Influence of Nurses' Awareness of Patient Safety Culture on Patients Satisfaction

Manar Kamel, Samah Faisal Fakhry, Galila Abdelghafar,
Administration Nursing Department - Faculty of Nursing, Ain Shams University.

Abstract

Background: Patient safety culture is crucial in quality care, and could improve patient satisfaction. The **aim** of this study was examining the relationship between nurses' awareness of patient safety culture and patient satisfaction through Assessing nurses' awareness of patient safety culture, Assessing patient satisfaction level with the quality of the care, finding out the relation between nurses' awareness of patient safety culture and patient satisfaction. **Design**: across-sectional analytical. **Setting:** The study was carried out at Dar-El Shifa Hospital, this hospital is affiliated to ministry of health, specialized medical center **Subjects**: Two groups of subjects were included in this study, namely staff nurses working in inpatient departments and patients under their care in the same departments. **Tools of data:** Two different self-administered questionnaires were used for data collection, one for the staff nurses and the other one for the patients. **Results:** Nurses' age ranged between 18 and 54 years. The most of them were diploma degree. In total, more than third had high awareness of patient safety culture. The awareness score had a significant positive correlation with current experience years (r=0.232). In multivariate analysis, working shifts was a negative predictor of this score. Overall, slightly less than third, of the patients were satisfied. Satisfaction decreased with higher education, and among rural residents. Patients' age was a positive predictor of the satisfaction score. In ecologic analysis, negative correlations were revealed between patient satisfaction with support staff and nurses' scores of awareness of hospital-level and outcome level patient safety culture. **Conclusion:** Nurses in the study setting lack awareness of patient safety culture. Their awareness is only influenced by working in shifts. Patients' satisfaction is also low, especially with support staff, and seems to be not correlated to nurses' awareness of patient safety culture **Recommendations:** Nurses in the study setting lack awareness of patient safety culture, and their patients have low satisfaction. The study recommends more efforts to foster the concept of patient safety culture.

Key words: Nurses Awareness, Patient Safety Culture, Satisfaction.

Introduction

Every country has its own healthcare system to cater specific healthcare needs of its population in a unique social and cultural milieu. Main goal of healthcare system is to deliver equitable, effective and accessible healthcare services to enhance patient satisfaction **(Naseer et al., 2012).** The patient or customer's satisfaction is multidimensional and broader concept taking into account the individual perception expectations and experience together **(Bleich et al., 2009*).***

Patient safety forms the foundation of healthcare delivery just as biological, physiological, and safety needs form the foundation of Maslow's hierarchy. Little else can be accomplished if the patient does not feel safe or is, in fact, not safe. But the healthcare system is extremely complex; and ensuring patient safety requires the ongoing,

focused efforts of every member of healthcare team **(Ulrich and Kear, 2014)**.

However, medical errors are preventable and this can be achieved through improving all aspect of patient safety. Patient safety is defined as ‘’ the prevention of patients ‘harm’ **(Kirwan et al., 2013)**. To prevent such harm, the Institute of medicine (IOM) recommends developing a patient safety culture and this is now required by healthcare accreditation organizations **(Joint Commission Resources, 2007)**.

According to literature, the major predictors of a positive patient safety culture in healthcare organization specifically hospitals include communication founded on mutual trust, good information flow, shared perception of the importance of safety, organization learning, commitment from management and leadership, and the presence of a non-punitive approach to incident and error reporting. Patient safety culture outcomes include the staff members’ perception of safety, the willingness of staff member to report events, the number of events reported, and an overall patient safety grade given by staff members to their units **(El-jardali et al., 2011).**

Patient safety culture outcomes include the staff members' perception of safety, the willingness of staff members to report events, the number of events reported, and an overall patient safety grade given by staff members to their units **(El-Jardali et al., 2011)**.

