Assessment of Nurses' Performance Regarding International Patient Safety Goals at Primary Health Care Settings

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Abstract:
Background: *Patient and client safety is a critical component of healthcare quality. Nurses play a vital role in maintaining and promoting patient/ client safety due to the nature of their work.*
Aim *of the current study was to assess nurses' performance regarding international patient safety goals at Primary Health Care settings.*
Design *A descriptive research design.*
Setting: *This study was conducted at Primary Health Care settings affiliated to Ministry of Health and Population in Giza governorate.*
Tools: *Two tools were used for data collection; Tool I: Structural interview questionnaire. Tool II: observational checklist adapted from (International Finance Corporation, Self-Assessment Guide for Health Care Organizations, 2015).*
Results *of the present study revealed that the studied sample had good knowledge about patient/ client safety issues. Regarding their practice they had un acceptable practices in work setting. Finally, there was statistical significance difference between knowledge and practice of studied sample about international patient/ client safety goals (p<0.05).*
Conclusion: *This study concluded that it's necessary for community health nurses to apply patient/ client issues in work areas to improve quality of care.*
Recommendations: *It is necessary to formulate and apply programs in order to improve patient/ client safety at primary health care settings.*
Key words: *patient safety, nursing performance, primary healthcare.*

I. Introduction

Safety is the fundamental cornerstone of the health care system **[1].**The Institute of Medicine (IOM) defined patient/ client safety as "The prevention of harm to patients/ clients." Emphasis placed on the system of care delivery that prevents errors; learns from the errors that do occur and is built on a culture of safety that involves health care professionals, organizations, and patients/ clients **[2].**

The importance of patient/ client safety is growing worldwide, and every day, nurses face various challenges in how to provide safe care for their patients/ clients. Patient/ client safety is often considered a component of quality thus; practices to improve patient/ client safety improve the overall quality of care. Collectively and individually nurses have a professional responsibility and duty to protect all patients/ clients from harm **[3].**

Patient/ client safety and quality of care in a highly complex healthcare system depend not only on the actions of nurses at an individual level, but also on interaction with the environment. In addition, the volume and type of primary care services, accessibility is determined by the remoteness of services and the practice organization (e.g. appointment system, after-hours care arrangements, home visits) **[4][5]**.

According to the ground breaking report; To Error is Human, released by the Institute of Medicine medical errors and adverse events were responsible for approximately 98,000 deaths per year. Adverse events were also, defined in the report as an injury caused by medical management rather than the underlying condition of the patient/ client **[6].**

Creating a culture of safety is a first step in avoiding medical errors. Error reporting systems have been perceived as ineffective, either as a retribution system, or the issue not being addressed. A just culture includes both reprimanding those responsible for deliberately not following standards, but also acting too quickly to identify and correct errors before errors can occur**.** The Institute of Medicine (IOM) report that leaders and

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managers committed to promote a safety culture at all levels of the organization and empowers employees to be helpful and observant of potential problems that need to be addressed [7][8].

The National Patient/ Client Safety Goals (NPSGs) have become a critical method by which the joint commission promotes and enforces major changes in patient/ client safety. The criteria used for determining the value of these goals, and required revisions to them, are based on the merit of their impact, cost, and effectiveness [9].

Patient/ client safety goals were established to assist health care organizations to address specific areas of concern regarding patient/ client safety. It includes the following; identify patients/ clients correctly , improve effective communication , ensure medication safety , reduce the risk of health care-associated infections , reduce the risk of patient/ client harm resulting from falls ,and ensure safe surgery [6][10].

Nurses play a critical important role in ensuring patient/ client safety by monitoring patients/ clients, detecting errors, understanding care processes, and performing countless other tasks to ensure patients/ clients receive high-quality care [9].

Additionally, it is important for health care providers in PHC to have a background, knowledge about patient/ client safety in order to minimize the incidence of adverse events that may lead to serious disabilities to the patients/ clients especially; PHC centers are considered, in Egyptian society, as the first line of defense against health problems [11].

