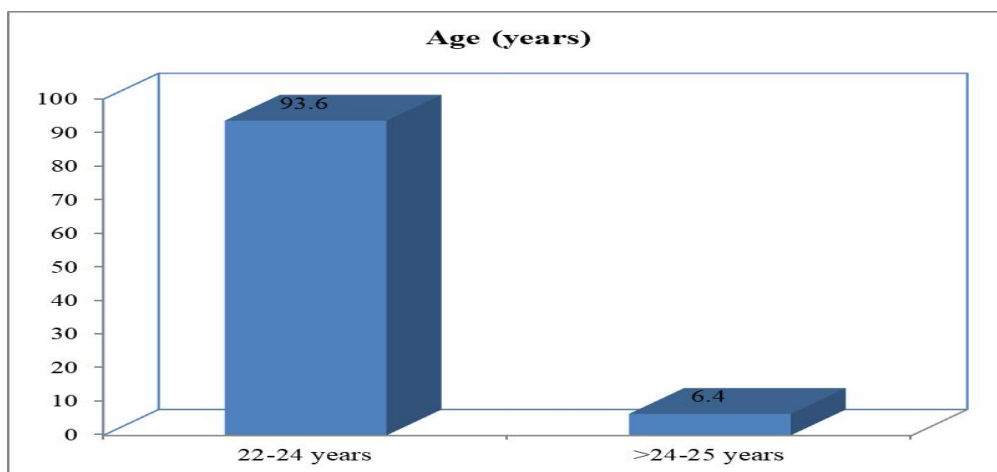
Table (5): Shows that there were statistically significant relations between the studied nurse interns perception with the patient safety factors and their socio-demographic characteristics as regard to marital status, pre university education and previous training, with p-value ($p<0.05$).

Education and previous training. This could be explained as high level of perception were higher among students whose single, had general secondary school and attended previous training.

These results agreement with the study achieved by **(Nabilou et al., 2015)**who found that there were statistical significant relations between the studied nurses' level of perception of patients' safety factors and their marital status. Also,**(Lee et al., 2018)** revealed that pre university education and previous training of the studied students had a significant effect on students' perception level.

Table (1): Demographic characteristics of studied nurse interns (N=219).

Socio-demographic data	No.	%
Gender		
Male	14	6.4
Female	205	93.6
Marital Status		
Single	159	72.6
Married	60	27.4
Previous Training		
Yes	101	46.1
No	118	53.9
If yes (years) (n=101)		
≤6 months	22	21.8
>2 years	24	23.8
>6m-1 year	40	39.6
1-2 years	15	14.9
Trainig Hospital		
Al-Hussien university Hospital	94	42.9
Ain-Shams university Hospitals	125	57.1
Ain-Shams University Hospital	26	20.8
El-Demerdash Hospital	56	44.8
Pediatrics Hospital	27	21.6
Cardiovascular Hospital	16	12.8

Figure (1): Percentage distribution of the studied nurse interns according to their age (years) (N=219).
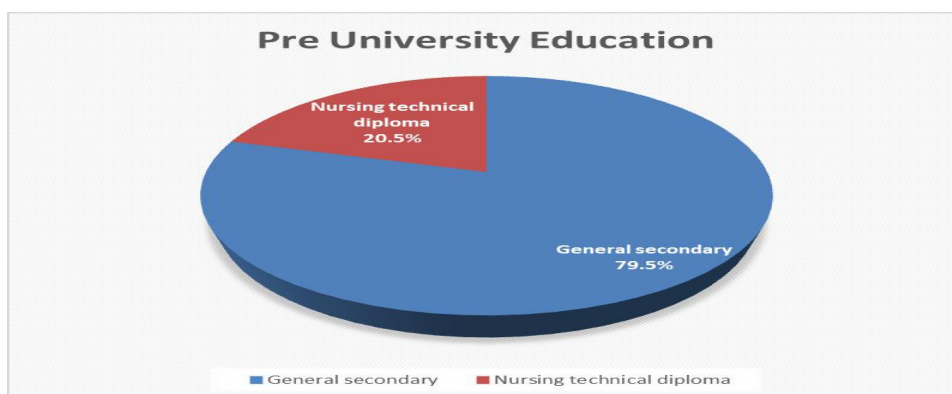
Figure (2): Percentage distribution of the studied nurse interns according to their pre university education (N=219).

