Nursing Core Competencies of Staff Nurses Providing Care for Burned Patients

Amal El-Gharib El-Sayed,[(1)]Faten Khayrat EL-Guindi, [(2)]Heba Ali Omar

[(1)] Nursing Community Department, Faculty of Nursing. Ain-Shams University.
[(2)] Nursing Administration Department, Faculty of Nursing, Ain Shams University.

Abstract

Background: Competency standards for nurses who specialize in the care of burn-injured patients are lacking. Currently, there are no nationally agreed on standards that define safe and competent burn nursing practice. In 2014, nurse members of the American Burn Associationproposed the Burn Nurse Competency Initiative (BNCI) with the intent of establishing a core set of competency standards for burn nursing**. Aim;** this study aimed to Assess **Competency Levels of staff nurses providing care for burned patients. Subject and method;** A descriptive Correlational research design was used in conducting this study ;The study sample is aconvenient sample and this study was conducted at two different settings , the first setting is Ahmed Orabi Hospital for burn and tumor and the other setting is Burn Unit in El-Demerdash hospital at Ain Shams University.The subjects of the study included 61 staff nurses, 33 Staff nurses working at Ahmed Orabi hospital and 28 Staff nurses working at Burn unit in El-Demerdash hospital at Ain Shams University. Two types of tools were used to collect data, one Questionnaire sheet namely nurses knowledge core competencies Questionnaire, the other Observational checklist **Results;** the majority of staff nurses had low competency level of knowledge about burn and core competencies regarding (infection control , hazards materials safety , medication administration) at both hospitals. **Conclusion;** the study findings showed a statistically significant correlation between Total Core competencies of Nurses' knowledge and skills. **Recommendation;** Nursing administration should develop effective training program related to Infection control, medication administration and hazards materials safety.

Key words: Nursing, Core Competencies, Staff Nurses, Burned, Patients.

Introduction

Burn is a problem prevalent worldwide, especially in developing countries. Based on the available information regarding the incidence of burns and burn deaths, this should be considered as a significant problem in Egypt. Though there is no time trend in Cairo Governorates, yet it constitutes 2.66% of the total deaths coming for autopsy at mortuary. Burns have always been consideredas one of the most destructive injuries, causing not only deathsbut also major economic and psychological impacts and long-term somatic squeal as well burn injury is a common typeof traumatic injury, causing considerable morbidity ***(Arshi, Sadeghi -***

Bazargani, Mohamm, Djafarzadeh, 2015).

Burns are injuries produced by application of dry heat suchas flame, radiant heat or some heated solid substance like metalor glass to the body. Local injury to the body by heat may result from dry heat, application of hot bodies, licking byflames resulting in simple burns, moist heat leading to scalds,and corrosive poisons resulting in corrosive burns. Burns are an important cause of injury to young children, being the third most frequent cause of injury resulting in death behind motor vehicle accidents. Burn injuries account for the greatest length of stay of all hospital admissions for injuries ***(Toon, Maybauer, Arceneaux, Fraser, Meyer, Runge, 2013).***

According to the World Health Organization, 238,000 individuals died of fire-related burns in 2000, and 95% of these deaths occurred in low and middle-income countries. The approach to burn prevention, to be effective in a particular area, should be based on a sound knowledge of etiological patterns of burn injuries and must take into account the geographical variations and socioeconomic differences in burn epidemiology. As in other low income countries, burns in Egypt are considered as major health problems that are associated with high mortality and morbidity. ***(World Health Organization, 2013).***

Though optimal care of the burn injured patient requires a multidisciplinary approach, the bulk of burn care activities have been indicated to involve the expertise of burn care nurses: wound care, monitoring various vital parameters, monitoring urine output pain assessment, monitoring the burned patient on ventilatory sup-port among others***(Carlson, 2013).***

Professional competence is the combination of knowledge, judgment, skills, experience, and attitude required to respond adequately to the demands of one's occupational responsibilities.Models for competence in health care have been used to improve practice standards, accommodate new knowledge, promote professional development, and improve effectiveness of training and education programs ***(Verma, Paterson and Medves, 2012).***