1.1 Significance of the Study

Patient/ client safety is the fundamental principle of child and adults health care. Every point in the process of care-giving contains a certain degree of inherent unsafely [5].

One-fifth of the people in the community are exposed to medical mistakes, and this rate may be as high as 35–42%. As a result, millions of people may die or suffer injuries due to preventable medical errors [12].

Based on studies that conducted in different countries addressed falls among community people, and detect annual frequencies ranging from 6.5% to 42% at least an annual fall worldwide. The risk of acquiring a health care-associated infection is estimated to be 2 to20 time higher in developing countries than in industrialized ones [13][14].

Moreover, community health nurses should be assessed frequently for applying safety measures and reported for nursing errors for avoiding risk factors threated the patient/ client safety.

1.2 Aim of the study

The aim of the current study was to assess nurses' performance regarding international patient safety goals at primary health care settings, through:

- Assessing the nurses' knowledge regarding international child and adult patient safety goals at primary health care settings.
- Assessing the nurses' practices in applying international child and adult patient safety goals at primary health care settings.

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1.3 Research Question:

- What is the nurses' knowledge about international child and adult patient safety goals at primary health care settings?
- What are the nurses' practices in applying international child and adult patient safety goals at primary health care settings?

II. Subjects and methods

2.1 Research design:

A descriptive research design was used to conduct the present study.

2.2 Research setting:

This study was conducted at primary health care settings, in El- Badrashine directorate, affiliated to Ministry of Health and Population in Giza governorate. It consisted of (18) primary health care settings (Masghona PHC, Nazlet El-Shobak PHC, Abo-Ragwan south PHC, Abo-Ragwan nourth PHC, Al-Tarfia PHC, Dahshour PHC, Manshet-Dahshour PHC, Zawiet-Dahshour PHC, Saqara PHC, Manshet-Kasab PHC, Met-Rahena PHC, Al-Shenbab PHC, Al-Marazeq PHC, Kafr-Zahran PHC, Al-Azezia PHC, Abo-Sear PHC, Westling-Shobak PHC, Mother and Child Health Center).

The study was carried out at (Mother Healthcare room, Dentist room, Emergency room, Family Planning room, and Pediatric room).

2.3Subjects:
The subjects of the existing study were all nurses at (18) Primary Healthcare Settings, in El-Badrashine directorate are included at this study. Their total number was 150 nurse as following: Masghona PHC (6), Nazlet El-Shobak PHC (4), Abo-Ragwan south PHC (6), Abo-Ragwan nourth PHC (5), Al-Tarfia PHC (5), Dahshour PHC (7), Manshet-Dahshour PHC (9), Zawiet-Dahshour PHC
(5), Saqara PHC (12), Manshet-Kasab PHC (3), Met-Rahena PHC (17), Al-Shenbab PHC (9), Al-Marazeq PHC (7), Kafr-Zahran PHC (6), Al-Azezia PHC (15), Abo-Sear PHC (12), Westling-Shobak PHC (5), Mother and Child Health Center (17).

2.4 Sampling technique:
A convenient sample of (150) nurses who are working in 18 primary health care units affiliated to Giza governorate. A pilot study will be conducted on 10% (15) nurses of the (PHCS) under study to assess the feasibility of the study as well as clarity and objectivity of the tools. The needed modifications will be incorporated and those subjects will be excluded from the actual study sample.

2.5 Tools of data collection

Tool I: Structural interview questionnaire was developed by the investigator to collect the necessary data: It consist of two parts: First Part: Socio-demographic characteristics of the studied nurses. Second Part: Concerned with Knowledge of nurses regarding international child and adult patient/ client safety goals.

Scoring system:
This questionnaire detected to assess nurses' knowledge regarding international child and adult patient/ client safety goals. It Consists of (25) items, categorized in 5 goals, as following, identify patients/ clients correctly (6 items), improve effective communication (5 items), medications safety (6 items), reduce the risk of health care-associated infections (4 items), reduce the risk of patient/ client harm resulting from falls (4 items). The correct answer was scored one, and the incorrect was scored zero. These scores were summed up and converted into a percent score for total score.
- Score is >60 referred to poor knowledge.
- Score is 60 referred to average knowledge.
- Score is <60 referred to good knowledge.

