

# Patient safety culture as perceived by internship nursing students

Safaa Mohamed Abdelrahman <sup>1\*</sup>, Fatma Rushdy Mohamed <sup>2</sup>

<sup>1</sup> Assistant professor of Nursing Administration, Faculty of Nursing, Minia University, Egypt

<sup>2</sup> Assistant professor of Nursing Administration, Faculty of Nursing, Assiut University, Egypt

\*Corresponding author E-mail: [abdelrahman.safaa@yahoo.com](mailto:abdelrahman.safaa@yahoo.com)

## Abstract

Background: Patient Safety Culture is a relatively new concept in health management. Highly reliable health care providers have a patient safety culture incorporated in them. Aim: To assess perception of internship nursing students about patient safety culture during their working at Minia and Assiut Universities Hospitals. Subjects and methods: Descriptive correlation design was utilized for this current study. A convenience sample of nurses' intern, equal both to participate 200 nurse intern from Minia and Assiut Universities Hospitals. The data collected through self-administered questionnaire which includes personal characteristics data and patient safety culture questionnaire. Results: Illustrated the positive correlation between all factors of patient safety culture among internship nursing students in Minia and patient safety level with highly statistically significant differences. There were positive correlations between hospital work area / unit and residence with statistically significant differences. Conclusions: There were positive correlations among studied internship nursing students as regard to the level of patient safety and all factors of patient safety cultures (Hospital work area, your supervisor, Communication, Frequency of events reported, Patient safety at your hospital). Recommendations: Study the association between patient safety culture and quality of care from patients' perspectives.

**Keywords:** Patient Safety, Safety Culture, Nursing Internship.

## 1. Introduction

Patient safety is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery. An event is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm (Katherine et al 2008).

Patient Safety Culture is a relatively new concept in health management. Highly reliable health care providers have a patient safety culture incorporated in them. This brings down the number of adverse events and mistakes i.e. these organizations can carry out most risky procedures with very low hazard rate (Yang & Darzi 2011).

Issues of patient safety have become a priority in health policy and healthcare management. The rapidity by which healthcare technologies evolve have required greater attention to safety issues necessary for effective, and efficient delivery of high quality services (WHO, 2012). Patient safety is a new healthcare discipline that emphasizes reporting, analysis, and prevention of medical errors that often lead to adverse health care events. Recognizing health care errors impact 1 in every 10 patients around the world, the World Health Organization (WHO) calls patient safety an endemic concern (Internet Citation, 2016).

Patient safety culture forms a subset of organizational culture relating specifically to the beliefs and values concerning health and safety within an organization (Clarke, 1998). In other words, safety culture reflects the ability of individuals or organizations to deal with risks and hazards so as to avoid damage or losses and yet still achieve their goals (Reason, 2000).

Open communication is also one of the most important features in patient safety. This is the main source of learning from errors (WHO, 2007). Well established patient safety culture importantly consists of six components. They are: Inform culture is the willingness of the frontline-workers to report their errors and near misses. This is a behavior pattern of members in the organization. Where an organization anticipates the adverse events and readily counteract; Learning culture is when an organization analyzes the information and implements appropriate changes; Open culture is openness about errors. Patient safety culture in an organization can be assessed on the above factors at unit level, hospital level and as outcome variables (Katherine et al 2012). Failures were found while analyzing the root causes of the breakdown of organizational patient safety. They are: Active failure - Failures that occur due to front line workers while delivering services e.g.; between patients and nurses; and Latent failure - Failures take place due to gaps in the higher levels e.g. Managerial level. Post-accidental investigations have shown the local trigger factors are active failures in the system. The majority of the active failures occur due to latent failure i.e. Weaknesses in the organizational system and managerial deficiencies (Reason, 2000).