The Maine Partners in Nursing Education and Practice (MPNEP) Steering Committee met for the first time in July 2009. Steering Committee members agreed that adopting Maine Nursing Core Competencies was the top priority. A sub-committee quickly got to work utilizing a comprehensive approach to the process of identifying, defining and adopting core nursing competencies. A rigorous assessment of the work underway in other states and nationally related to core competencies, current and proposed practice standards, as well as education accreditation standards was conducted ***(Nichols, 2013).***

In an effort Nursing aims at maintaining a state of health regain normal or nearnormal state of health in the event of burns and stabilize, control or minimize the effects ofchronic poor health or disability. The nursing actions deliberately selected andperformed bynurse to help individuals using the aseptic technique procedures for patient with burns woundrecover quickly and to maintain or change condition in themselves or their environment ***(Basavanthappa, 2010).***

Although a competency based approach to training and staff development is accepted as a central strategy to improve the effectiveness of healthcare providers, the development and implementation of competencies can

be a complex endeavor. Burn Rehabilitation Therapists (BRTs) require a specific skill set and supporting knowledge to perform their job safely and competently. American Burn Association (ABA) burn center verification criteria requires that burn centers provide BRTs with a "competency based burn therapy orientation program," recognizing the importance of practice standards in burn rehabilitation ***(Guidelines for the Operation of Burn Centers, 2015).***

However, currently, no universally agreed-upon competencies exist to define the skill set essential to BRT job performance. There is a paucity of supporting research for best practice in burn rehabilitation, and the associated component skills are ill defined. So, many burn centers have developed their own competency-based tools for training BRTs. The criteria for these tools vary throughout burn centers depending on previous education, work experience, treatment philosophies, baseline skill abilities, and cultural background of the BRTs at the given burn center. ***(Richard, Baryza, Carr , Burn rehabilitation and research, 2013).***

The complexity and multisystem involvement of the burn patient demand that the burn nurse possess a broad-based knowledge of multisystem organ failure, critical care techniques, diagnostic studies and rehabilitative and psychosocial skills. The nurse oversees the total care of the patient, coordinating activities with other disciplines such as occupational and physical therapy, social services, nutritional services and pharmacy. At the same time, the burn nurse is also a specialist in wound care. The nurse is responsible for wound care and for noting subtle changes that require immediate attention, prevention of infection and pain management ***(Greenfield, 2010).***

Significance of the study

According to WHO statistics estimated number of (195000) death every year is caused by burn wounds, and the vast majority occur in low and middle-income countries. The statistical and medical records department at El-Manial hospital revealed that the number of patients who diagnosed with burn injury are increased in the following three consecutive years (2011, 2012, & 2013) as (405, 543, 487) burnt patients respectively ***(WHO, 2013).***

This study provides a foundation for future research regarding nurse practitioners specializing in the care of patients who are burned This study investigated the potential of the nursing competency program in providing significant insights for nursing leadership to improve the quality of nursing care and enhance the safety of nursing practice through assessing their levels of competency. On the other hand, there is few research has studied for nursing core competencies of staff nursing providing nursing care for burned patients.

Aim of the study

This Study Aims to Assess of Competency Levels of staff nurses providing care for burned patients.

Research Questions:

- What are the competency levels of staff nurses providing care for burned patients?

Subjects and Methods

The Present study was aimed to Assess of Competency Levels of staff nurses providing care for burned patients.

Research question:

What are the competency levels of staff nurses providing care for burned patients?

The subjects and methods used in the conduction of this study is portrayed under the four main designs as follows:

I. Technical design
II. Operational design
III. Administrative design
IV. Statistical designs

I. Technical Design:

The technical design for this study included a description of the research design, setting of the study, subjects of the study, and tools of data collection.

Research design:

A descriptive Correlational research design was used in conducting this study.

Study Setting:

The study was conducted at two different settings, namely (Burn Unit in El-Demerdash hospital at Ain Shams University and Ahmed Orabi Hospital for burn and tumor).

