Challenges Facing Staff Nurses to Maintain Patient Safety

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Abstract

Background: Patient safety has become a priority in health policy and healthcare management. Staff nurses play a vital role in improving the safety and quality of patient care in the hospital. **Aim of the study**: to assess challenges facing staff nurses to maintain patient safety. **Research design:** A descriptive correlational research design was utilized. **Study setting:** the study was conducted at cardiovascular hospital affiliated to Ain Shams University Hospitals**. Study subjects:** included all available staff nurses, total number is 120 staff nurses. **Data collection tool:** Self-administered questionnaire sheet to assess challenges facing staff nurses to maintain patient safety. **Results:** There were more than 50% of the studied staff nurses had high level of challenges regarding to work environment, task &technology, institutional context, teamwork and organization & management related challenges. Also, 50% of them had high level of challenges regarding to individual staff related challenges, and 48.3% of them had high level of challenges regarding to patient related challenges. **Conclusion**: it is concluded that 55% of the studied staff nurses had high level of total challenges facing them to maintain patient safety. Also, there were highly statistically positive correlation between patient related challenges and teamwork, task & technology and institutional context related challenges. **Recommendation:** Conduct training programs for staff nurses to improve knowledge and practices related to patient safety, conduct educational programs for patients about their safety and rights and responsibilities, developing unique handover system for staff nurses and training them for applying it and providing training program for nurses about analyzing and documentation of risks.

Keywords: Challenges, Patient Safety, Staff nurses.

Introduction:

Patient safety is defined as freedom from accidental or preventable injuries produced by medical care. And World Health Organization (WHO) also provided the following definition: "patient safety is a discipline in the healthcare sector that applies safety towards the goal of achieving a trustworthy system of health care delivery". Patient safety is an attribute of health care system that minimize the incidence and impact of recovery from adverse events (World Health Organization **(WHO, 2017).**

The work environment of health care setting may have a substantial impact on both nursing outcomes and patient safety .There are several challenges facing nurses in health care setting, among these challenges are improving quality and safety of patient care as well as improving quality of working life (QWL). Health care system design may negatively affect the quality and safety of patient care, **(Gurses et al, 2014).**

Nurses are a vital part of the healthcare delivery system, being in a unique position to make patient care as safe as possible. Nurses are committed professionals in a unique role to advocate for patient safety and contribute to the overall efforts to reform healthcare. Nurses are the largest group of healthcare providers in the nation and are regarded by the public as the most highly ethical and honest group of professionals. Thus, nurses and the nursing profession play a distinctive role in promoting positive change that will ultimately benefit patients (**Mueller et al, 2019).**

Nurse's perception of patient safety increased when the work demands decreased, whereas nurses who worked fulltime had lower perception of patient safety in their unit. Furthermore, the nursing environment such as the arrangement of nursing units, technological equipment, communication, knowledge transfer among staff, inadequate policies, fatigue, stress, and incredible workload are significant factors affecting patient safety and quality of care **(Alquwez et al . ,2018)**

Generally technical errors were the most frequent cause of preventable adverse events followed by failure to request or arrange investigation or procedure; failure to synthesize, decide or act on information and lack of care. Inexperience and communication errors were the two most frequent types of system failures, While technical errors and cognitive failures were the most common types of error, lack of experience, inadequate supervision of junior staff and problems in communications were the most common types of system error . Additionally, the results indicate that inadequate care increases with the number of specialties involved in patient treatment **(American Nurse Association ANA, 2016).**

Significance of the study:

Patient safety is an essential and vital component of quality nursing care as they are responsible for ensuring that patient care is safely delivered and that no harm occurs to patients and staff nurses play a vital role in improving the safety and quality of patient care in the hospital, Nurses need to know what proven techniques and interventions they can use to enhance patient safety. **(Hibbard and Greene, 2018).**

Today'shealthcare environment is increasingly fraught with patient problems and concerns; Payment reductions, increased workloads, turnover and professional conflicts have created environments that stress healthcare providers and affect patient safety. Nurses are central to these issues. Nurses have to recognize a connection between their working conditions and the ability to care. **(Agency for Healthcare Research and Quality AHRQ, 2016).**

Hence, this study was carried out to assess challenges facing staff nurses to maintain patient safety.