Surveying hospital staff and physicians about patient safety culture is a useful means to assess the environment within a hospital for preventing patient harm. Preventing patient harm requires more than putting best practices into place. It also requires a culture that is characterized by effective communications, shared values about the importance of safety, and the presence of systems that help the organization learn from errors and prevent them from occurring. A poorly perceived safety culture has been linked to increases in errors. Higher patient safety culture scores are associ-

ated with lower rates of nurse turnover, infections, and pressure ulcers and other complications of care (Wiegmann et al 2008) Patient safety is a critical component to the quality of health care. Increasingly, health care organization is becoming aware of the importance to improve safety culture. Assessing health care providers' attitudes about issues relevant to patient safety is the first stage of developing a safety culture. Efforts to assess safety culture are based on the organizational psychology perspective, which views safety culture as shared beliefs and practices that can be categorized, measured, and changed (Sorra and Nieva 2011).

## 2. Significance of the study

Clarity of charge nurses' perceptions about patient safety is needed to better understand and support the role of nurses in the cultivation of reliable practice environments.

In Upper Egypt, numbers of studies addressing patient safety have been conducted at Assiut University. However, in order to advance patient safety in healthcare organizations, and track progress in cultural transformation over time, collaborative efforts must assess the positive and negative attitudes and behaviors toward the safety climate and relationships that promote safe patient care. Hence, this study was carried out to identify patient safety culture of internship nurses at Minia and Assiut Universities Hospitals, in an effort to suggest proactive actions to improve attitudes, and behaviours.

## 3. Aim of the study

- To assess perception of internship nursing students about patient safety culture during their working at Minia and Assiut Universities Hospitals.
- Determine relationships among personal characteristics and patient safety culture factors of study internship nursing students.

### Research objectives

- Assessing patient safety culture perceptions among internship nursing students during working Hospitals at Minia and Assiut Universities Hospitals.
- Identifying the factors affecting of patient safety culture among internship nursing students during working at Minia and Assiut Universities Hospitals.
- Determine relationships among personal characteristics and patient safety culture factors of study internship nursing students.

### Research question

- Are there relationships among personal characteristics and patient safety culture factors of study internship nursing students?

## 4. Methodology

### Design

Descriptive correlation design was utilized in this current study.

### Setting

This study was conducted at Minia and Assiut University Hospitals which included all departments.

### Subjects

A convenience sample of nurses' intern, equal both to participate 200 nurse intern from Minia and Assiut Universities Hospitals. The inclusion criteria were followed subjects have a direct responsibility of carrying out services for patients in all training departments, are acquainted with the hospital processes and system and did not undertake any managerial role.

### Study tool

The study tool named "Hospital Survey on Patient Safety Culture" (HSOPSC) which developed by the Agency for Healthcare Re-

search and Quality (10). To measure the Patient Safety Culture in organizations, is a self-administered questionnaire.

The first part covers Personal characteristics data a nurse intern as age, sex, educational level and residence (rural and urban). And the second part is composed of 43 items that measure 6 dimensions of patient safety culture which classified as follows: Your work area (18 items). Supervisor/manager expectations and actions promoting patient safety (4 items), communication (6 items), event reports (3 items), and patient safety grade one item, and your hospital (10 items). Distribution of the questionnaire was conducted by the researchers and required about 10 – 15 minutes to complete.

### Scoring system

The response to each item in the questionnaire was assessed by using a 3 point Likert scale where 1 = "strongly disagree", 2 = "Neither", 3 = "strongly agree". Reversed scoring was used for negative statements. The Patient Safety grade (measured on a scale of Excellent/very good, acceptable, and poor/failing), and number of events reported are the other two outcome variables of the survey.

### Pilot study

Pilot testing phase was done to adapt the survey to fit the Egyptian context to suite the culture in our hospitals and verify that items and questions have applicability, validity and clarity of the tool. The pilot study applied on ten nurses' intern and not included in the total study subjects.

### Data collection

The pilot sample ten to participate were not included in the main study subjects. Data collected from 1st June to 31th July 2016.

### Ethical considerations

The necessary steps were taken to ensure that the rights of all subjects were recognized and protected throughout the study. Confidentiality with respect to both participants and storage of data was maintained throughout. Ethical approval was granted from the research ethics Committee, faculty of nursing, Minia University.