- Burn Unit in El-Demerdash hospital at Ain Shams University which consists of four departments as follows: One Burn Intensive care unit and it's bed capacity eight beds, one Inpatient department for burned patients and it's bed capacity Twelve beds, emergency Room and Operation Theater.

- Ahmed Orabi Hospital for burn and tumor which consists of five departments as follows: Two Burn Intensive care units divided into (ICUA for patients with burn degree less than 30% and it's bed capacity Ten beds and ICUB for critical patients with burn degree more than 30% and it's bed capacity eight beds), One Inpatient department and it's bed capacity Twenty Two beds, Emergency Room for providing first aid to burned patients and Operation Theater.

Table (1): Description of Study Setting

Departments	El-Demerdash		Orabi	
	No of Dep	Bed Capacity	No of Dep	Bed Capacity
Burn intensive care unit	1	8	2	18
Inpatient Department	1	12	1	22
Emergency Room	1	-	1	-
Operation Theater	1	-	1	-
Total No of Dep	4		5	

Study subjects:

The subjects of this study was a convenient sample included all the available staff nurses working in the aforementioned settings. Their total number was (61) staff nurses: 28 working at Burn unit in El-Demerdash hospital at Ain Shams University and 33 working at Ahmed Orabi hospital for burn and tumor.

Tools of data collection:

The data for this study was collected through two tools.

First tool: Nurses' Knowledge Questionnaire (Appendix I):

This tool was used for assessing Competencies Levels ofstaff nurses' knowledge. It is divided into three parts:

The First Part: Socio-demographic characteristics data sheet:

This Part was developed by researcher based on scientific literature ***(The MOH Nursing Competency Program, 2009)*** and aimed at collecting of data related to staff nurses' socio-demographic characteristics such as age, gender, marital status, educational Level and years of experience.

The second Part: Nurses' knowledge Questionnaire regarding nursing care for burned patients:

This Part was developed by researcher based on scientific literature***(American Burn Association, 2011)*** . It was used to assess Nurses' knowledge regarding nursing care for burned patient included 4 open end questions (what is the definition of burn - what is the classification of burn - what is the pathophysiology of burn - what is the complication of burn).

The Third Part: Nurses' Knowledge core competencies Questionnaire:

This part was developed by the researcher based on scientific literature ***(The MOH Nursing Competency Program, 2009)***. It was used to assess Competency Levels ofstaff nurses' knowledge regarding three selected nursing core competencies. It consisted of 25 open end questions covering three core competencies namely (Core competencies regarding infection control, Core competencies regarding hazardous material safety and Core competencies regarding medication administration).

Table (2): The Nurses' knowledge Questionnaire:

Core competencies	No of Questions
Core competencies regarding infection control	7
Core competencies regarding hazardous material safety	4
Core competencies regarding medication administration	14

- **Scoring system:**

The scoring system for the knowledge questionnaire consisted of giving a score of (one) for incorrect answer (Two) for incomplete correct answer and (Three) for complete correct answer for each open end question, while for each area of knowledge, the scores of questions were summed-up and the total divided by the number of questions giving a mean score, there scores were convert into percent score. The knowledge score was considered low level if the score was (from zero to 50 %), moderate level if it was (from 51 % to 75 %) and high level if it was (from 76% to 100%) ***(MOH Nursing Competency Committee, 2009).***

- **The second tool: Nurse skills Observational checklist (Appendix II):**

This tool was developed by the researcher based on scientific literature ***(The MOH Nursing Competency Program, 2009)***. It was used to assess Competency Levels ofstaff nurses' skills regarding nursing care for burned patients for 3 selected nursing core competencies namely: Core competences regarding infection control infection control, Core competences regarding hazardous material safety and Core competences regarding medication administration. It consisted of 17 major skills including (74 sub competencies).

Table (3): The 3 nursing core competencies of observational checklist .