Tool II: **Observational checklist:**
It was adapted from International Finance Corporation, Self-Assessment Guide for Health Care Organizations in 2015. It was used to assess nurses' practice for applying international child and adult patient safety goals [12].
Scoring system:
This checklist detected to assess nurses' practice regarding international child and adult patient/ client safety goals. . It consists of (20) items as following, identify patients/ clients correctly (4items), improve effective communication (4 items), medications safety (6 item), reduce the risk of health care-associated infections (3 items), reduce the risk of patient/ client harm resulting from falls (3 items). The correct answer was scored one, and the incorrect was scored zero. These scores were summed up and converted into a percent score for total score.
- Score is >60 referred to incompetent practices.
- Score is <60 referred to competent practices.

2.6 Pilot study
A pilot study was carried on the nurses at primary health care settings, in El- Badrashine directorate, affiliated to Ministry of Health and Population in Giza governorate about 10% of the study subjects (15 nurses). The purposes of the pilot study were to test applicability, feasibility, practicability of the tools. It also, helps to estimate the time needed to complete the questionnaire sheet. All of them received a clear explanation for the study purpose. According to the results of pilot study no modification made to the tools. Those who shared in the pilot study were involved in the studied sample.

2.7 Fieldwork
Once permission was granted to proceed with the study, the investigator started to prepare a schedule for collecting the data. Each nurse was interviewed individually by the investigator who introduced himself and explained the aim of the study briefly, and reassured them that information obtained is strictly confidential and would not be used for any purposes other than research. After that, the oral approval was obtained to collect the necessary data. The study tool was answered by each nurse during the interview, and the time needed ranged from 20 to 30 minutes, according to understanding and cooperation of the nurse. The investigator collected data

through observing the staff members individually. The fieldwork was executed over the period from November 2017 up to April 2018; 2days per week (Sunday and Wednesday) from 10.00 AM to 12.00 MD for assessing 3-4 nurses per day.

2.8Ethical considerations:

The study proposal was approved by the ethics committee of the scientific research of the faculty of nursing at Helwan University. Oral informed consent obtained from each nurse who agrees to participate in the study before conducting the interview. They were given a verbal description of the aims of the study, the benefits, and non-participation or withdrawal rights at any time without giving any reasons. The nurses were informed that their participation in this study was voluntary, no names were included in the questionnaire sheet and anonymity of each nurse was protected by the allocation of code number for each nurse. The nurses were assured about the confidentiality of the information gathered and its use only for their benefits and for the purpose of the study.

2.9Data management:

Data entry and statistical analysis were done using SPSS 22.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the developed tools through their internal consistency. Chi-Square test (χ^2) was used to test the relation between the variables. Pearson's correlation was used for assessment of the inter-relationships among qualitative variables. Statistical significance was considered at p-value <0.05.

III. Results

From the current study, about 56.7% of the nurses subjects in the study sample was in age group

years old and 86.7% had years of experience while, only 2.0% of them had from 5-9 years of experience. 53.3% of studied nurses had training program about patient/ client safety issues, while 46.7% of them didn't have it **Table 1**.

Regarding distribution of the studied nurses' knowledge regarding to international patient/ client safety goals, **Figure 1** presented frequency distribution of the studied nurses' knowledge regarding to international patient/ client safety goals shows that 86.0% of study nurses had correct knowledge regarding to improve the safety of medications, while 55.3% had incorrect knowledge about improves the effectiveness of communication.

Regarding distribution of the studied nurses' total score of knowledge regarding to international patient/ client safety goals, **Figure 2** presented frequency distribution of the studied nurses' total score of knowledge regarding to international patient/ client safety goals, the figure pointed that about 48.0% of study nurses had good knowledge about patient/ client safety, while 32.7% had poor knowledge, but only 19.3% had average knowledge**.**

Regarding distribution of the studied nurses' practice regarding to international patient/ client safety goals, **Figure 3** presented frequency distribution of the studied nurses' practice regarding to international patient/ client safety goals illustrated that, 80.0% of studied nurses had acceptable practice regarding reduce the risk of health care associated infection, while 76.7% had unacceptable practice regarding improve the effectiveness of communication.