### Statistical analysis

Add statistical tests for data analysis as mean, standard deviation, Chi square, and Spearman's rank correlation Coefficient; Pearson Product Moment Correlations were used to analyze the data for this research. All data of the study were fed into an IBM-Compatible personal computer.SPSS.20 version.

## 5. Results

Table (1): Revealed the personal characteristics of the internship nursing students in both (Minia and Assiut) Universities, from the table all Assiut internship nursing students were females, while only about one third of Minia internship nursing students were males. The majority of both (Minia and Assiut) university were rural, and the highest percent of them with age 22-23 years. Also, the highest percentage is excellent patient safety level of the studied nurses' intern.

Table (2): Showed that the highest mean score were among Minia internship nursing students as regard to the hospital work area /unit , your supervisor/ manager, communication, frequency of events reported and patient safety at your hospital ( $36.36 \pm 7.57$ ;  $8.03 \pm 2.17$ ;  $11.59 \pm 2.62$ ;  $11.19 \pm 2.34$  &  $22.47 \pm 4.15$ ) respectively. There were highly statistically significant differences between Minia and Assiut internship nursing students in patient safety culture factors.

Table (3): Presented the positive correlation between all factors of patient safety culture among internship nursing students in Assiut and patient safety level with highly statistical significant differences, while there were no statistically significant differences between personal characteristics and all patient safety culture factors.

Table (4): Illustrated the positive correlation between all factors of patient safety culture among internship nursing students in Minia and patient safety level with highly statistically significant differ-

ences. There were positive correlations between hospital work area/ unit and residence with statistically significant differences.

**Table 1:** Distribution of Personal Characteristics for the Studied Internship Nursing Students

| Personal characteristics | Assiut (n=100)   |      | Minia (n=100)    |      |
|--------------------------|------------------|------|------------------|------|
|                          | No.              | %    | No.              | %    |
| Age: (years)             |                  |      |                  |      |
| 22 -23yrs                | 75               | 75.0 | 68               | 68.0 |
| 24-25 yrs.               | 25               | 25.0 | 32               | 32.0 |
| Mean $\pm$ SD            | 23.08 $\pm$ 0.65 |      | 23.26 $\pm$ 0.59 |      |
| Residence:               |                  |      |                  |      |
| Urban                    | 32               | 32.0 | 37               | 37.0 |
| Rural                    | 68               | 68.0 | 63               | 63.0 |
| Patient safety level:    |                  |      |                  |      |
| Excellent                | 98               | 98.0 | 97               | 97.0 |
| Very good                | 2                | 2.0  | 1                | 1.0  |
| Good                     | 0                | 0.0  | 2                | 2.0  |
| Poor                     | 0                | 0.0  | 0                | 0.0  |
| Fair                     | 0                | 0.0  | 0                | 0.0  |

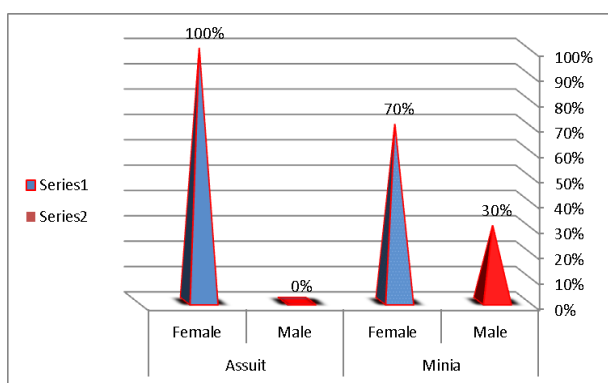


**Fig. 1:** Sex for Internship Nursing Students.

**Table 2:** Mean Scores of Patient Safety Culture Factors among the Studied Internship Nursing Students

| Patient safety culture factors      | Assiut Mean $\pm$ SD | Minia Mean $\pm$ SD | X2     | P. value |
|-------------------------------------|----------------------|---------------------|--------|----------|
| 1. Hospital work area/ unit.        | 33.97 $\pm$ 8.39     | 36.36 $\pm$ 7.57    | 54.50  | 0.000**  |
| 2. Your supervisor / Manager.       | 7.44 $\pm$ 2.25      | 8.03 $\pm$ 2.17     | 66.50  | 0.000**  |
| 3. Communication.                   | 11.43 $\pm$ 2.69     | 11.59 $\pm$ 2.62    | 129.32 | 0.001**  |
| 4. Frequency of events reported.    | 9.36 $\pm$ 2.69      | 11.19 $\pm$ 2.34    | 96.80  | 0.000**  |
| 5. Patient safety at Your hospital. | 16.45 $\pm$ 4.22     | 22.47 $\pm$ 4.15    | 66.66  | 0.001**  |