Core competency	Skills	No of sub competencies	Examples
A) Core competencies regarding infection control	1. Utilizes standard precautions	8	• Hand hygiene. • Environmental cleaning.
	2. Applies correct hand washing technique.	2	• Hand rubbing (20–30 sec): apply enough product to cover all areas of the hands; rub hands until dry.
	3. Utilizes personal protective equipment as indicated for each procedure.	4	• Facial protection (eyes, nose, and mouth).
	4. Discards used needles and sharps safely.	2	• Prevention of needle stick injuries.
	5. Assists in maintaining aseptic technique pre/during/ and post-burn dressing.	10	• Wearing gowning. • Wearing face mask.
	6. Maintains asepsis before, during and, after intravascular cannulation and other invasive/ non-invasive procedures.	9	• Maintaining aseptic technique before intravascular cannulation.
B- Core competencies regarding hazardous material safety	7. Identifies hazardous materials in area of practice.	2	• Named each hazardous materials in area of practice.
	8. Safely handles hazardous materials.	4	• Don't eat, drink and smoke.
	9. Safely stores hazardous material.	4	• Store chemicals in a well-ventilated area; however, do not store chemicals in a fume hood.
	10. Safely disposes hazardous materials.	4	• Liquid and solid organic waste segregated.
C- Core competencies regarding medication administration	11. Consultsapprovedpharmacology references, policies and other resourcesformedicationinformation.	2	• Consults approved pharmacology references, for medication information.
	12. Verifies doctor's orders before drug preparation and administration.	2	• Check that MAR and doctor's orders are consistent.
	13. Prepares and administers drug correctly observing the 7 Rights in Drug administration.	3	• Position patient appropriately for medication administration.
	14. Applies standard precautions during drug preparation and administration.	5	• Wearing clean gloves.
	15. Inserts peripheral IV cannula, prepares initiates and monitors IV fluids administration.	7	• Prepare patient to Inserts peripheral IV cannula.
	16. Provides age-related patient/family teachings related to medication administration and IV therapy.	2	• Teaching patient/family about IV therapy.
	17. Documents drug administration appropriately.	4	• Document reasons why medication not administered.

- **Scoring system:**

The scoring system for skills observational checklist consisted of giving a score of (Two) for done and (One) for not done, respectively for each skill, the score of the items were summed-up and the total divided by the number of the items, giving a mean score for part, these scores were converted into percent score. The practice was considered low level if the score was (from zero to 50 %), moderate level if it was (from 51 % to 75 %) and high level if it was (from 76% to 100%) ***(MOH Nursing Competency Committee 2009).***

II. **Operational design:**

The operational design has included three stages Preparatory stage, pilot study, and Fieldwork.

A) Preparatory phase:

In this phase the researcher reviewed the current and past, national and international related literature, theoretical knowledge of various aspects of the study using books, articles, internet, periodical journals and reviewed the study tools for data collection necessary for carrying out the study.

Validity:

Two tools was tested for the face and content validity. It was ascertained by a jury group consisted of five professors from two departments at faculty of nursing, Ain Shams University (three professors from Nursing Administration Department Faculty of Nursing Ain shams university and two professors from medical surgical Nursing Department Faculty of Nursing Ain shams university.

Face validity:

Jury opinion were elicited regarding the tools' format, layout, parts and scoring system. The responses were reported as (agree, disagree and comment).

Content validity:

Content validity was conducted to determine the appropriateness of each item to be included in the questionnaire sheet and checklist sheet. The responses were reported as (agree, disagree and comment). Based on the jury recommendations correction, rearrangement, rephrasing of some items and modification done such as adding the second part in questionnaire of Nurses' knowledge regarding nursing care for burned patient which included 4 open end questions (what is the definition of burn - what is the classification of burn - what is the pathophysiology of burn - what is the complication of burn).

Tools reliability:

Cronbach alpha coefficient of internal reliability were used to assess the internal consistency for both tools. The internal consistency coefficient are represented. The reliability of the Nurses knowledge Questionnaire was found 0.89 and for the Observational checklist reliability was found 0.90.

B) Pilot study:

A pilot study was aimed to examine the clarity of the language and applicability of the tools and its relevance to the study. It also helped to estimate the time needed for filing the questionnaire and to evaluate study process. The pilot study was carried out for two weeks conducted on 6 staff nurses of the total sample represented about 10% of the study sample to test the applicability, feasibility and clarity of the tools and to test the sequences of questions to maintain consistency. The staff nurse took 20 to 30 minutes to fill in the questionnaire. There were modifications done in second tool in core competency regarding hazards material safety which excluding 3 domains from 7 domains. Those participants in the pilot study were included in the main study sample size.