Improving the safety of healthcare includes both patient and caregiver safety. Nurse leaders must be observant. They must round frequently and observe interactions and behaviors. They must ask open-ended questions of patients and of nurses. They must know their people and create a culture of openness and transparency. Nurse leaders are on stage every day and their actions speak volumes to the bedside caregivers. Listening, empowering, demonstrating and being transparent go a long way toward creating a culture of safety, engagement and the optimal patient and caregiver experience **(The Joint Commission, 2015)**.

In the Middle East, efforts to transform the healthcare system are ongoing. These efforts requires health administrators to consider the role of front –line care providers’ perceptions about safety, since this can both positively and negatively affect efforts to improve safety **(WHO, 2007)**. Moreover, in Egypt, various studies in the patient safety field have been conduct. However, less attention has been focused on handling patient safety issues from the front –line healthcare provider’s perception. Furthermore, in order to advance patient safety in healthcare organizations, collaborative efforts must begin with an assessment of the current culture to identify the positive and negative perception and attitudes toward the safety environment and relationship that promote or hinder safe patient care **(Nabhan and Ahamed-Tawfik, 2007).**

Significance of the Study

In the current competitive health care environment, most of Egyptian hospitals seek the full accreditation status. One of those hospitals that achieve serious steps toward standards accreditation is Dar El-Shefa Hospital. It was accredited since 2010, and evaluated at the end of 2016 and accredited again. One of the most important standards needed to improve health care is the patient safety. Indeed, safety and satisfaction are likely linked because both are manifestations of an underlying hospital culture that is committed to patient welfare and hospital administration that takes steps to meet or exceed patient expectation while promoting error-free care **(Wolosin, 2008).**

Aim of the study

This study aimed examining the relationship between nurses awareness of patient safety culture and patient satisfaction through:

- Assessing nurses' awareness of patient safety culture.
- Assessing patient satisfaction level with the quality of the care.
- Finding out the relation between nurses' awareness of patient safety culture and patient satisfaction.

Research questions

- Are the nurses' aware of patient safety culture at Dar El-Shefa Hospital?
- Are the patients satisfied with the quality of care in Dar El-Shefa Hospital?
- Is there a relationship between patient safety culture and patient satisfaction?

Subjects and Methods

Research design:

Across-sectional analytic design.

Settings:

The study was conducted in the Dar –El Shefa Hospital, this hospital is affiliated to ministry of health, specialized-medical center. This hospital provides its services to large sector of population. It offers medical care in various specialties. The hospital capacity is 177 Beds.

Subjects:

Two groups of subjects were included in this study, namely: staff nurses working in inpatient department and patients in the same department.

Inclusion Criteria: staff nurses working in the hospital setting who have more than one year experience. All patients adult, conscious, and alert, this group represent patient who received the services at the hospital.

Type of sample: Purposive sample

Exclusion Criteria:

Nurses more experience in the setting of hospital. Cases with any chronic diseases or disabilities (e.g., DM, renal failure, nephritic syndrome…etc.)

Tools of data collection:

Two different self-administered questionnaires were used for data collection, one for the staff nurses and the other one for the patients.

- **Self-administrated questionnaire for nurses:** This tool consisted of two parts as follows.

Part 1: This part was for the collection of certain demographic and job characteristics of the staff nurse such as age, marital status, nursing qualification, working department, total and current years of experience, working shifts and overtime, and previous attendance of training courses in patient safety.

Part 2: This part consisted of the Hospital Survey on Patient Safety culture (HSPSC) questionnaire developed by the Agency for Health care Research and Quality **(AHRQ, 2008)** to assess nurses' awareness of patient safety culture. It included 42 statements categorized into three main domains with sub-domains as following (Unit-level aspects, Hospital-level aspects, Outcome variables, There were two additional questions one asking about the number of events reported in the past 12 months (0, 1-2, 3-5, 6-10, 11-20, >20), and

the other asking about the overall grade of patient safety in the hospital
Excellent, Very good, Acceptable, Poor, Failing).

Scoring: The response to each statement was a 5-point Likert scale from "strongly disagree" to "strongly agree." These were scored from one to five respectively. Negatively stated items were scored in reverse so that a higher score indicates more awareness. For each domain and for the total scale, the scores are summed-up so that a higher score indicates more stress. These scores were converted into percent scores. The level of awareness was then categorized into high "80%+," and low "<80%." This high cutoff point was used given the importance of the issue of patient safety.