Regarding distribution of the studied nurses' total score of practice regarding to international patient/ client safety goals, **Figure 4** presented frequency distribution of the studied nurses' total score of practice regarding to international patient/ client safety goals, the figure pointed that about 77.3% of studied nurses had unacceptable practice regarding to patient/ client safety, while only 22.7% had acceptable practice.

Concerning correlation between knowledge, practice and socio-demographic data for studied nurses regarding international patient/ client safety goals, **Table 2** indicates a statistical significance positive correlation between age (0.020*), years of experience (0.000**) and nurses' knowledge regarding to international patient/ client safety goals, and statistically significant negative correlation between training (0.000**) and nurses' knowledge regarding to international patient/ client safety goals and. On the other hand, it shows a statistically significant negative correlation between nurses' training about patient/ client safety (0.049*) with practice regarding to international patient/ client safety goals

As regard Correlation between total knowledge and total practice for studied nurses regarding international patient/ clients goals, **Table 3** demonstrates a statistically significant positive correlation (0.01**) between total knowledge and total practice for studied nurses regarding international patient/ clients goals

IV. Discussion

Patient/ client safety is a critical component of the health care quality. It is a global challenge that requires knowledge and skills in multiple areas, including human factors and systems engineering. Patient/ client safety is a complex multidimensional concept and its comprehensive assessment is essential **[15][16].**

Concerning demographic characteristics, in the present study more than half of the studied nurses' age were more than or equal 40 years, in addition all of them were females, and the majority of nurses were diploma nurses. Also, the majority of them had more than or equal 15 years of experiences and around half receive education or training about the patient/ client safety issues. These findings go in line with a study carried out at Primary Healthcare in Alexandria, for assessment of patient safety culture in primary health care services in Alexandria, Egypt, mentioned that, the majority of the participants were females. The mean duration of experience in primary care service was 7.5 years. Nearly three-fifths of the PHC staff received education or training about the safety issues **[12].**

From the investigator point of view primary health care settings included in this study did not have quality certifications from the (JCI) and near to two-fourths of the nurses had not received education or training about patient/ client safety issues, which may have affect negatively on their performance of patient/ client safety.

Regarding to nurses' total knowledge about international patient/client safety goals, this study indicated that, the majority of studied nurses had correct answers regarding safety goals, but also, more than half of them had incorrect answer about effective communication, more than two-fifths of studied nurses had good knowledge regarding patient/ client safety issues and near to one-third had poor knowledge, while the rest of them had average knowledge. In the same line, the study carried out by **Webair et.al, (2015)** at Yemen for assessment of patient/ client safety culture in primary care setting, which shows that, the majority (83%) of studied sample had good knowledge about patient/ client safety but, it's in appropriate with their practice in real area**[18]**. Similarly, with **Françolin et.al, (2015)**, who evaluate the actions of patient/ client safety management developed in hospitals, from the perspective of nurses, illustrated that, the most of studied nurses reported the medical errors excellently an it's based on their good knowledge regarding patient/ client safety issues. **[19].**

Oppositely, as **Brasaite et.al, (2017)** study which conducted in three regional hospitals in Western Lithuania for assess health care professionals' knowledge regarding patient safety, that show the majority of health care professionals had low levels of safety knowledge **[20].**

Concerning the practice of patient/ client identification, just above the half of studied nurses were applying patient/ client identification, while near to two-fourths weren't apply it. At the same line with the study of **Comunale et.al, (2018)** who conducted for assessing of basic patient safety skills in residents entering the first year of clinical training, illustrated that, 52% percent of the studied sample apply patient/ client identification in acceptant way **[21].**