Aim of the study:

This study aim is to assess challenges facing staff nurses to maintain patient safety.

Research questions

What are the challenges facing staff nurses to maintain patient safety?

Subjects and Methods:

Research Design:

A descriptive correlational design was used to conduct this study.

Research Setting:

The study was conducted at cardiovascular hospital affiliated to Ain Shams University Hospitals, which consisted of eight floors that include two inpatient departments (87 beds), emergency department, cardio thoracic surgery ICUs (Adult ICU and pediatric ICU), chest ICU, vascular ICU, cardiac ICU and cardiac catheterization ICU, (52 ICU beds).

Research Subjects:

The subjects for the study was included all available staff nurses in the aforementioned settings during the data collection period. Their total number was 120 staff nurses.

Tool of data collection:

A self- administered questionnaire sheet was developed by the researcher based on pertainant literatures **(Hwang et al, 2012- Muntlin et al, 2010- Currie and Watterson, 2007)** to assess challenges facing staff nurses to maintain patient safety**.** It was consisted of two parts as follows:

Part 1: Demographic characteristics of the studied staff nurses

It aimed at collecting data related to studied staff nurse's socio-demographic characteristics such as age, marital status, educational level, and years of experience. It also involved some questions concerned with the attendance of training courses related to patient safety and the training course name if their attended.

Part 2:

A self- administered questionnaire sheet to assess challenges facing staff nurses to maintain patient safety as perceived by them. It included seven patient safety challenges dimensions consisted of 63 items.

❖ **Scoring system:**

Scoring system was done using Likert scale ranging from 1 to 3 (disagree-uncertain-agree) to measure level of patient safety challenges among studied staff nurses. The maximum possible total score will be 189 "63 items × 3 categories". Participant score of patient safety challenges is considered low challenging level if it is less than 60%. The participant has moderate challenging level if the score range from 60 - 75%. If the score is more than 75%, the participant is considered high challenging level of patient safety challenges, **(Hwang et al, 2012)**

II. Operational Designed

It included operational design for this study consisted of four phases, namely preparatory phase, ethical considerations, pilot study, and fieldwork.

Preparatory Phase

This phase included reviewing of literature related to patients' safety. This served to develop the study tools for data collection. During this phase, the researcher also visited the selected places to get acquainted with the personnel and the study settings. Development of the tools was under supervisors' guidance and experts' opinions were considered.

Tool validity and reliability:

Tool Validity:

Tool was validated by five experts in nursing, two of them were assistant professors in nursing administration from Cairo University and three of them were professors & assistant professors in nursing administration in Ain Shams University to test the content. This phase took about two months.

Face Validity:

It was tested through the jury group responses to statements regarding the general form of proposed tools by eliciting their opinions as agree in addition to comments column.

Content Validity:

Content validity was conducted to determine the appropriateness of each item to be included in the questionnaire sheet. The response was agree, disagree and comment based on the jury recommendation, corrections, and modifications of some items were done.

Tool Reliability:

Cronbach Alpha Coefficients of internal consistency were used to assess the internal reliability of the tool. Reliability analysis of patient safety challenges questionnaire: Cronbach Alpha (0.789) and number of items 63.

Ethical Considerations

The research approval was obtained from the Faculty Ethical Committee before starting the study.

- The ethical research considerations include the following: The researcher was clarified the objectives and aim of the study to nurses included in the study before starting
- Verbal approval was obtained from the nurses before inclusion in the study; a clear and simple explanation was given according to their level of understanding. They secured that all the gathered data was confidential and used for research purpose only.
- The researcher was assuring maintaining anonymity and confidentiality of subjects' data included in the study.
- The nurses were informed that they are allowed to choose to participate or not in the study and they have the right to withdrawal from the study at any time.