▪ **Patient satisfaction questionnaire:** **This** tool was used to assess patient satisfaction with the quality of the care provided to them. It included two main parts as following.

o **Part 1:** This was for the collection of certain demographic and health characteristics of the patient as age, gender, marital status, education, job, residence, income, and crowding index. The health-related data involved the unit of the patient, his/her diagnosis, the duration of illness, fees payment, as well as the history of chronic diseases and of previous surgery.

o **Part 2:** This part consisted of scale of patient satisfaction developed by the researcher based on related literature review ***(Paddock et al., 2000; HCAHPS, 2013)***. It has 45 statements categorized into six main domains of patient satisfaction as following (Support staff, Nurses, General satisfaction, Facilities, Physicians, Access).

▪ **Scoring:** The response to each statement was a 5-point Likert scale from "strongly disagree" to "strongly agree." These were scored from one to five respectively. Negatively stated items were scored in reverse so that a higher score indicates more satisfaction. For each domain and for the total scale, the scores are summed-up. These scores were converted into percent scores. The patient satisfaction was categorized into satisfied "60% +," and unsatisfied "<60%."

Contents validity:

Tools contents were exposed to three expertise Jury Committee of Medical and Administrative Nursing to ensure its validity and correction was done according to their opinionnaires.

Operation of the study:

1- Preparatory phase:

Tools of data were prepared by the researcher after reviewing related references.

2- Administrative phase:

Official letters to conduct the study will be obtained from the Dean of Faculty of Nursing, Ain Shams University to the director of hospitals, Medical and Nursing and also to the quality team Director in the facility to get their permission to collect the study data.

Pilot study:

The study included total number of nurses and patients who participated in the pilot study were 32 (10 nurses and 22 patients). A pilot study was conducted to assess clarity of the study tools, applicability of the tools, time required to fill in the study tools, time consumed to fill in the tools, cases participating in the pilot study were excluded from the total sample later.

Field work:

The data collection consumed 6 months (three days per week for sex month

equal 72 day, during the morning and afternoon shifts) the researcher meet range two nurses and three patient in every interview and the researcher explained the aim and the nature of the study to subjects to obtain their approval. Each nurse filled questionnaires lasting 15-20 minutes to fill the form. for patients, the time ranged between 10 -15 minutes. the patient who were illiterate were helped by one their accompanying family members or by the researcher.

Ethical consideration:

Aim of the study and its expected outcomes were explained to the study subjects, the study was secured that all the gathered data was used for the research purposes only. They were allowed to withdraw from the study whenever they want.

Statistical Design:

Data collected from the studied sample was revised coded and entered using computer. Data entry and statistical analysis were fulfilled using the statistical package for social sciences (SPSS). Data were presented using descriptive statistics in the form of frequencies, percentages, Chi-square test (χ^2) was used for comparisons between qualitative variables and spearman correlation analysis was used for assessment of the inter-relationships among quantitative variables. Statistical significance was considered at P-value < 0.o5.

Result:

Table (1): demographic characteristics of nurses in the study sample (n=106).

Items	Frequency	Percent
Age:		
<30	60	56.6
30+	46	43.4
Range	18.0-54.0	
Mean±SD	29.6±8.3	
Median	28.0	
Marital status:		
Unmarried	51	48.1
Married	55	51.9
Nursing qualification:		
Diploma	91	85.8
Bachelor	15	14.2

Table (1): describe the study sample involved 106 nurses whose age ranged between 18 and 54 years, median 28.0 years. As Table 1 describes, the great majority of them were carrying a diploma degree in nursing (85.8%), and slightly more than half were married (51.9%).

Table (2): Safety culture among nurses in the study sample (n=106).