Oppositely, as **Campbell et.al, (2015)** study who assess how to improve quality and safety through positive patient identification, illustrated that 90% of studied sample weren't matching policies of patient verification. Thus from the investigator point of view, the main cause for not applying patient/ client identification is workload so; there is opportunity to reassess and standardize workflow, clarify what identification methods are acceptable and determine additional appropriate identification verification practices with patient/ client ID. **[22].**

Regarding effective communication, near to four-fifths of nurses not apply effective communication with other caregivers, but also just above one-fifths were apply. This finding was in line with **Mohamed et al. (2015)**, who assess patient safety culture in primary healthcare services in Alexandria, Egypt, mentioned that, near to three-quarters (75%) of studied professionals reported that there is inadequate communication between each other's. From the investigator point of view, inadequate communication between caregivers with each other's because of increased workload so, increase health care workforce may improve the communication. **[12].**

According to nurses' practice for medications safety measures, revealed that, just above half the sample were apply the measures, on the other hand, near to two-fourths weren't apply. In accordance, **Mohamed et al. (2015)** who assess patient safety culture in primary healthcare services in Alexandria, Egypt, indicated that, near to one-third (33.3%) of health care professionals reported medication error. From the investigator point of view, it seems necessary to set out recommendations on the further standardize the presentation of the information on the medications can improve in communicating/informing patients/ clients in order to better their adherence seems to be a pressing need for improving the safety of the healthcare provided. **[12],**

As regard infection control measures, this study illustrated that, four-fifths of study nurses were applies infection control measures, while one-fifths of them weren't apply. On the same line with the study of **Brasaitė et.al, (2016)** who describe health care professionals' skills regarding patient safety, illustrated that, the highest evaluated skill for staff was applying hand washing measure **[3].**

Conversely, The study of **Comunale et.al, (2018)** who conducted for assessing of basic patient safety skills in residents entering the first year of clinical training,, which indicated that the studied sample scored poorly regarding compliance with hand hygiene. From the investigator point of view, there compliance may be due to availability of infection control supplies and awareness of nurses about the important of applying of infection control measures. **[21].**

From findings of this research, near to two-thirds of studied sample weren't applying preventive measures for patient/ client fall, and just above one-thirds were applying this measure. The current study finding

was supported by **Smith et.al, (2015)** which conducted at New York to assess healthcare provider's perceptions and self-reported fall prevention practices and mentioned that primary care providers (84%) didn't know how to conduct fall-risk assessments and weren't conducting multifactorial risk assessments on every patient/ client activities. **[23]**.

Thus from the investigator point of view may back to over workload as well as shortage of nurses in most of studied settings that confirm although adequate knowledge about fall prevention their where limited applying fall risk precautions in practice. So, an important step is to make fall prevention a routine part of clinical care.

The finding of this study revealed that, more than three-quarters of studied nurses were incompetent for with patient/ client safety issues and one-fifths were competent. At the same line, the study carried out at El-Ebor family health centers by **Shaheen et al, (2016)** for assessment of healthcare providers practice toward Patient Safety, 70.9% of the participants had unaccepted practice regarding patient/ client safety dimensions **[13].**

While, **Brasaitė et.al, (2016)** study who describe health care professionals' skills regarding patient safety disagree with present study findings as show overall, health care professionals were competent regarding patient safety skills, based on their own evaluations **[3]**.

Accordance the correlation between nurses' knowledge and socio-demographic data, a statistical significance positive correlation between age, years of experience and nurses' knowledge regarding to international patient/ client safety goals, and statistically significant negative correlation between training and nurses' knowledge regarding to international patient/ client safety goals and. On the other hand, it shows a statistically significant negative correlation between nurses' training about patient/ client safety with practice regarding to international patient/ client safety goals.

This result was in agreement with the study of **Brasaite et.al, (2017)** which conducted in three regional hospitals in Western Lithuania for assess health care professionals' knowledge regarding patient safety, indicated that, safety knowledge, was found to be higher in those who were more experienced in their primary specialty and who had more years of work experience in general **[24]**.

