



## **A training program about international patient safety goals for nurses at primary health care settings**

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### **Abstract**

**Background:** Patient safety is a major public health concern and one of the priorities in the healthcare system. Nurses play a vital role in enhancing quality of care and safety improvement.

**Aim:** The current study aimed to explore the effect of a training program about international patient safety goals for nurses at primary health care settings.

**Subjects and Methods:** A convenience sample of nurses were included 130. Two tools were used before and after implementing a training program.

**Results:** More than four fifths of the studied nurses had satisfactory knowledge regarding patient safety goals after a training program. More than four fifths of the studied staff nurses had competent level of practices after implementation of a training program. There was a highly statistically significant positive correlation between the studied nurses' total level of knowledge and practices regarding international patient safety goals.

**Conclusion:** A training program for nurses was effective and improved their level of knowledge and practices regarding international patient safety goals.

**Recommendations:** It is necessary to implement patient safety programs in different governorates to improve nurses' patient safety performance.

**Keywords:** Nurses, patient safety, primary healthcare, training program.

### **Introduction**

Patient Safety (PS) is a major concern, both in hospitals and in primary care settings. Safety in healthcare has therefore received substantial attention worldwide since the late 1990s. All healthcare centers should try to improve patient safety through improving organizational culture, as it is in hospitals <sup>[1]</sup>.

The quality of care consists of several factors, one of the most important of which is patient safety. Ensuring patient safety is an ongoing concern for all healthcare providers as it is a fundamental component to the delivery of safe high-quality healthcare <sup>[2]</sup>. Patient safety is the core indicator of quality of the healthcare. However, with people's increasing awareness of the frequent occurrence of preventable medical errors in health care, patient safety issues have been recognized as a pressing challenge <sup>[3]</sup>.

Primary Health Care (PHC) is a whole-of-society approach to effectively organizing and strengthening national health systems to bring services for health and wellbeing closer to communities. It enables health systems to support a person's health needs, from health promotion to disease prevention, treatment, rehabilitation, palliative care and more. Primary

health care is widely regarded as the most inclusive, equitable and cost-effective way to achieve universal health coverage. It is also key to strengthening the resilience of health systems to prepare for, respond to and recover from shocks and crises <sup>[4]</sup>.

Patient safety goals as a condition to be applied in all healthcare settings are accredited by the Commission on Accreditation of Hospitals. Joint Commission International (JCI, 2011) published international patient safety goals consisting of six key items which include "identify patients correctly, improve effective communication, improve the safety of high-alert medications, ensure correct-site, correct-procedure, and correct-patient surgery, reduce the risk of health care associated infections and reduce the risk of patient harm resulting from falls" <sup>[5]</sup>.

Training programs improve knowledge, safety attitudes, and competencies needed to render safe, quality patient care may reduce the incidence of preventable medical errors. The profession of Nursing has been at the forefront of patient safety taking special attention to the training and education of its workforce. The enhancement of patient safety involves a wide range of actions in training and knowledge and

practices improvement, environmental safety and risk management, including infection control, safe use of medicines, safe clinical practice, safe environment of care, and scientific knowledge focused on patient safety<sup>[6-7]</sup>.

Community health nurses play a very crucial role, where they spend more time with patients than most other healthcare workers and play significant roles in improvement of patient safety, provide healthy work environments for the safety and quality of patient care and achieving better patient outcomes<sup>[8]</sup>.

### **Aim of the study**

The current study aimed to explore the effect of a training program about international patient safety goals for nurses at primary health care settings.

### **Research hypotheses**

A training program about international patient safety goals will improve nurses' knowledge and practices.

### **Subject and Methods**

#### **Research design**

Quasi-experimental research design was used in this study.

#### **Setting**

This study was conducted in primary health care settings, affiliated to the Ministry of Health and Population in Giza Governorate.

#### **Subject**

Convenient samples of all nurses working in primary health care settings, affiliated to the Ministry of Health and Population in Giza Governorate (130) nurses.

#### **Tools of data collection**

Two tools were used to collect the data:

##### **First tool: Structural interview questionnaire**

This tool was designed by the researcher and reviewed by supervisors. It was written in a simple Arabic language after reviewing the national and international related literature to gather data in relation to the following parts:

**Part I:** Concerned with demographic characteristics of the studied nurses included 5 questions as; (age, gender, educational level, years of experience, and training about patient safety goals).

**Part II:** Concerned with nurses' knowledge regarding international patient safety goals. It consisted of 25 items in closed-ended questions.