Pilot Study:

The pilot study was aimed to examine the clarity of the language and applicability of the tool and its` relevance to the study. It also helped to estimate the time needed for filling the questionnaire (30 minutes). The pilot study was conducted on 12 of the studied staff nurse representing 10% of the study nurses. No modifications were established. The studied staff nurses in the pilot study were included in the main study sample size**.**

Fieldwork:

The actual field work of data collection started from the beginning of November till the end of December 2019, data were collected during morning shift hours (10 am: 1 pm) at 3 days/ week. The researcher collected the data by self through meeting studied staff nurses in their work setting. Then, explaining the aim of the study and how to fill-in the questionnaire.

Obtaining verbal consent from them to participate in the study. Each studied staff nurse took about 30 minutes to fill the questionnaire. The studied staff nurses were informed about their right to participate or not in the study and withdraw at any time without giving any reason. The researcher checked each questionnaire sheet after being completed by each studied staff nurse to ensure the completion of all information.

IV: Statistical Design:

The collected data were organized, coded and analyzed by using appropriate statistical significant tests. The statistical analysis of data was done by using the Statistical Package for social science (SPSS), version 21. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, range, standard deviation and 95% confidence interval for the quantitative variables. The reliability tests were confirmed by using the Chronbach Alpha Coefficient test.

Deferential analysis was done for quantitative variables using chi square test in cases of two independent variables with parametric data. While correlation for numerical parametric data, the level of significance was taken at (P-Value < 0.05). Sperman`s rank correlation coefficient test was used to analyzed the relation between challenges of patient safety. The best linear regression model was used to examine the significance of the total challenges scores.

Results:

Table (1): demonstrates that, 51.7% of the studied staff nurses were had age ranged between 20 ≤ 30 years. In relation to the educational level of the nurses under study, it was found that, 56.7% of them were had Technical Institute of Nursing. Also, 46.7% of the studied staff nurses were had years of experience ranged between 6 ≤ 10 years. Finally, 60% of the studied staff nurses didn't attend training courses related to patient safety. While, 40% of the studied staff nurses were attended training courses related to patient safety, 47.9% of them were attended courses about patient's safety goals.

Table (2): demonstrates that, 60% of the studied staff nurses had high level of challenges related to work environment on patient safety. Also, 35.8% of them had moderate level of challenges related to teamwork on patient safety. Moreover, 18.3% of them had low level of challenges related to individual staff on patient safety.

Table (3): shows that, there were highly statistically significant relation between total challenges of the studied staff nurses and their educational level, years of experience and attended training courses at (P= < 0.01). Also, there were statistically significant relation with their age and job position at (P= < 0.05). While, there were no significant relation with their marital status at (P= >0.05).

Table (4): illustrates that, there were highly statistically positive correlation between challenges related to patient and challenges related to team work, challenges related to Task and technology and challenges related to institutional context. Also, there were highly statistically positive correlation between challenges related to staff individual and challenges related to team work, challenges related to Task and technology, challenges related to work environment and challenges related to Organization and management. While, there were no statistically correlation between challenges related to patient and challenges related to work environment and there were no correlation between challenges related to team work and challenges related to

organization and management. Moreover, there were no correlation between challenges related to work environment and challenges related to institutional context.

Table (5): shows that, there were significantly higher frequencies between educational level, years of Experience and attended training courses withtotal challenges ($p = <0.01$). The frequency of total challenges was not predicted by marital status ($p = 0.68$).

Table (1): Frequency distribution of the studied staff nurses according to their demographic characteristics (n=120).