C) Fieldwork:

After obtaining necessary permissions from two hospitals to carry out the study, the researcher met the medical and nursing directors of both hospitals to explain the aim and process of the study to gain their support and cooperation. Then, the subject from staff

nurses were met individually, and invited to participate in the study and obtained their oral consent to be recruited in the study after explaining the nature of the study and the procedure of data collection.

The filled questions were collected immediately after finishing them and revised to check their completeness to avoid any missing data. Each questionnaire took about 20-30 minutes to be answered. The staff nurses were then observed individually by the researcher using the observation checklist, each staff nurse was observed three times, the period between successive observations was at least two days. The observation lasted 30 minutes for each nurse. The average of three observations was used in the statistical analysis.

The data were collected two days / week during morning shifts for each hospital. The days at Burn unit in El-Demerdash hospital at Ain Shams University are Saturday and Sunday and the days at Ahmed Orabi hospital for burn and tumor are Monday and Wednesday and work was done between 9.00 am to 2.00 pm. The researcher was present all the time to clarify any ambiguities and any questions. The field work lasted for 6 months throughout the period from January 2018 to June 2018 at both hospital.

Limitation of the study:

The researcher excluded 3 domains from 7 domains related to core competency regarding hazards material which are (Applies appropriate use of hazardous material, Locates Chemical Hazard Bulletins and/or the manufacturer's Material Safety Data Sheets and Safely contains spills and/or leaks of hazardous materials) and also excludes four items from third domain (Safely stores hazardous material) in limitation of the study because these domains and items not applicable in two hospital setting.

III. Administrative Design:

Before carrying out of the study work, a permission to conduct this study granted from the dean of Faculty of Nursing, Ain-Shams University, to the medical and nursing directors of previous mentioned hospitals to ensure their cooperation and permission. Written approval was obtained to conduct the study after explaining purpose and objectives of the study. Additionally, an individual oral consent was obtained from each participant in the study.

Ethical consideration:

Prior to the study, ethical approval was obtained from the scientific research and ethics committee at the Faculty of Nursing, Ain Shams University. Also, official permission was obtained from the general medical and nursing directors of both hospitals. The aim of this study was explained to all study participates and their verbal informed consent to participate was taken. The nurses included in the study were assures about confidentiality of the information gathered and it was used only for the purpose of the study and scientific research and they were informed about their rights to refuse or to withdraw at any time.

IV. Statistical Design:

Statistical analysis:

All the data collected were organized, categorized and analyzed by using computer soft were package. Data entry and statistical analysis were done using Statistical Package for Social Science (SPSS) package version 17. Quality control was done at the stage of coding and data entry for typing and spelling mistakes. Finally, analysis and interpretation of data were conducted.

The following statistical measures were used:

Descriptive statics including frequency, distribution, mean, and standard deviation were used to describe different characteristics. Chi- square test was used to test the significance of results of qualitative variables. Student "t" test was used for comparisons between two – in depended quantitative variables. Pearson correlation co – efficient (r) was used for assessment of the inter relationship among quantitative variables. Statistical significant was considered at p – value < 0.05.

Result

Table (1): Distribution of study sample according to socio- demographic characteristics (n =61).

Items		El demerdash (n=28)		Orabi (n=33)		T or X2 Test
		No	%	No	%	
Mean nurses age	X±SD	25.2±8.4	-	24.9±8.1	-	**T=1.83**
Gender	Female	8	28.6	7	21.2	**X2=1.32**
	Male	20	71.4	26	78.8	
Marital status	Single	12	42.9	9	27.2	**X2=2.8**
	Married	14	50.0	19	57.6	
	Divorced	2	7.1	5	15.1	
Educational level	Diplomain nursing	12	42,9	12	36.4	**X2=2.9**
	Instituted in nursing	8	28.6	14	42.4	
	Scin nursing	7	25.0	6	18.2	
	Master in nursing	1	3.6	1	3	
Years of experience	< 5 - < 10	11	39.3	13	39.4	**X2=2.6**
	10 - < 15	9	32.1	9	27.3	
	15 - < 20	4	14.3	8	24.2	
	> 20	4	14.3	3	9.1	
	Mean±SD	12.8±5.3	-	13.3±4.07	-	**T=0.70**