#### **Scoring system for knowledge items**

##### **Knowledge was classified into 2 categories**

- Satisfactory level if score  $\geq 60\%$  ( $\geq 30$  grades).
- Unsatisfactory level if score  $<60\%$  ( $< 30$  grades)

##### **Second tool: Observational checklist**

It was adapted from (International Finance Corporation, Self-Assessment Guide for Health Care Organizations,

2015) used to assess nurses' practices for applying international patient safety goals.

#### **Scoring system for practices items**

##### **Practice was classified into 2 categories**

- Competent practices if score  $60\%$  ( $\geq 12$  grades).
- Incompetent practices if score  $<60\%$  ( $< 12$  grades).

#### **Validity of the tools**

The developed tool was formulated and submitted to three experts in Community Health Nursing to assess the content validity, who reviewed the tools for clarity, relevance, comprehensiveness, applicability, and reliability. No modifications have been made but the expertise recommended rephrasing for some questions and items of the tool.

#### **Reliability of the tools**

Two tools were tested for their reliability using Cronbach's Alpha coefficient.

#### **Ethical consideration**

An official permission to conduct the proposed study was obtained from the Scientific Research Ethics Committee, Faculty of Nursing, and Helwan University. Participation in the study was voluntary, and subjects were given complete full information about the study and their role before signing the informed consent. The ethical considerations included explaining the purpose and nature of the study, stating the possibility to withdraw at any time, confidentiality of the information where it was not accessed by any other party without taking permission of the participants. Ethics, values, culture, and beliefs were respected.

#### **Administrative items**

Official letters were issued from the Dean of Faculty of Nursing Helwan University to carry out this study. The researcher introduced an official letter to Head of Primary Health Care at Ministry of Health and Population and explained the aim and objectives of the study to get approval to conduct the study. The researcher also met each nurse and informed him or her about the aim of gaining cooperation.

#### **Field work**

The actual fieldwork took 6 months, started at the beginning of October 2023 and was completed by the end of March 2024. The researcher met the directorate manager to explain the aim of the study to gain their acceptance and approval on data collection. The researcher collected data related to nurses' skills by themselves through meeting the subjects and explaining the purpose of the study and observing them during their work time in the study setting and fill the observational checklist. In the other hand the self-administered tool (knowledge assessment tool) was formatted in electronic form (google form) and was sent to nurses and responses were collected electronically.

#### **The current study carried out in four phases:**

##### **Preparatory phase**

Design tools for data collection after reviewing national and

international related literature.

**Assessment phase**

By using the developed tool to assess nurses' knowledge and practices (pre-test) regarding international patient safety goals.

**Planning and implementation phases**

In this phase the researcher implemented the educational program sessions, as the study sample divided into 8 groups each group contained around 16-17 nurses which took 6 sessions in 6 days, this means 3 weeks for each group. Subsequently, 8 groups lasted for 24 weeks that equal 6 months.

- Training program about international patient safety goals tailored to suit nurses' educational needs based on the result of pretest.
- The content of the training program booklet will help all participant nurses to improve their knowledge and practices about international patient safety goals.

**Evaluation phase**

This phase aimed to evaluate the effect of a training program on nurses' knowledge and practices regarding international patient safety goals immediately after the program by using the same questionnaire of pretest.

**Statistical analysis**

Data entry and analysis were performed using Statistical Package for Social Sciences (SPSS) version 26. Categorical variables were expressed as number and percentage. Chi-Square (x2) was used to test the association between row and column variables of qualitative data. The fisher exact test was used with small, expected numbers. Comparison of quantitative variables between the studied nurses was carried out using the nurse's t-test for independent samples to compare two groups when normally distributed. Pearson correlation was done to measure correlation between quantitative variables.

T-Test used to compare mean in normally distributed quantitative variables between two groups. In addition, r-tests were used to identify the correlation between the studied variables. Significant correlations between variables were determined by using Pearson correlation coefficient. The significance level was set at  $p \leq 0.05$ .

**Results**

As regarding the gender of the studied nurses, 95.4% of the studied nurses were females. Also, 63.1% of them were in the age group  $\geq 40$  years old, and 77.7% of them had a diploma educational level, while only 0.8% of them had a bachelor or more. Regarding years of experience, 74.6% of

studied nurses had  $\geq 15$  years. As well as 71.5% of studied nurses had training about patient safety goals (Table 1). Regarding nurses' total knowledge, there were improvements in the studied nurses' total knowledge pre- and post-educational program. As 23.8% of the studied nurses had satisfactory knowledge regarding international patient safety goals pre-program, this improved to 89.2% post-program (Figure 1).