Items	N	%
Age (year)		
20 ≤ 30	62	51.7%
31 ≤ 40	38	31.7%
> 40	20	16.6%
Mean SD 31.41 ± 6.19		
Educational level		
Diploma of Nursing	34	28.3%
Technical Institute of Nursing	68	56.7%
Bachelor of Nursing	18	15%
Years of experience		
1 ≤ 5	30	25%
6 ≤ 10	56	46.7%
> 10	34	28.3%
Mean SD 8.97 ± 5.80		
Attend a training courses related to patient safety		
Yes	48	40%
No	72	60%
If yes, what is the course name?(n=48)		
Patients safety and security standards	16	33.3%
Patients safety goals	23	47.9%
Egyptian accreditation standards	9	18.8%

Table (2): Total level of challenges facing staff nurses to maintain patient safety (n=120).

Patient safety challenges dimensions	High level >75%		Moderate level 60%-75%		Low level <60%		Mean SD
	N	%	N	%	N	%	
Patient related challenges.	58	48.3	42	35	20	16.7	15.35± 4.12
Individual staff related challenges..	60	50	38	31.7	22	18.3	18.57± 2.94
Teamwork related challenges..	65	54.2	43	35.8	12	10	16.56± 6.34
Task and technology related challenges.	68	56.7	39	32.5	13	10.8	25.10± 3.21
Work environment related challenges.	72	60	33	27.5	15	12.5	28.12± 6.37
Organization and management related challenges.	62	51.7	40	33.3	18	15	26.08± 1.40
Institutional context related challenges.	67	55.8	34	28.3	19	15.9	7.92± 5.14

Table (3): Relation between demographic characteristics of the studied staff nurses and their level of total challenges facing them to maintain patient safety (n=120).

Demographic characteristic items		Total challenges: High level > 75%		Moderate level 60% - 75%		Low level < 60%		X2	P Value
		N	%	N	%	N	%		
Age (year)	20 ≤ 30	42	63.6	16	44.4	4	22.2	13.30	0.02*
	30 ≤ 40	18	27.3	12	33.4	8	44.5		
	≥ 40	6	9.1	8	22.2	6	33.3		
Marital status	Single	16	24.2	16	44.5	10	55.5	9.641	0.081
	Married	50	75.8	20	55.5	8	44.5		
Educational level	Diploma of Nursing	30	45.4	4	11.1	0	0.0		
	Technical Institute of Nursing	32	48.5	30	83.3	6	33.3	29.71	.000**
	Bachelor of Nursing	4	6.1	2	5.6	12	66.7		
Years of experience	1 ≤ 5	27	40.9	3	8.4	0	0.0		
	5 ≤ 10	30	45.5	20	55.5	6	33.3	25.14	.002**
	≥ 10	9	13.6	13	36.1	12	66.7		
Attended training courses	Yes	12	18.2	20	55.6	16	88.9		
	No	54	81.8	16	44.4	2	11.1	28.59	.000**

*significant at p ‹ 0.05.**highly significant at p ‹ 0.01.

Table (4): Correlation matrix among patient safety challenges dimensions.

Patient safety challenges dimensions	Patient related challenges	Individual staff related challenges	Team work related challenges	Task and technology related challenges	Work environment related challenges	Organization and management related challenges	Institutional context related challenges
1. Patient related challenges.							
2. Individual staff related challenges.	R 0.451 P 0.029*						
3. Teamwork related challenges.	R 0.643 P .000**	R 0.671 P .000**					
4. Task and technology related challenges.	R 0.660 P .00***	R 0.597 P .001**	R 0.599 P .002**				
5. Work environment related challenges.	R 0.386 P 0.150	R 0.658 P .000**	R 0.564 P 0.01*	R 0.515 P 0.01*			
6. Organization and management related challenges.	R 0.569 P 0.01*	R 0.652 P .000**	R 0.361 P 0.156	R 0.587 P 0.01*	R 0.634 P .001**		
7. Institutional context related challenges.	R 0.609 P .000**	R 0.549 P 0.02*	R 0.619 P .000**	R 0.627 P .002**	R 0.337 P .132	R 0.628 P .000**	