High (80%+) safety culture:	**Frequency**	**Percent**
Unit-level aspects:		
Teamwork within units	100	94.3
Supervisor/manager expectations & actions promoting safety	85	80.2
Organizational learning—continuous improvement	86	81.1
Feedback and communication about error	57	53.8
Communication openness	10	9.4
Staffing	25	23.6
Non-punitive response to error	51	48.1
Hospital-level aspects:		
Hospital management support for patient safety	33	31.1
Teamwork across hospital units	79	74.5
Hospital handoffs and transitions	89	84.0
Outcome variables:		
Overall perceptions of safety	27	25.5
Frequency of event reporting	70	66.0
Patient safety grade	92	86.8
Patient Safety Grade:	14	13.2
Range	2-5	
Mean±SD	4.2±0.7	
Median	4.0	
No. of events reported (Scale):		
Range	0-3	
Mean±SD	0.6±0.8	
Median	0.0	

Table (2): demonstrates a wide variation in nurses' awareness of patient safety culture. In unit-level aspects, the highest response was concerning teamwork within units (94.3%), while the lowest was communication openness (9.4%). The hospital-level aspects ranged between 31.1% for hospital management support for patient safety and 84.0% for hospital handoffs and transitions. The outcome variables ranged between 25.5% for overall perceptions of safety, and 86.8% for patient safety grade. The medians of the scores of patient safety grade and number of events reported were 4.0 and 0.0 respectively.

Table (3): Demographic characteristics of patients in the study sample (n=212).

Items	Frequency	Percent
Age:		
<30	39	18.4
30-	79	37.3
50+	94	44.3
Range	18.0-82.0	
Mean±SD	46.3±14.7	
Median	48.0	
Gender:		
Male	100	47.2
Female	112	52.8
Education:		
None	35	16.5
Basic/Secondary	93	43.9
University	84	39.6
Marital status:		
Single	34	16.0
Married	139	65.6
Widow/Divorced	39	18.4
Job:		
Employee	70	33.0
Worker	45	21.2
Unemployed/housewife	97	45.8
Crowding index:		
<2	161	75.9
2+	51	24.1

Table (3): shows that their age ranged between 18 and 82 years, with median 48 years, with slightly more females (52.8%). The highest percentages had basic/secondary education (43.9%), were married (65.6%), and were unemployed/ housewives (45.8%). The majority were living in households with crowding index less than two persons per room (75.9%).

Table (4): Disease characteristics of patients in the study sample (n=212).

	Frequency	Percent
Unit:		
ICU	53	25.0
Orthopedics	32	15.1
Neurosurgery	32	15.1
Ob/Gyne	23	10.8
Urosurgery	22	10.4
General surgery (A)	20	9.4
Hemodialysis	15	7.1
General surgery (B)	15	7.1
Diagnosis:		
Genito-urinary	40	18.9
Gastrointestinal	34	16.0
Orthopedic	33	15.6
Cardiac	26	12.3
Ob/Gyne	22	10.4
Respiratory	14	6.6
Cancer	13	6.1
Diabetes	12	5.7
Stroke	9	4.2
Other	9	4.2
Duration of illness (months):		
<12	153	72.2
12-	35	16.5
60+	24	11.3
Range	<1.0-240.0	
Mean±SD	20.4±44.4	
Median	1.0	
Fees paid by:		
Health insurance	75	35.4
Syndicate	46	21.7
Self	91	42.9

Table (4): shows that the highest percentage of patients in the study sample was from ICU (25.0%), while the lowest (7.1%) was from hemodialysis general surgery unit (B). The most common diagnoses were genitourinary (18.9%) and gastrointestinal (16.0%), whereas only 4.2% of them had stroke. The median duration of illness was 1.0 month, and slightly more than one-third (35.4%) had their treatment fees paid by health insurance.

Table (5): Satisfaction among patients in the study sample (n=212).

Satisfied (60%+) with:	Frequency	Percent
Support staff	176	17.0
Nurses	187	88.2
General satisfaction	188	88.7
Facilities	115	54.2
Physicians	184	86.8
Access	117	55.2

Table (5): show that a wide variability. It is evident that the satisfaction was high with nurses (88.2%) and physicians (86.8%) as well as general satisfaction (88.7%). On the other hand, only 17.0% expressed their satisfaction with the support staff.