\*\* (P $\leq$ 0.001)

**Table 3:** Correlation between the Scores of Patient Culture Factors and Internship Nurses' Students' Personal Characteristics at Assiut University

| Spearman rank correlation coefficient |                          |                           |                              |                                 |
|---------------------------------------|--------------------------|---------------------------|------------------------------|---------------------------------|
| Characteristics                       | Hospital work area/ unit | Your supervisor / Manager | Frequency of events reported | Patient safety at Your hospital |
| Age#                                  | 0.024                    | -0.032                    | -0.161                       | 0.005                           |
| Residence                             | -0.042                   | -0.011                    | -0.075                       | -0.063                          |
| Patient safety level                  | 0.312**                  | 0.694**                   | 0.528**                      | 0.749*                          |

(#) Pearson correlation coefficient

(\*) Statistically significant at p<0.05

(\*\*) Statistically significant at p<0.001

**Table 4:** Correlation between the Scores of Patient Culture Factors and Internship Nurses' Students' Personal Characteristics at Minia University

| Spearman rank correlation coefficient |                          |                           |                              |                                 |
|---------------------------------------|--------------------------|---------------------------|------------------------------|---------------------------------|
| Characteristics                       | Hospital work area/ unit | Your supervisor / Manager | Frequency of events reported | Patient safety at Your hospital |
| Age#                                  | -0.063                   | -0.061                    | 0.062                        | 0.060                           |
| Sex                                   | -0.013                   | 0.060                     | 0.016                        | 0.017                           |
| Residence                             | -0.215*                  | -0.116                    | 0.087                        | 0.051                           |
| Patient safety level                  | 0.340**                  | 0.528**                   | 0.206*                       | 0.262*                          |

(#) Pearson correlation coefficient

(\*) Statistically significant at p<0.05

(\*\*) Statistically significant at p<0.001

## 6. Discussion

There is currently a major drive to improve patient safety in many countries as well as a new global initiative launched by the World Health Organization. This has resulted in healthcare authorities recommending the introduction of safety management methods from the hazardous organizations. Health care providers have been encouraged to assess the current state of their safety culture with a view to designing interventions to improve it, in the intention of enhancing the level of safety in their organizations (Flin, 2007).

Perceptions of safety culture have been consistently linked to the status of the worker through organizational structures in multiple settings (Sorra et al 2007). Obviously, leaders are often associated with having more positive perceptions of the safety culture than Frontline workers (Huang et al 2007 and Singer et al 2007). Within the healthcare delivery system, managers and physicians generally report higher levels of positive perceptions of safety as compared to nurses (Singer et al 2007 and Singer et al 2009).

The current study showed some important points regarding patient safety culture. The noticeable findings of the study were highest mean score among Minia internship nursing students as regard to the hospital work area /unit, your supervisor/ manager, communication, frequency of events reported and patient safety at your hospital, and there were high statistical significant differences between Minia and Assiut internship nursing students in patient safety culture factors (Table 2). This might be attributed to the manager don't make safety assessment or safety plan and not used results and a lot of work needs to be done quickly and the mistakes done by the staff are kept in their personnel file.

Employees' perceptions about safety are important because organizations with strong safety culture consistently report fewer workplace injuries than do organizations with weak safety cultures. Organizations with strong safety cultures have fewer employees' injuries not only because the workplace has well – developed and effective safety programs, but also because the very existence of these programs sends " cues" to employees regarding management's commitment to safety (Wagner et al 2006).