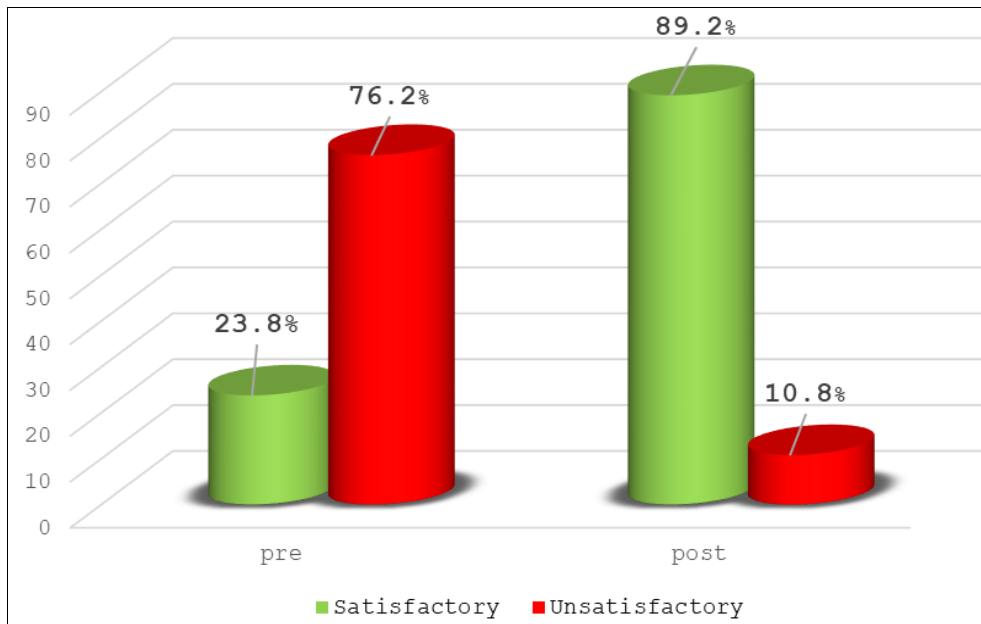
31.5% of the studied nurses were competent for total level of practices regarding international patient safety goals pre-educational program, which improved to 92.3% post-educational program. Whereas 68.5% of them were incompetent for total level of practices regarding international patient safety goals pre-educational program, this decreased to 7.7% post-educational program (Figure 2). Also, there was a highly statistically significant relation between studied nurses' knowledge and demographic characteristics related to education and having training about international patient safety goals ( $P=0.000, 0.001$ ) respectively (Table 2).

According to nurses' practices there was a highly statistically significant relation between studied nurses' practices and their demographic characteristics related to education, and training about international patient safety goals ( $P=0.000$ ), (Table 3).

There was a highly statistically significant positive correlation between the studied nurses' total level of knowledge and practices regarding international patient safety goals ( $P=0.000$ ), (Table 4).

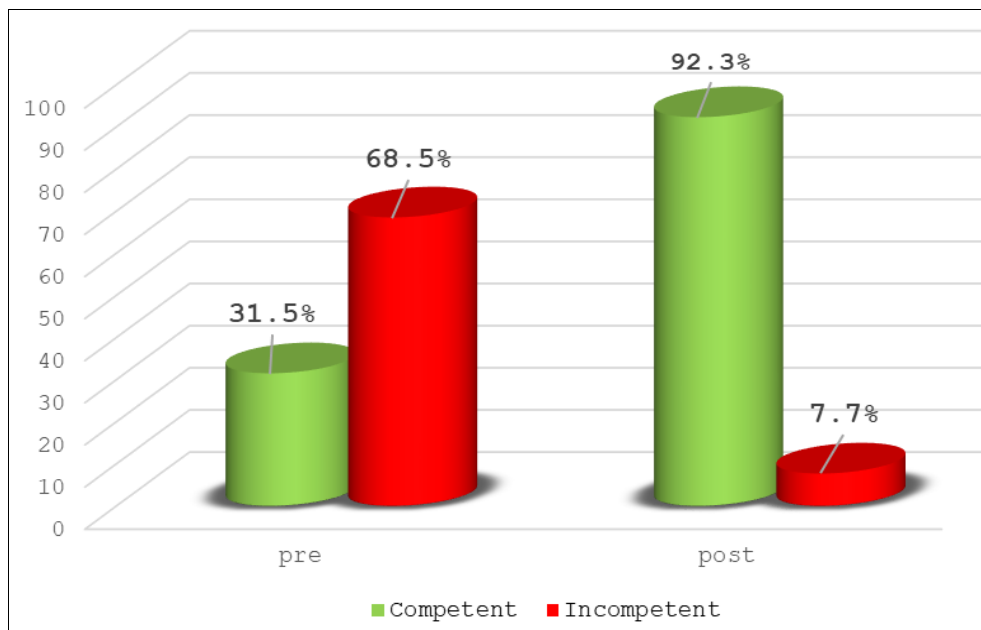
**Table 1:** Frequency Distribution of Studied Nurses' Demographic Characteristics (N=130)