Table (6): Correlation matrix of safety culture scale domains scores.

Safety culture	Spearman's rank correlation coefficient				
	Unit- level	Hospital-level	Outcomes	GeneralGrade	No. of events reported
Unit-level					
Hospital-level	.421**				
Outcome-level	.441**	.444**			
General safety grade	.301**	0.16	.373**		
No. of events reported	-0.03	-0.03	-0.02	-0.10	

Table (6): displays statistically significant weak to moderate positive correlations among the scores of nurses' awareness of the three safety culture domains. The general safety grade level had weak positive correlations with the scores of unit-level and outcome level domains. Meanwhile, the number of events reported had no significant correlations with any of the safety culture domains or with the general safety grade score.

Table (7): Correlation matrix of patient satisfaction domains scores.

Satisfaction with	Spearman's rank correlation coefficient					
	Support staff	Nurses	General	Facilities	Physicians	Access
Support staff						
Nurses	.249**					
General	.303**	.601**				
Facilities	.302**	.267**	.151*			
Physicians	.261**	.337**	.544**	.408**		
Access	0.13	.333**	.251**	.384**	.410**	

Table (7): displays statistically significant weak to moderate positive correlation of patients' scores of satisfaction with various aspects of service, with the highest correlation being between their satisfaction with nurses and general satisfaction (r=0.601). Meanwhile, only the satisfaction with the support staff and with access was not significantly correlated.

Table (8): Ecologic correlation matrix between nurses' safety culture and patients' satisfaction scores.

	Spearman's rank correlation coefficient						
	Support staff	Nurses	General	Facilities	Physicians	Access	Total
Unit-level	-0.55	0.36	0.05	0.17	-0.31	0.19	-0.10
Hospital-level	-0.81*	0.48	0.12	0.26	0.31	0.31	0.31
Outcome-level	-0.71*	0.40	0.00	0.05	0.17	0.36	0.17
Total safety	-0.62	0.38	0.05	0.29	-0.19	0.19	0.02
General safety grade	-0.31	0.43	0.23	0.38	-0.18	0.31	0.12
No. of events reported	-0.42	0.16	-0.19	-0.28	-0.32	0.10	-0.08

Table (8): shows that points to statistically significant strong negative correlations between the score of patient satisfaction with support staff and nurses' scores of awareness of hospital-level and outcome level patient safety culture. No other significant correlations could be revealed

between the score of the other domains of patient satisfaction and nurses' scores of awareness of patient safety culture.

Discussion

Patient safety culture in a caring patient-centered environment has a positive impact on healthcare providers' performance and their ability to improve **(Caris et al., 2017; Jangland et al., 2017)**. It is also associated with lower rates of the patient harms **(Sammer et al., 2018)**. Patient safety culture is not only essential for patients, but is also beneficial to health care provider. It has been shown to be associated with lower rates of injuries and absenteeism among healthcare workers **(Brborovic and Brborovic 2017)**.

The sample of nurses in the present study had a wide range of age and experience years, which would represent a wide population of nurses. However, they were mostly carrying a diploma degree in nursing, which might influence their awareness of patient safety. Nonetheless, almost all of them reported having had previous training in patient safety. This would have a positive impact on their awareness of patient safety culture as shown by **Colet et al (2017)** in a study in Riyadh in Saudi Arabia.

Conversely, the nurses in the current study had low awareness of the unit –related aspect of a safety culture related to communication openness. This was actually the lowest among all aspect of safety culture awareness. It could be attributed to concerns and fears of punishment in case of committing errors. In support of this possible explanation, only around one-half of the nurses were aware of the safety culture issues concerning feedback and communication about error, and non-punitive response to errors. These issues are of great importance in creating a patient safety culture since errors could be a source of learning if properly managed when reported. In agreement with this, a study in Saudi Arabia revealed that the fear of reporting of errors and of the punitive response of the hospital administration were main barrier underlying under –reporting among nurses **(Hammoudi et al., 2017)**. Meanwhile, the effect of open communication on patient care has been outlined in a study in China **(Ng et al., 2017)**.