In addition, Kreitner and Kinicki, 2008 who stated that organizational culture is "the operating system" of an organization and drives the organization and its action. Both managers and academic researchers believe that organizational culture can influence performance. Concerning the level of knowledge about patient safety, the students of nursing dedicated more knowledge on patient safety compared with the students of medicine

From the current study the findings presented the positive correlation between all factors of patient safety culture among internship nursing students in Assiut and patient safety level with highly statistical significant differences, while there were no statistically significant differences between personal characteristics and all patient safety culture factors (Table, 3). From the researchers point of view these might be due to all of the Assiut internship nursing students were female and most of them from urban area and the hospital management provides a work climate that promotes patient safety which is the top priority.

These results were inconsistent with Patey et al 2007 who has reported lack of adequate knowledge of the students on patient safety. Abdi et al 2013 also has reported low knowledge and negative attitude of the students to patient safety in pre-intervention phase (20). In addition, this finding was inconsistent with (Institute of Medicine, 2013) which stated that safety support ongoing proactive reduction of risk that could lead to patient safety occurrences; and integration of patient safety priorities into the new design of all relevant organizational processes, functions and services.

## 7. Conclusions

There were positive correlations among studied internship nursing students as regard to the level of patient safety and all factors of patient safety cultures (Hospital work area/ unit, your supervisor / Manager, Communication, Frequency of events reported, Patient safety at your hospital). While there were negative correlations among residence and all patient safety cultures factors.

- Recommendations
- Formulate better policies for patient safety.
- Managers are encouraged to approach health care staff and participate in patient safety work in close proximity to patients. Health care managers have access to valuable information from health care staff, which can be used to improve safety.
- Study the association between patient safety culture and quality of care from patients' perspectives.

Study the association between patient safety culture and the interventions of organizational and occupational level, for example structure in schedule, staffing levels and improvement of collaboration between health care staff from different professions.