Table (5): Best fitting multiple linear regression model for prediction of nurse's demographic characteristics and their total level of patient safety challenges**.**

	Unstandardized Coefficients *B*	standardized Coefficients β	**T**	**P. value**
Age	.493	.487	7.715	.019*
Marital status	.132	.147	3.180	.068
Educational level	.751	.743	10.731	.000**
Years of experience	.693	.650	9.381	.001**
Attended training courses	.674	.663	10.520	.000**

Model summary

Model	R	R square	Adjusted R square	Std. error of estimate
Regression	.891	.872	.842	.714

a. Dependent Variable: Total challenges

b. Predictors: (constant) **Age**, **marital status**, **Educational level**, **Years of Experience and attended training courses**

Discussion

According to total level of challenges facing staff nurses to maintain patient safety, the finding of the current study revealed that, more than half of the studied staff nurses had high level of total challenges facing them to maintain patient safety. This result approved with the study performed by **Kallberg et al, (2017)** conducted a study to assess physician's and nurse's perceptions of patient safety risks in the emergency department and founded that the majority of the studied nurses had high level of total risks facing them to maintain patient safety.

But the present study is inconsistent with **Alswat et al, (2017)** conducted a study about improving patient safety culture in Saudi Arabia and reported that the majority of the study sample had low level of total risks facing them to maintain patient safety.

The present study revealed that, there were highly statistically significant relation between total challenges facing studied staff nurses and their educational level, years of experience and attendance of training courses. Also, there was statistically significant relation with their age. This might be explained as, high level of challenges was higher among nurses with low education, low years of experience and didn't attending training courses. This result agreement with the study achieved by **Kallberg et al, (2017)** founded that level of education, years of experience and attendance of training courses had a significant effect on nurses' challenges level about patient safety risks.

Moreover, the present study indicated that, there was no statistically significant relation between total challenges facing studied staff nurses and their marital status. This result approved with the study performed by **El-Hosany et al, (2019)** conducted study to assess patient's safety management system in cardiac catheterization units at Suez Canal university hospitals and revealed that there was no statistically relation between total Patient's safety management system and nurse's marital status.

The present study indicated that there was highly statistically positive correlation between patient related challenges and teamwork related challenges, task &technology related challenges and institutional context related challenges. Also, there were highly statistically positive correlation between individual staff related challenges and teamwork related challenges, task &technology related challenges, work environment related challenges and organization &management related challenges. This result approved with the study performed by **Lawati et al, (2019)** founded that there was a positive correlation between nurses' perception about patient safety and total level of challenges facing them to maintain patient safety.

Additionally**,** the present study showed that there was no statistically correlation between patient related challenges and work environment related challenges. Also, there was no correlation between teamwork related challenges and organization &management related challenges. This result appropriate with the study performed by **Khater et al, (2015)** about nurse's perceptions of patient safety culture in Jordanian hospitals, founded that there was no statistically correlation between nurse's perception about patient challenges and work environment challenges.

Also, **Sousa et al, (2017)** revealed that there was no correlation between teamwork challenges and organization &management challenges for the nurse practice related patient safety.

Furthermore, the current study revealed that there were significantly higher frequencies between educational levels, years of experience and attendance of training courses with total challenges. The frequency of total challenges not predicted by nurse's marital status. This result agreement with the study achieved by **Huang et al, (2018)** conducted study to assess the perceptions of patient safety culture: A difference between physicians and nurses in Taiwan and stated that there was significant statistical effect of demographic characteristics of the studied sample on their perceptions of patient safety culture.

Conclusion

Based on the findings of the current study, it is concluded that more than half of the studied staff nurses had high level of total challenges facing them to maintain patient safety and there was highly statistically positive correlation between patient related challenges and teamwork related challenges, task &technology related challenges and institutional context related challenges.