Table (2): Nurse Interns perception regarding all factors of patients safety as influencer in patient safety at Ain Shams and Al Alzhar University (N=219).

Patient safety factors		Ain-Shams (n=125)			Al-Azr university (n=94)			Chi-square test	
		Uncert	Barr	Facili	Uncert	Barr	Facili	x2	p-value
Patient	No.	18	49	58	13	38	43	0.054	0.974
	%	14.4	**39.2**	46.4	13.8	40.4	45.7		
Individual staffe	No.	16	42	67	13	39	42	2.193	0.334
	%	12.8	33.6	53.6	13.8	**41.5**	44.7		
Team	No.	17	39	69	12	37	45	1.573	0.455
	%	13.6	31.2	55.2	12.8	39.4	**47.9**		
Task and technology	No.	17	40	68	14	36	44	1.027	0.598
	%	13.6	32.0	54.4	14.9	38.3	46.8		
Work environment	No.	15	39	71	15	37	42	2.883	0.237
	%	12.0	31.2	**56.8**	16.0	39.4	44.7		
Organizational and management	No.	17	38	70	14	36	44	2.004	0.367
	%	13.6	30.4	**56.0**	14.9	38.3	46.8		
Institutional context	No.	23	40	62	13	37	44	1.953	0.377
	%	18.4	32.0	49.6	13.8	39.4	46.8		

*p-valve < *0.05 Significant*   Uncert. (uncertain)   Barr. (Barrier)   Facili (Facilitator)

Table (3): Number and percentage distribution of the studied nurse interns according to their perception toward total factors of patient safety at both Ain Shams university and Al Alzhr university (N=219).

Level of total Perception of Patient Safety Factors		Ain-Shams (n=125)			Al-Azhr university (n=94)		
		High perception >75-100%	Moderate perception >50-75%	Low perception <50%	High perception > 75-100%	Moderate perception >50-75%	Low perception <50%
Facilitators	No.	65			44		
	%	52.0			46.8		
Barriers	No.		41			36	
	%		32.8			38.3	
Uncertain	No.			19			14
	%			15.2			14.9

Table (4): Relationship between nurse interns perception of patient safety factors as influencer in patient safety and their socio-demographic data in Ain-Shams (n=125).

Socio-demographic data	Total Perception of Patient Safety Factors						Chi-square test	
	Low (n=19)		Moderate (n=41)		High (n=65)			
	No.	%	No.	%	No.	%	x2	p-value
Age (years)								
22-24 years	18	94.7%	39	95.1%	59	90.8%	1.384	0.759
>24-25 years	1	5.3%	2	4.9%	6	9.2%		
Gender								
Male	2	10.5%	2	4.9%	4	6.2%	0.705	0.703
Female	17	89.5%	39	95.1%	61	93.8%		
Marital Status								
Single	8	42.1%	31	75.6%	51	78.5%	10.034	0.007*
Married	11	57.9%	10	24.4%	14	21.5%		
Pre University Education								
General secondary	16	84.2%	35	85.4%	48	73.8%	2.367	0.306
Nursing technical diploma	3	15.8%	6	14.6%	17	26.2%		
Previous Training								
Yes	0	0.0%	4	9.8%	55	84.6%	76.583	<0.001**
No	19	100.0%	37	90.2%	10	15.4%		

p-value>0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table (5): Relation between nurse interns perception of patient safety factors as influencer in patient safety and their socio-demographic data in Al-azhr university (n=94).