Concerning the hospital –level aspects of patient safety culture, the present study result indicates that most nurses had high awareness of the issues of hospital handoffs and transition as well as of the teamwork across the hospital unit. Thus, the teamwork is high both within and among the units, which is quite important in patient safety. In agreement with, a study carried out among nurses in South Korea demonstrated a high level of performance in handoffs, which had a positive impact on patient safety culture through the promotion of effective communication and good cooperation within and among units **(Yu et al., 2018)**.

The outcomes level aspect of patient safety culture has also demonstrated a variation of nurses' awareness of its various issues. Thus, although most of the nurses had high awareness of the issues of patient safety grade and frequency of event reporting, only one-fourth of them had a high awareness of overall perception of safety. This indicates that most of these nurses do not have a high perception of patient safety in the setting. In agreement with this, **Yoo and Kim (2017)** in a study in South Korea showed that a high nurses' perception of patient safety culture issues is associated with a higher tendency towards incident reporting.

As regards the factors affecting nurses' awareness of patient safety culture, the present study result revealed that the nurses working in the morning shifts were more aware of the unit-level aspect of the patient safety culture, while those with longer current experience years were more aware of the outcomes –level aspect as well as the

total safety culture. In congruence with this, a study in Sweden reported a higher perception of patient safety culture among the healthcare practitioners with longer years of experience **(Danielsson et al., 2017).**

The present study has also assessed the level of satisfaction among the patients under the care of the nurses in the study sample. The results demonstrated that the majority of the patient were satisfied with the nurses and physicians, as well as with the service in general. In agreement with these result, a study in Germany reported that the highest level of satisfaction among patients in a general and a university hospital were with the physicians and the nurses **(Eichhhorn et al., 2017)**.

According to the current study result, the satisfaction of the patients with nurses was lowest among those having university education. this could be attributed to that such patients might be more aware about their rights, and have more tendency to ask question and intervene with treatment with more criticism about care compared with patients the lower level of education. In disagreement with this, a study in the United Kingdom (UK) demonstrated low patients satisfaction with the nursing care **(Aiken et al., 2018)**.

At the other extreme only less than one fifth of the patients in the current study were satisfied with the support staff. This could be attributed to lack of training of this staff in patient rights, which may lead to conflict with the patient and their family. The finding has also demonstrate that the patient whose fees were paid by syndicates were that the lest satisfied with support staff. This could be explained by the common misunderstand about the payment rules and the fees to be paid by the patient and the syndicate leading to disputes that could be associated with bullying or other types of the miscommunication. In line with this, studies in Australia (**Waters et al., 2016)**.

A main objective of the current study was to assess the relationship between nurses' awareness of patient safety culture and their patient satisfaction with the quality of the care. The finding revealed negative correlation between the score of the patient satisfaction with support staff nurses and nurses; scores of awareness of hospital –level and outcomes level patient safety culture. Thus, as nurses awareness of safety culture increases, patient satisfaction with support staff decrease. This might be explained by that patients right certain safety precaution and don't realize their importance, especially those applied by support staff as safety rules and regulation thus **(Kuosmanen et al., 2017)**.

The lack of such a relation could be have more than on explanation. the first is that the nursing system followed in the study setting is not a case management system, and thus the patient is under the care of more than on nurse. Therefore, patient satisfaction could not be correlated to one single nurse whose awareness was measured. thus study in the united states using a large dataset reported significant positive correlations between patient safety culture and patient satisfaction **(Mazurenko et al., 2017)**.

The second possible explanation of the lack of a relationship between patient satisfaction and nurses' awareness of the patient safety culture could be related to the nature of the statistical analysis utilized where the unit of analysis is a group rather than the individual.in assessing this relation, an ecologic analysis was done, and the researcher was forced to use this analysis because of the lack of case management system. The main problem with this analysis is the associated "ecologic fallacy "which is due to interpretation of group result on individual level **(Setia, 2017)**.