Demographic characteristics	No	%
<b>Age (year)</b>		
20>30	27	20.8
30>40	21	16.1
$\geq 40$	82	63.1
<b>Gender</b>		
Male	6	4.6
Female	124	95.4
<b>Training level</b>		
Diploma nurse	101	77.7
Technical institution	28	21.5
Bachelor or more	1	0.8
<b>Years of experience</b>		
<5	14	10.8
5>10	13	10.0
10>15	6	4.6
$\geq 15$	97	74.6
<b>Training about patient safety goals</b>		
Yes	93	71.5
No	37	28.5



$\chi^2=95.3, P=0.000^{**}$

**Fig 1:** Percentage distribution of the studied nurses' total level of knowledge regarding international patient safety goals pre and post training program (N=130)



$\chi^2=95.3, P=0.000^{**}$

**Fig 2:** Percentage distribution of the studied nurses' total level of practices for international patient safety goals pre and post training program (N=130)

**Table 2:** Relation between nurses' knowledge and their demographic characteristics regarding international patient safety goals (N=130)

Demographic characteristics	Total Nurses' Knowledge				FET	P-Value
	Satisfactory		Unsatisfactory			
	No	%	No	%		
<b>Age (year)</b>						
20>30	24	18.5	3	2.3	2.68	0.356
30>40	17	13.1	4	3.1		
>40	75	57.6	7	5.4		
<b>Gender</b>						
Male	5	3.8	1	0.8	1.228	0.502
Female	111	85.4	13	10		
<b>Training level</b>						
Diploma nurse	90	69.2	11	8.5	47.69	0.000 <sup>**</sup>
Technical institution	25	19.2	3	2.3		
Bachelor or more	1	0.8	0	0		

Years of experience						
< 5	13	10	1	0.8	3.718	0.016*
5>10	11	8.5	2	1.5		
10>15	5	3.8	1	0.8		
>15	87	66.9	10	7.7		
Training about patient safety goals						
Trained	84	64.8	9	6.8	18.405	0.001**
Untrained	32	24.6	5	3.8		

\*Statistically significant at  $p \leq 0.05$

\*\*Highly statistically significant at  $p \leq 0.001$

FET: Fissure Exact Test

**Table 3:** Relation between nurses' practice and their demographic characteristics regarding international patient safety goals, (N=130)

Demographic characteristics	Total Nurses' Practices				FET	P-Value
	Competent		Incompetent			
	No	%	No	%		
<b>Age (year)</b>						
20>30	27	20.8	0	0	10.3	0.05*
30>40	21	16.2	0	0		
>40	72	55.4	10	7.7		
<b>Gender</b>						
Male	6	4.6	0	0	2.52	0.613
Female	114	87.7	10	7.7		
<b>Training level</b>						
Diploma nurse	92	70.8	9	6.80	35.64	0.000**
Technical institution	27	20.8	1	0.8		
Bachelor or more	1	0.8	0	0		
<b>Years of experience</b>						
<5	14	10.7	0	0	7.68	0.045*
5>10	13	16	0	0		
10>15	6	4.6	0	0		
>15	87	66.9	10	7.7		
<b>Training about patient safety goals</b>						
Trained	83	63.8	10	7.7	22.6	0.000**
Untrained	37	28.5	0	0		

\* Statistically significant at  $p \leq 0.05$

\*\*Highly statistically significant at  $p \leq 0.001$

FET: Fissure Exact Test

**Table 4:** Correlation between total knowledge and practices for studied nurses regarding international patient safety goals, (N=130)

Items	Total practices	Total knowledge
Total knowledge	r	53.63
	P-Value	0.000**
Total practices	R	53.63
	P-Value	0.000**

\*\* Highly statistically significant at  $p \leq 0.001$

R-Pearson Correlation Coefficient

**Discussion**

The current study results showed that more than three fifths were aged  $\geq 40$  years (Table 1). On the same line, a similar age distribution was found by [9] in a study entitled "Assessment of nurses' patient safety culture in 30 primary health care centres in Tunisia" involved 158 nurses, who found a majority of nurses surveyed were also aged 40 years or older. Similarly, a study of [10] that was carried out at a municipality in southern Brazil, for assessment of "Patient safety culture: evaluation of nurses in primary health care" N=162 nurses, which reported that a more than three quarters of studied subjects in primary health care settings were in the age range 40-50 years.