| Socio-demographic data | Total Perception of Patient Safety Factors | | | | | | Chi-square test | |
| | Low (n=14) | | Moderate (n=36) | | High (n=44) | | | |
	No.	%	No.	%	No.	%	x2	p-value
Age (years)								
22-24 years	14	100.0%	35	97.2%	40	90.9%	3.073	0.461
>24-25 years	0	0.0%	1	2.8%	4	9.1%		
Gender								
Male	2	14.3%	2	5.6%	2	4.5%	1.753	0.416
Female	12	85.7%	34	94.4%	42	95.5%		
Marital Status								
Single	6	42.9%	28	77.8%	35	79.5%	7.894	0.019*
Married	8	57.1%	8	22.2%	9	20.5%		
Pre University Education								
General secondary	12	85.7%	31	86.1%	32	72.7%	4.558	0.036*
Nursing technical diploma	2	14.3%	5	13.9%	12	27.3%		
Previous Training								
Yes	0	0.0%	4	11.1%	38	86.4%	58.65	<0.001**
No	14	100.0%	32	88.9%	6	13.6%		

p-value>0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Discussion:

Regarding to the demographic characteristics, the finding of the current study revealed that, the vast majority of the studied students their age ranged between 22-<24 years, the mean of age was 23.61±1.07 year. These results might be due to age of nurse interns students' ranges between 22-24 years. These results similar with the result of study performed by **(Martinez et al.,2017)** which entitled "speaking up about traditional and professionalism-related patient safety threats: a national survey of interns and residents", who indicated that the mean age of the studied interns students was 23.97±0.52 year with highest range between 22-24 year.

In relation to gender and marital status, the results of the current study indicated that the vast majority and less than three quarters of nurse interns were female and single, respectively. This could reflect that the profession of nursing in Egypt was mostly females. These results approved with **(Saleh,2018)**who carried out their study to assess the effect of educational workshop on nurse interns toward setting priority of nursing care at zigzag university hospital in egypt and stated that the majority of internship nursing students were females and less than two thirds of them were single.

In relation to pre university education, it was found that, more than three quarters of nurse interns had general secondary. While, less than one quarter of them had nursing technical diploma. Also, more than half of nurse interns were performing the internship period at Ain Shams Hospital.These results might be due to most students who graduate from the technical institutes of nursing prefer work over enrollment in university education. Also, because the faculty of Nursing at Ain Shams receives more

students than the faculty of Nursing at Al Azhr university.

These results supported with the study done by **(Elewa, ElAlim,& Etway, 2016)**who conducted study about nursing interns' perception regarding patients' rights and patients' advocacy, and mentioned that more than three quarters of nurse interns had general secondary as pre university education.

Likewise this current research found that, less than half of the nurse interns attended previous training about patient safety, two fifth of them from >6m-1 year. These results agreement with **(Kaur, Razee & Seale, 2014)** who carried out a study to assess facilitators and barriers around teaching concepts of patient safety to undergraduate medical students and stated that less than half of the studied students attended training courses about patient safety.

According to nurse interns' perception regarding **total patients' safety factors** as influencer in patient safety at Ain-Shams University, the results of the current study showed that, the highest barrier factors being upon the ''patient factors'', but the highest facilitator factors being upon the ''Work environment factors'' and ''Organizational and management factors'' From researcher point of view duo to , effective cooperation between patient and healthcare workers enhancing patient care and build healthy work environment. It was inconsistent with the findings of **(Mahran, & Ibrahim, 2016)**who reported that the participants reported the work environment had a positive effect on patient safety.