Conclusion

The nurses in the study setting lack awareness of patient safety culture. This is particularly evident in certain areas such as communication openness, hospital management support for patient safety, and their awareness is only influenced by working in shifts. On the other hand, patients' satisfaction is low, especially with the support staff.. It is mainly influenced by their age. Patient satisfaction is not correlated to nurses' awareness of patient safety, and this could be due to the ecologic fallacy.

Recommendations

It's recommended that**:**

- The hospital administration exert more effort to foster the concept of the patient safety culture
- More emphasis is needed on certain deficient area such as communication openness and hospital management support for patient safety, which should be a priority in any action taken..
- The report of event and incident should be encouraged so that they can become an opportunity for learning form errors than a source of blaming
- Periodic regular surveys of patient safety culture should be conducted, with efforts to improve patients' satisfaction.
- The area of support staff, being a major source of patients' dissatisfaction needs urgent intervention through training and close supervision.
- Further research is proposed to assess the relation between nurses' awareness of patient safety culture and patient satisfaction using a paired design in a case management system in order to overcome the limitation of the ecologic design and analysis.

Financial Support

No funding was received.

Conflict of interest:

No Yes

References

Agency for Healthcare Research and Quality [AHRQ] (2008): Hospital Survey on Patient Safety Culture, comparative Database Report, www.ahrq. gov.

Aiken LH, Sloane DM, Ball J, et al. (2018): Patient satisfaction with hospital care and nurses in England: an observational study. BMJ Open; 8**:** e019189.

Bleich SN, Ozaltin E, Murray CK. (2009): How does satisfaction with the health-care system relate to patient experience? Bull World Health Organ; 87(4):271-8.

Brborović, H. and Brborović, O. (2017): Patient safety culture shapes presenteeism and absenteeism: a cross-sectional study among Croatian healthcare workers. Arh Hig Rada Toksikol. 2017 Sep 26; 68(3): 185-189. doi: 10.1515/ aiht-2017-68-2957.

Caris MG, Kamphuis PGA, Dekker M, de Bruijne MC, van Agtmael MA, Vandenbroucke-Grauls CMJE (2017): Patient Safety Culture and the Ability to Improve: A Proof of Concept Study on Hand Hygiene. Infect Control Hosp Epidemiol; 38(11): 1277-1283.

Colet PC, Cruz JP, Cacho G, Al-Qubeilat H, Soriano SS, Cruz CP. (2017): Perceived Infection Prevention Climate and Its Predictors Among Nurses in Saudi

Arabia. J Nurs Scholarsh. doi: 10.1111/jnu. 12360. [Epub ahead of print]

Danielsson M, Nilsen P, Rutberg H, Årestedt K. (2017): A National Study of Patient Safety Culture in Hospitals in Sweden. J Patient Saf. 2017 Feb 24. doi: 10.1097/PTS. [Epub ahead of print]

Eichhorn L, Murday AK, Kohnen B, Guttenthaler V, Türler A, Baumgarten G, Wittmann M. (2017): Patient Satisfaction as a Measure of Quality of Patient Care - Comparison between a University Hospital and a General Hospital. Gesundheitswesen; 79(8-09):627-632. doi: 10.1055/s-0041-110528. Epub 2015 Dec 15.

El-Jardali F, Dimassi H, Jamal D, Jaafar M, Hemadeh N. (2011): Predictors and outcomes of patient safety culture in hospitals. BMC Health Serv Res.; 24 (11): 45.

Hammoudi BM, Ismaile S, Abu Yahya O. (2017): Factors associated with medication administration errors and why nurses fail to report them. Scand J Caring Sci.. doi: 10.1111/scs.12546. [Epub ahead of print]

HCAHPS (2013): Hospital consumer assessment of healthcare provider and system.