Recommendations:

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

- Conduct training programs for staff nurses to improve knowledge and practices related to patient safety.
- Conduct educational programs for patients about their safety and rights and responsibilities.
- Developing unique handover system for nurses' staff and train the nurses for applying it.
- Providing training program for nurses about analyzing and documentation of risks.
- Considering the patient safety concept apart of the nurses' orientation training program.

References:

Alswat, K., Abdalla, R., Titi, M., Bakash, M., Mehmood, F., Zubairi, B., &El-Jardali, F. (2017): Improving patient safety culture in Saudi Arabia (2012–2015): trending, improvement and benchmarking.*BMC health services research*, *17*(1), 516.

Alquwez, B., Cruz, J., Almoghairi, A., Al-otaibi, R., Almutairi, R., Jerico, C., &Paolo, C. (2018): Nurses Perception of Patient Safety Culture in Three Hospitals in Saudi Arabia: Journal of nursing scholarshop, vol 50, issue 4, pp 422-431.

American Nurses Association [ANA], (2016): Nursing's social policy statement. Washington, DC: ANA

Agency for Healthcare Research and Quality (AHRQ). (2016): Medical office survey on patient safety culture. Retrieved from: http/www.ahrq.gov/qual/patient safety culture/ hospdim. Htm

Currie, L., &Watterson L (2007): Challenges in delivering safe patient care, USA National library of Medicine, vol 34(3) P, 162-168.

El-Hosany, W., Habashy, A., AbdElwahab, E., &Ali, H., (2019): Developing a proposed Plan for Patients' Safety Management system in Cardiac Catheterization Units at Suez Canal University Hospitals, International Scientific Conference of Faculty of Nursing, Suez Canal University, In collaboration with Edith Cowen university-Australia, 21-22.

Gurses, A., Carayon, P., &Wall, M., (2014): Impact of performance obstacles on intensive care nurses, American research journal, pp: 185-194.

Hibbard, J.H.,&Greene, J., (2018): What the evidence shows about patient activation: better health outcomes and care experiences: fewer data on costs: Health affairs, vol32(2), P, 207-214.

Huang, C., Wu, H., &Lee, Y. (2018): The perceptions of patient safety culture: A difference between physicians and nurses in Taiwan. *Applied Nursing Research*, *40*, 39-44.

Hwang, J, Lee, S, &Park H, (2012): Barriers to the operation of patient safety incident reporting systems in Korean general hospitals, International Journal of Science and Research (IJSR), vol 6(5), P,279-286.

Khater, W., Akhu-Zaheya, L., Al-Mahasneh, S., &Khater, R. (2015). Nurses' perceptions of patient safety culture in Jordanian hospitals.*International Nursing Review*, *62*(1), 82-91.

Källberg, A. S., Ehrenberg, A., Florin, J., Östergren, J., &Göransson, K. E. (2017): Physicians' and nurses' perceptions of patient safety risks in the emergency department. *International emergency nursing*, *33*, 14-19.

Lawati, M., Short, S., Abdulhadi, N., Panchatcharam, S., &Dennis, S. (2019). Assessment of patient safety culture in primary health care in Muscat, Oman: a questionnaire-based survey. *BMC family practice*, *20*(1), 50.

Mueller, B. U., Neuspiel, D. R., &Fisher, E. R. S. (2019): Principles of pediatric patient safety: reducing harm due to medical care. *Pediatrics*, *143*(2).

Muntlin, A, Carlsson, M &Gunningberg L, (2010): Barriers to change hindering quality improvement, National center for Biotechnology information, USA National library of Medicine, P, 317-323.

Sousa, S., Bernardino, E., Crozeta, K., Peres, A., &Lacerda, M. (2017): Integrality of care: challenges for the nurse practice. *Revistabrasileira de enfermagem*, *70*(3), 504-510.

World Health Organization [WHO], (2017): Patient safety curriculum guide: Multi-professional edition. Retrieved from http://whqlibdoc.who.int/publications/2011 /9789241501958_eng.pdf