On the other hand, regarding to nurse interns' perception regarding **total patients' safety factors** as influencer in patient safety at Azhr University, the results of the current study showed that, the highest barrier factors being upon the ''Individual staff factors'', but the highest facilitator factors being upon

the ''Team factors'', From researcher point of view duo to ,qualification of staff had effect on quality of care ,thus to improve patient outcome it is require critical thinking and teamwork training program. These results disagreement with (**Oliveira et al.,2015**) who carried out a study about "evaluating the intervening factors in patient safety: focusing on hospital nursing staff" and found that more than two fifth of studied sample recognize the individual staff factors as facilitator of patient safety.

The results of the current study indicated that there was no statistically significant difference between two groups regarding to **total all domains of patients safety factors**. These result due to similarity between two group in age group, undergraduate education program, training settings in university hospitals and internship program which lead to rapprochement of thinking.

According to perception of nurse interns regarding total domains of patients' safety factors as influencer in patient safety at Ain-Shams University, the results of the current study showed that, more than half of nurse interns had high perception regarding patients' safety factors as facilitator in patient safety. While, about more than one third of them had moderate perception regarding patients' safety factors as barrier in patient safety. These results supported with (**Nabilou, Feizi& Seyedin, 2015**) who carried out study about "patient safety in medical education: students' perceptions, knowledge and attitudes" and found that less than two third of the studied sample had high perception regarding patients' safety factors.

But the findings of the current study disagreement with (**Rebeschi,2020**) who carried out study about "perceived patient safety competence of baccalaureate nursing students" and reported that the participants

had low level of perception regarding patients' safety factors.

Related to perception of nurse interns regarding total domains of patients' safety factors as influencer in patient safety at Al-Azhr University, the results of the current study revealed that, less than half of nurse interns had high perception regarding patients' safety factors as facilitator in patient safety. While, more than one third of them had moderate perception regarding patients' safety factors as barrier in patient safety. These results approved with (**Raymond, Medves & Godfrey, 2016**) who carried out study about "perspectives on patient safety among practical nursing students" and found that half of the studied students had high level of perception regarding patients' safety.

According to the relation between nurse interns' perception of patient safety factors as influencer in patient safety and their socio-demographic data in Ain-Shams, the present study revealed that, there were statistical significant relations between the studied nurse interns' level of perception of patients' safety factors and their marital status and previous training. This could be explained as ,high level of perception were higher among students whose single and attended previous training. These results agreement with the study achieved by (**Huang et al., 2020**)who found that, marital status and previous training of the studied students had a significant effect on students' perception level.

Related to the relation between nurse interns' perception of patient safety factors as influencer in patient safety and their socio-demographic data in Al-Azhr University, the present study showed that, there were statistical significant relations between the studied nurse interns' level of perception of patients' safety factors and their marital status, pre university education and previous training. This could be explained as high

level of perception were higher among students whose single, had general secondary school and attended previous training.

These results agreement with the study achieved by **(Nabilou et al., 2015)**who found that there were statistical significant relations between the studied nurses' level of perception of patients' safety factors and their marital status. Also,**(Lee et al., 2018)** revealed that pre university education and previous training of the studied students had a significant effect on students' perception level.

Conclusion:

Based on the study findings, it can be concluded that the study findings didn't support the study hypothesis, where there is no differences between nurse intern's perception of facilitators and barriers of patient safety at both Ain Shams University Hospitals and Al Azhar University Hospitals due to various causes. One of them is the age of the nurses' intern's ranges between 22-24 years as indicated in the demographic data.

At both Ain-Shams and Al-Azhar University hospitals the greatest number of the studied nurse interns had high perception regarding patient safety factors as a facilitator in patient safety.

Recommendations:

In the light of the findings of the current study the following recommendations can be suggested:

1- Patient's safety competencies must be incorporated in the nursing education programs, which will enable interns to practice patient care safely while their training

2- The internship training competency list has to includes those related to patient safety in different health care settings. This list must be communicated by the internship department to the nurse interns' training sites

3- Protocols between the nursing educational facility and the training setting, which indicate the role of the nurse intern to safety for the patient and the interns.

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