Concerning total level of knowledge regarding international patient safety goals there were improvements in the studied

nurses' knowledge pre and post training program. As more than one fifth of the studied nurses had satisfactory knowledge regarding international patient safety goals pre training program, which improved to the majority post training program (Figure 1).

On the same line, [11] in a study conducted in South Korea on 150 nurses entitled "Evaluating a patient safety course for undergraduate nursing students: A quasi-experimental study" stated that there was a significant improvement in the knowledge of studied sample regarding patient safety goals after a patient safety course for undergraduate nursing students. These findings showed that pre-course, 20.5% of students had satisfactory knowledge, which increased to 87.4% post-course.

Regarding total level of practice regarding international patient safety goals there were improvements in the studied nurses' practice pre and post training program. As nearly one third of the studied nurses had a competent total practices level regarding international patient safety goals pre training program, which improved to most of them post training program (Figure 2).

On the same line, [11] stated that there was a significant improvement in the practice of studied sample regarding patient safety goals after the intervention. Their findings showed that pre-intervention, only 22.1% of sample had competent practice, which increased to 88.5% post-intervention. Similarly, [12] that applied on 307 of primary health care nurses in Jordan for assessment of "Knowledge, attitudes, and practices toward Patient Safety among nurses in health centers", 61% of participants had a good practice of patient safety and 39% of participants had a poor practice of patient safety.

Conversely, a study by [13] that applied in Jordan titled "Patient safety training programs for health care professionals: a scoping review" N=178 nurses reported less pronounced improvements. Their study revealed that only 25.4% of nurses had competent practice levels pre intervention, which increased to 58.7% post intervention.

The present study results revealed that there was highly statistically significant relation between studied nurses' knowledge and demographic characteristics related to educational level and having training regarding international patient safety goals (Table 2).

This result was in agree with the study of [14] N=130 healthcare professionals a study in Western Lithuania entitled "Knowledge and attitude of nurses towards patient safety and its associated factors", stated that, healthcare professionals' knowledge of international patient safety goals, was found to be higher in those who had training.

On the other hand, [15] in a study that applied in Indonesia entitled "Literature review: implementation of patient safety

goals in hospitals” who reported that there is strong correlation between years of experiences, qualification about implementation patient safety measures.

As regards the correlation between nurses' practices and their demographic characteristics regarding international patient safety goals, the present study results revealed that there was highly statistically significant relation between studied nurses' practices and their demographic characteristics related to educational level and having training about international patient safety goals (Table 3).

The study's findings align with <sup>[16]</sup> in a study that applied in Jordan, N=110 nurses a study entitled “Assessment of staff nurses' performance related to patient safety goals” revealed that nurses with baccalaureate degree had slightly higher median practice score than diploma holders. Also, on the same line a study of <sup>[17]</sup> showed that moderate statistically significant relation between the nurses' practice and their gender, year of experience and training courses. In addition, this finding is in accordance with <sup>[18]</sup> in a study that applied in Indonesia on 100 nurses a study entitled “Effect of applying a training program about international patient safety goals on patient's safety culture” illustrated that weak statistically significant correlation between participant's age and experience with practice.

Regarding the correlation between total knowledge and practices for studied nurses regarding international patient safety goals there was a highly statistically significant positive correlation between the studied nurses' total level of knowledge and reported practices regarding international patient safety goals (Table 4).

The current finding was in the same line with <sup>[16]</sup> revealed that there was statistically significant correlation between educational levels & attending programs and total scores of nurses' compliance to safety practices regarding administration of high alert medication. Similarly, to a study done by <sup>[19]</sup>, who illustrated significant correlation between nurses' knowledge and practice regarding to international patient safety goals.

Additionally, <sup>[20]</sup> found that there was a highly statistically significant positive correlation between the studied sample total level of knowledge and practices regarding international patient safety goals.

### Conclusion

Based on the study findings, there were improvements in the studied nurses' total knowledge pre- and post-training program. Regarding their practices, most of the studied nurses were competent for total level of practices regarding international pre- and post-training programs. Furthermore, there was a highly statistically significant relation between studied nurses' knowledge, practice and demographic characteristics related to education and having training about international patient safety goals.

Finally, there was a highly statistically significant positive correlation between the studied nurses' total level of knowledge and practices regarding international patient safety goals.

### Recommendations

- Develop structured training modules for primary health care nurses based on WHO's International Patient Safety Goals (IPSG).

- Implement patient safety programs in different governorates to improve nurses' patient safety performance.

### Conflict of Interest

Not available

### Financial Support

Not available

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