Jangland, E., Teodorsson, T., Molander, K., Muntlin Athlin, Å. (2017): Inadequate environment, resources and values lead to missed nursing care: A focused ethnographic study on the surgical ward using the Fundamentals of Care framework. J Clin Nurs; 28. doi: 10.1111/jocn.14095. [Epub ahead of print]

Joint Commission Resources (2007): Front line of Defense: The Role of Nurses in Preventing Sentinel Events, 2nd edn. Joint Commission Resources, Oakbrook Terrace, IL.

Kuosmanen A, Tiihonen J, Repo-Tiihonen E, Eronen M, Turunen H. (2017): Nurses' Views Highlight a Need for the Systematic Development of Patient Safety Culture in Forensic Psychiatry Nursing. J Patient Saf. doi: 10.1097/ PTS.0000000000000314. [Epub ahead of print]

Mazurenko O, Richter J, Kazley AS, Ford E. (2017): Examination of the relationship between management and clinician perception of patient safety climate and patient satisfaction. Health Care Manage Rev. doi: 10.1097/ HMR. 0000000000000156. [Epub ahead of print]

Nabhan A, Ahmed-Tawfik MS. (2007): Understanding and attitudes towards patient safety concepts in obstetrics. Int J Gynecol Obstet; 98:212-216.

Naseer, M., Zahidie, A., Shaikh, B.T. (2012): Determinants of patient's satisfaction with health care system in Pakistan: a critical review. Pakistan Journal of Public Health, 2(2), 52-61.

Ng GWY, Pun JKH, So EHK, Chiu WWH, Leung ASH, Stone YH, Lam CL, Lai SPW, Leung RPW, Luk HW, Leung AKH, Au Yeung KW, Lai KY, Slade D, Chan EA. (2017): Speak-up culture in an intensive care unit in Hong Kong: a cross-sectional survey exploring the communication openness perceptions of Chinese doctors and nurses. BMJ Open.; 7(8): e015721. doi: 10.1136/ bmjopen-2016-015721.

Paddock L.E., Velosik, J., Chatterton, M.L., et al. (2000): Development and validation of a questionnaire to evaluate patient satisfaction with diabetes disease management diabetes care; 23:9516.

Sammer C, Hauck LD, Jones C, Zaiback-Aldinger J, Li M, Classen D. (2018): Examining the Relationship of an All-Cause Harm Patient Safety Measure and Critical Performance Measures at the Frontline of Care. J Patient Saf. 2018 Feb 7. doi: 10.1097/ PTS.0000000000000468. [Epub ahead of print]

Setia MS. (2017): Methodology Series Module 7: Ecologic Studies and Natural Experiments. Indian J Dermatol; 62(1):25-28.

The Joint Commission (2015): Comprehensive Accreditation Manual for Hospitals: The Patient Safety Systems Chapter, Update 2. January 2015.

Ulrich, B., & Kear, T. (2014): Patient safety and patient safety culture: Foundations of excellent health care delivery. Nephrology Nursing Journal, 41(5): 447-456, 505.

Waters S, Edmondston SJ, Yates PJ, Gucciardi DF. (2016): Identification of factors influencing patient satisfaction with orthopaedic outpatient clinic consultation: A qualitative study. Man Ther; 25:48-55.

Wolosin, R.J. (2007): Hospital-level relationship between safety culture and service quality. *Patient Safety & Quality Healthcare* online, available at www.psqh. com/ enews/ 1107feature.html.

World Health Organization (WHO) (2008): Patients for Patient Safety Regional Workshop: 26-28 March 2007 -- Cairo, Egypt. Available at: http://www. who. int/patientsafety/events/07/28_03_2007/en/index.html. Accessed February 1, 2008.

Yoo MS1, Kim KJ. Exploring the Influence of Nurse Work Environment and Patient Safety Culture on Attitudes Toward Incident Reporting. J Nurs Adm; 47(9): 434-440.

Yu M, Lee HY, Sherwood G, Kim EM. (2018): Nurses' Handoff and Patient Safety Culture in Perinatal Care Units. J Clin Nurs. doi: 10.1111/jocn.14260. [Epub ahead of print].