Conversely, with **Vermeir et.al, (2016**) study to determine intensive care unit (ICU) nurses' knowledge, attitudes, and perceptions of quality of care and patient safety, who indicated that, also the studied nurses had an experience they didn't have a good knowledge regarding patient safety issues

[25] As regard Correlation between total knowledge and total practice for studied nurses regarding international patient/ clients goals, a statistically significant positive correlation between total knowledge and total practice for studied nurses regarding international patient/ clients goals.

As regarding to nurses' practice there is a statistical significance negative correlation between nurses' practice and training. This finding was in accordance with the study of **Brasaitė et.al, (2016)** who describe health care professionals' skills regarding patient safety, revealed that, Health care professionals with more experience in their primary specialty were seen to be more skilled in patient/ client safety issues **[3].**

Finally study findings revealed that there was positive correlation between nurses' knowledge and practice regarding to international patient/ client safety goals with statistical significance difference between nurses' knowledge and practice regarding to international patient/ client safety goals.

This result was in agreement with, the study of **Brasaitė et.al, (2014)** that assess Healthcare professionals' knowledge, attitudes and skills regarding patient safety, found that, nurses who have many years of work experience have acquired knowledge during their clinical practice and thus are more knowledgeable and skilled **[26]**.

V. Conclusion

Based on the study findings, it can be concluded that the studied sample have good knowledge about patient/ client safety issues but unacceptable applying of practices in work setting. Finally, there was statistical significance positive correlation between knowledge and practice of studied sample about international patient/ client safety goals. These findings answer the research questions, which are assess knowledge and practice of nurses regarding to child and adult patient/ client safety goals at primary health care settings.

VI. Recommendations

Based on the study findings, it can be concluded that the results revealed that the studied sample had good knowledge about patient/ client safety issues. Regarding their practice they had un acceptable practices in work setting. Finally, there was statistical significance difference between knowledge and practice of studied sample about international patient/ client safety goals. These findings answer the research questions, which are assessing knowledge and practice of nurses regarding to child and adult patient safety goals at primary health care settings. Recommendations for further research directions:

Future studies needed to be conducted with different subjects and different settings to provide strong evidence about medical errors.

Table (1): Frequency Distribution of the Studied Nurse s' Socio-Demographic Characteristics

Items	No	%
Age per year		
20-29	4	2.7
30-39	61	40.6
40≤	85	56.7
Qualifications		
Diploma nurse	149	99.3
Technical nurse	1	0.7
Experience years		
5-9	3	2.0
10-14	17	11.3
15≤	130	86.7
Training about patient/ client safety issues		
Trained	80	53.3
Untrained	70	46.7