Table (1): shows demographic characteristics of nurses in the study sample at both hospitals. It reveal that the majority of staff nurses' ages ranged from 20 to <30 at both hospitals with a mean age 25.2±8.4 at El-demerdash hospital compared to 24.9±8.1 at Orabi hospital. The high percentage of them with marital status married at both hospitals (50.0% at El-demerdash hospital and 57.6% at orabi hospital) and the high percentage of staff nurses diploma school in nurse at El-demerdash hospital (42,9%) compared to 42.4 % technical institute in nursing at orabi hospital and their years of experience ranged from <5 to < 10 at both hospitals with a mean 12.8±5.3 at El-demerdash hospital and 13.3±4.07 at Orabi Hospital.

Figure (1): Total competencies levels of staff nurses' knowledge about Core competencies regarding infection control, hazardous materials safety , medication administration and burn. illustrates that the total competency level of staff nurses' knowledge at El-demerdash hospital was higher than the total competency level of staff nurses' knowledge at orabi hospital.

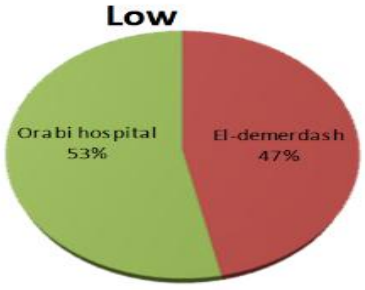
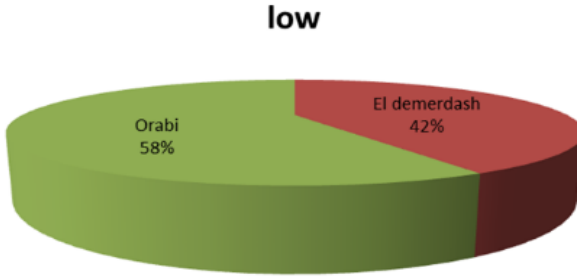


Figure (2): Total competencies levels of staff nurses' skills about Core competencies regarding infection control, hazardous material safety, medication administration. illustrates that the total competency level of staff nurses' skills at El-demerdash hospital was higher than the total competency level of staff nurses' skills at orabi hospital.



Associations and Correlation:

Table (2): Relationship between total staff nurses' knowledge and their skills scores

Total skills	Total Knowledge						Total No	r-Test
	Low(0- 50%) n=47		Moderate(51 -75 %)n=13		High(76 - 100%) n=1			
	No	%	No	%	No	%		
Low (0- 50%)	37	78.7	4	30.8	0	0	41	
Moderate (51 -75 %)	9	19.2	4	30.8	0	0	13	0.81*
High (76 - 100%)	1	2.1	5	38.4	1	100	7	

* indicate significant at P<0.05

Table (2): reveals that there is a positive Significant correlation between staff nurses' knowledge and their skills *(r=0.81) with (p-value <0.05). It is evident that the percentage of nurses with high level of practice (100%) Were high level in knowledge.

Table (3): Correlation between Years of experience of staff nurses and their total knowledge and skills scores (n =61).

Total Knowledge, skills	Years of experience						Total No	R
	< 5 - <10 n=20		10-<20 n=35		>20 n=6			
	No	%	No	%	No	%		
Total skills								
Low (0- 50%)	19	95	19	54.3	3	50	41	
Moderate (51 -75 %)	1	5	10	28.6	2	33.3	13	0.82*
High (76 - 100%)	0	0	6	17.1	1	16.7	7	
Total Knowledge								
Low (0- 50%)	18	90	26	74.3	3	50	47	0.73*
Moderate (51 -75 %)	2	10	8	22.9	3	50	13	
High (76 - 100%)	0	0	1	2.8	0	0	11	

* indicate significant at P<0.05

Table (3): clarify that there is statistically positive significant correlation between staff nurses' level of experience and both their (practice and knowledge) (P < 0.05). It is evident that the percentage of nurses with low level of practice (95%) and knowledge (90%) were higher among those who from <5 to <10 years of experience.