## References

- [1] Abdi Z, Delgoshaei B, Ravaghi H, Abbasi M, Heyrani A. (2013): The culture of patient safety in an Iranian intensive care unit. *Journal of nursing management*.
- [2] Clarke S. (1998): Perceptions of organizational safety: implications for the development of safety culture. *J Organ Behav* ; 20:185–98. [https://doi.org/10.1002/\(SICI\)1099-1379\(199903\)20:2<185::AID-JOB892>3.0.CO;2-C](https://doi.org/10.1002/(SICI)1099-1379(199903)20:2<185::AID-JOB892>3.0.CO;2-C).
- [3] Flin, R. (2007): Measuring safety climate in healthcare: A case for accurate diagnosis. *Safety Science*, 45, Pp. 653-667. <https://doi.org/10.1016/j.ssci.2007.04.003>.
- [4] [http://www.who.int/features/factfiles/patient\\_safety/en/index.html](http://www.who.int/features/factfiles/patient_safety/en/index.html).
- [5] Huang D., Clermont G., Sexton J. (2007): Perceptions of safety culture vary across the intensive care units of a single institution. *Crit Care Med*; 35:165–176. <https://doi.org/10.1097/01.CCM.0000251505.76026.CE>.
- [6] Institute of Medicine, (2013): *Health IT and patient safety: Building safer systems for better care* (National Academy Press, 2012). Available at [http://www.iom.edu/Reports/2011/Health and Patient safety buildings after systems for better care.aspx](http://www.iom.edu/Reports/2011/Health%20and%20Patient%20Safety%20Buildings%20after%20systems%20for%20better%20care.aspx)
- [7] Internet Citation: Hospital Survey on Patient Safety Culture. Content last reviewed November 2016. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-culture/hospital/index.html>
- [8] Katherine J, Skinner A, Liyan Xu, Junfeng Sun and Keith Mueller (2012): The AHRQ Hospital Survey on patient Safety Culture: A tool plan and Evaluate Patient safety programs. *Advances in Patient Safety: New Directions and Alternative Approaches* (Vol 2: culture and Redesign).9. *J Am Sci* 2012; 8(7):277-285]. (ISSN: 1545-1003). <http://www.jofamericanscience.org>.
- [9] Katherine J, Skinner A, Liyan Xu, Junfeng Sun and Keith Mueller. The AHRQ Hospital Survey on patient Safety Culture (2008): A tool plan and Evaluate Patient safety programs. *Advances in Patient Safety: New Directions and Alternative Approaches* (Vol 2: culture and Redesign).
- [10] Kreitner R, Kinicki A. (2008): *Organizational Behavior*. 8th Edition. New York: McGraw- Hill/Irwin.
- [11] Leung G., Patil N. (2010): Patient safety in the undergraduate curriculum: medical students' perception. *Hong Kong medical journal* = Xianggangyixuezhazhi / Hong Kong Academy of Medicine; 16(2):101–5.
- [12] Patey R, Flin R, Cuthbertson B. (2007): Patient safety: helping medical students understand error in healthcare. *Qual Saf Health Care*; 16: 256- 259. 3. Flin R,
- [13] Reason J. (2000): Safety paradoxes and safety culture. *Injury Control Saf Prevent*, 7:3–14. [https://doi.org/10.1076/1566-0974\(200003\)7:1:1-V;FT003](https://doi.org/10.1076/1566-0974(200003)7:1:1-V;FT003).
- [14] Singer S, Meterko M, Baker L, Gaba D, Falwell A, Rosen A.( 2007): Workforce Perceptions of Hospital Safety Culture: Development and Validation of the Patient Safety Climate in Healthcare Organizations Survey. *Health Services Research*; 42(5):1999–2021. <https://doi.org/10.1111/j.1475-6773.2007.00706.x>.
- [15] Singer, S., Hartmann, C., Hanchate, A., Zhao, S., Meterko, M., Shokeen, P., & Rosen, A., (2009): Comparing safety climate between two populations of hospitals in the United States. *Health Services Research*, 44, 1563-1584. <https://doi.org/10.1111/j.1475-6773.2009.00994.x>.
- [16] Solutions. Geneva: Preamble.pdf Retrieved January, 2012.
- [17] Sorra J, Nieva V, and Famolaro T, (2008): *Hospital Survey on Patient Safety Culture: 2007 comparative database report*. Rockville, MD: Agency for Healthcare Research and Quality. Available at:
- [18] Sorra J. and Nieva V. (2011): *Hospital Survey on Patient Safety Culture*. (Prepared by Westat, under Contract No. 290-96-0004). AHRQ Publication No. 04-0041. Rockville, MD: Agency for Healthcare Research and Quality. URL: [www.ahrq.gov/qual/patientsafetyculture/hospcult](http://www.ahrq.gov/qual/patientsafetyculture/hospcult).
- [19] Wagner, L., Capezuti, E., and Ouslander, J. (2006): Reporting near-miss events in nursing homes, *Nurse Outlook*, Mar-Apr, 54(2), Pp. 85-93.
- [20] Wiegmann DA, Zhang H, von Thaden T. (2008): A synthesis of safety culture and safety climate research. Federal Aviation Administration; 2002 Jun. Technical Report No.: ARL-02-3/FAA-02-2. Contract No. DTFA 01-G-015. Available at: [www.humanfactors.uiuc.edu/Reports&PapersPDFs/TechReport/02-03.pdf](http://www.humanfactors.uiuc.edu/Reports&PapersPDFs/TechReport/02-03.pdf).
- [21] World Health Organization (2012): "World Alliance for Patient Safety". WHO,.URL:
- [22] World Health Organizations (WHO), (2007): *Collaborating Centre for Patient Safety Solutions*, Joint Commission International. Patient Safety
- [23] [www.ahrq.gov/qual/hospsurveydb/hospsurveydb1.pdf](http://www.ahrq.gov/qual/hospsurveydb/hospsurveydb1.pdf).
- [24] Yang GZ, Kelly E, and Darzi A. (2011): Patient safety for global health. *The Lancet*; 377 (9769):886 – 887. [https://doi.org/10.1016/S0140-6736\(10\)61191-9](https://doi.org/10.1016/S0140-6736(10)61191-9).