Figure (1): Frequency distribution of the studied nurse s' knowledge regarding to international patient/ client safety goals
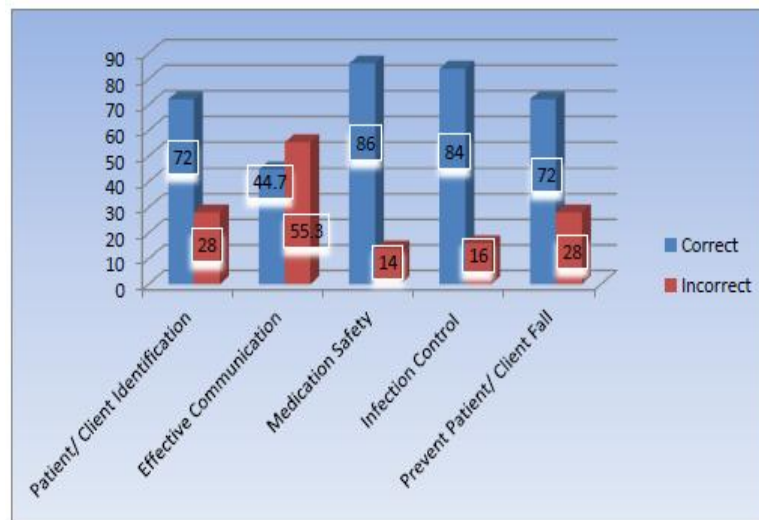
Figure (2): Frequency distribution of the studied nurse s' total score of knowledge regarding to international patient/ client safety goals
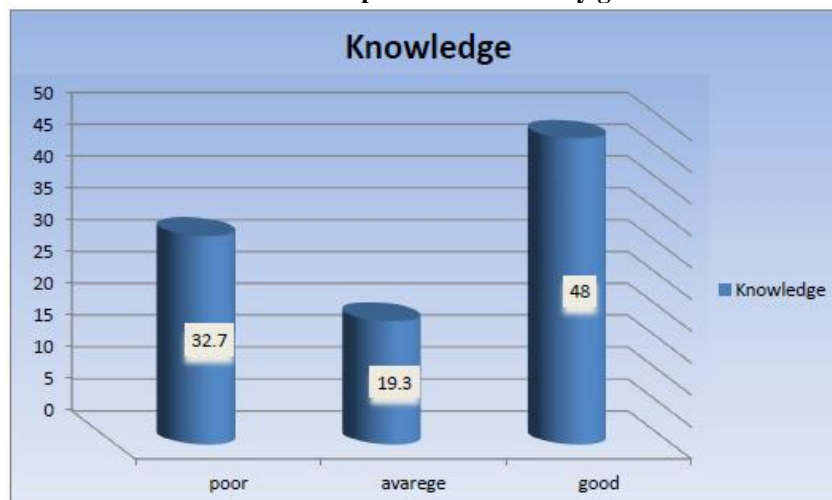
Figure (3): Frequency distribution of the studied nurses' practice for international patient/ client
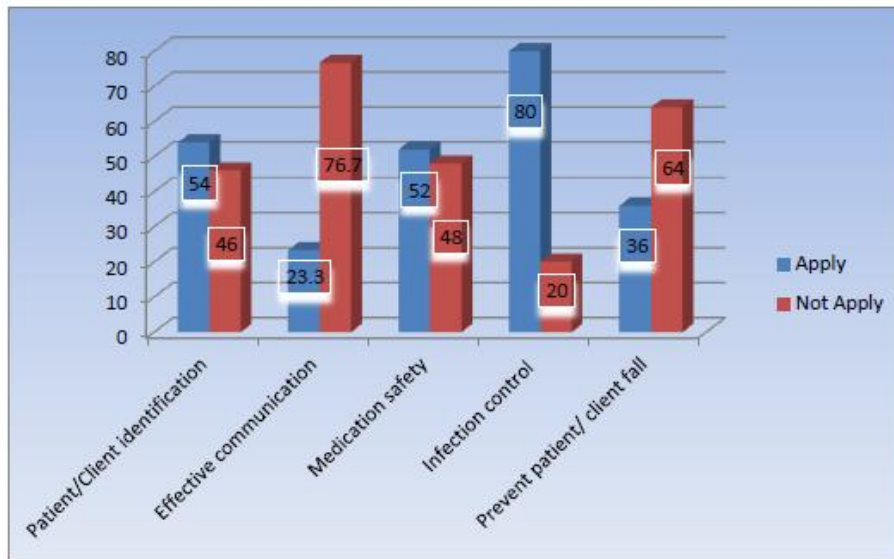

Figure (4): Frequency distribution of the studied nurse s' total scores of practice for international patient/ client safety goals

Table (2): Correlation between knowledge, practice and socio-demographic data for studied nurses regarding international patient/ client safety goals

Item	Knowledge		Practice	
	R	P Value	R	P Value
Age	0.190	0.020*	0.012	0.042*
Qualifications	0.137	0.095	0.086	0.295
Years of Experience	0.352	0.000**	0.088	0.144
Training about patient/ client safety	-0.490	0.000**	-0.133	0.049*

*statistically significant p<0.05

Table (3): Correlation between total knowledge and total practice for studied nurses regarding
international patient/ client safety goals

Item	Practice	
	R	p-value
Knowledge	0.124	0.01*

(*) statistically significant at $p < 0.05$

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