Discussion

Most research in the management of burn wounds focuses on the surgical management of the burn with no study focusing on the management of burn wounds by nurses. Burns are currently being managed by nurses; however their clinical practices differ extensively. There are no standards or guidelines in place to inform nursing practice and consequently not all patients benefit from evidence informed burn wound management techniques'. **(Bruce, Klopper & Mellish, 2011: 176).** Therefore, This Study Aimed to Assess of Competency Levels of staff nurses providing care for burned patients.

The present study results illustrates that the majority of staff nurses their ages ranged between 20 - <30 years at both hospitals. These results in agreement with the results of study done by ***The MOH Nursing Competency Program, (2009)*** who stated that There were 50.8% participant staff nurses who represented the age group from 20 to 30 years. Also these results is in contrast the results of study done by ***Mula,(2011)*** who found that the majority of staff nurses' age in his study were ranged between 35 and 45 years.

The results of the current study revealed that there are majority of staff nurses' had experience ranged from (5 to <10) and majority of them male at both hospitals. From the researcher point of view These results might due nature of clinical area as staff nurses especially females nurses are afraid to work at burn units, also nursing schools and faculties of nursing don't care about training students in burn units at internship period. These finding disagree with ***Ahamed and Mondal, (2014)*** who found that more than half of participants had less than one year of experience, and more than half of staff nurses were females.

The present study results shows that the majority of staff nurses in El-demerdash hospital were technical nurses who had Associate Diploma in nursing and also reveals that the majority of staff nurses in Orabi hospital were instituted in nursing. The result at El-demerdash hospital in agreement with the result of study done by ***The MOH***

Nursing Competency Program, (***2009)*** who found that the majority of participants 82% were technical nurses who had Associate Diploma in nursing. The result at Orabi hospital in agreement with the result of study done by ***Amer, Taha and Zaton,***(***2015)*** who revealed that more than two thirds of staff nurses had nursing institute education.

According to current study finding, there is a high proportion of staff nurses had low level of knowledge about burn in two settings of the study. From the researcher point of view this might be related to the majority of staff nurses didn't attend any training courses related to burn care. These results are in agreement with ***Alwutaib, Abdulgha four, Alfadhli, Makboul& El-Shazly,*** (***2012)*** who reported that level of knowledge regarding burn (definition. causes & calculation of burn area) was low.

The present study findings revealed that majority of staff nurses had low competency level of knowledge regarding infection control at both hospitals. From the researcher point of view might be due to unavailability of continuous education as workshops or conferences related to infection control with burned patients. These results are agreement with ***Ibrahim, Said &Hamdy,(2011)*** who found the majority of their studied group with low level of knowledge regarding infection control measures.

Also, the present results are agreement with ***Abdullah, Mohammed and Ismail, (2014)*** who revealed that 43% of the participants had poor knowledge regarding infection control. While , these results in contrast with ***Mussa and Abass, (2014)*** who shows that majority of staff nurses had good knowledge regarding infection control.

The results of the current study shows that majority of staff nurses had low competency level of knowledge regarding hazards materials safety at both hospitals. From the researcher point of view might due unavailability of policies and procedures related to hazards material safety in clinical area. These results in compatible with the study done by***Shaneberger,(2008)*** who found that the majority of participants with high competency levels of knowledge on the Hazardous Material Safety.

The present study findings shows that majority of staff nurses had low competency level of knowledge regarding medication administration at both hospitals , from the researcher point of view might be due to unavailability of medication administration policy in clinical area and there is no competency assessment for staff nurses regarding medication administration .These results disagree with ***Whelan, (2006)*** who indicated that there were 70% nurses had high competency level of knowledge among participant nurses .

Regarding competencies levels of staff nurses' total knowledge about Core competencies, the study reveals that the most of staff nurses had low competency level of knowledge at both hospitals , From the researcher point of view might due to training need assessment for staff nurses which done by quality department wasn't carried out resulting in absence of orientation training program for new staff and continuous training regarding nursing care for burned patients. These result in contrast ***Mussa and Abass, (2014)*** who revealed that the nurses knowledge were moderately adequate at Azady hospital in compare to adequate knowledge at western hospital..

The present study finding revealed that majority of staff nurses had low competency level of skills regarding infection control at both hospitals , From the researcher point of view might be due to inappropriate nursing staff to patients' ratio, unavailability of some resources which help staff nurses to apply infection control guidelines such as (Personal Protective Equipments , tissues) and finally might be

related to environmental barriers such as (distances between beds in ICU according to infection control guidelines, inadequate basin numbers which help staff nurses to apply hand washing.

This result of the present study was congruent with ***Mohammed and Taha, (2014)*** who clarified that nurses' practice in relation to infection control during provide care to burned patient was low. While , these results disagree with ***Chen & Chiang, (2007)*** showed that 75.8% had an intermediate level of performance in infection control.

The current study demonstrated that the majority of staff nurses had low competency level of skills regarding hazards materials safety at both hospitals , from the researcher point of view might be due to unavailability of policy and training program related to hazards materials safety. This result was in disparity with ***Armstrong, Spencer&Lenburg, (2009)*** who illustrates the competency levels of skills on the Hazardous Material Safety that there were (54.4%) participant nurses categorized in the high competency level of skills among participants.

Also the present study finding revealed that the majority of staff nurses had low competency level of skills regarding medication administration at both hospitals, from the researcher point of view might be due to lack of facilities in the units and other organizational factors such as nursing staff to patients' ratio and insufficient supplies . At the same line The result was in dissimilarity with ***Taylor, Lillis, LeMone& Lynn, (2008)*** who indicated that there is (68.8%) of study subjects with satisfactory competency levels of skills on the Medication Administration.

Concerning competencies levels of staff nurses' total skills about Core competencies, the study reveals that the most of staff nurses had low competency level of skills at both hospitals , From the researcher point of view this might be related to lack of training of staff nurses and lack of continuous performance appraisal of staff nurses by supervisors . This result in contrast ***Bahreini, Shahamat, Hayatdavoudi, Mirzaei, (2011)*** who shows that the majority of study sample had satisfied level of nursing skills.

According to study findings there are statistically positive significant correlation between staff nurses' knowledge and their skills at both hospitals . This result in the same line with ***Shahin et al. (2012)*** who stated that there is statistically significant correlation between participants' scores of knowledge and practice. Also, this result agree with ***Ahmed and Mondal, (2014)***who reported that there was statistically significant correlation between knowledge and practice of staff nurses. Also, agree with ***Yun et al.(2012)*** who stated that there is relatively statistical significance correlation between nurses' knowledge and their performance.

While, this result in contrast with ***Metwaly, (2013)*** who showed that there are no significant correlation where found between total nursing knowledge and practice. This findings at the same line with ***Whyte, Ward & Eccles, (2009)*** who study the relationship between knowledge and clinical performance in novice and experienced critical care nurses so , found that experienced nurses possessed highly superior knowledge when compared with novice nurses. These results consisted with ***Awodel et al., (2016)*** who stated that training and education were a useful tool to improve the nurses 'knowledge and performance.

The present study findings there are statistically positive significant correlation between Years of experience of the staff nurses and their total knowledge and skills scores at both hospitals. This result in

congruent with the results of the study done by ***TheMOH Nursing Competency Program, (2009)*** who shows that there were significant associations between the participant nurses years of experience and the participant nurses' competency levels of knowledge and skills. While, these results are contraindicated with ***Leseva et al.,(2013)*** who showed no significant relation between nurses' mean practice and knowledge scores and their level of experience .

Conclusion

In the light of the study findings, it was conclude that, high percentage of staff nurses had low competency level of total knowledge about burn and core competencies regarding (infection control , hazards materials and medication administration) at both hospitals . High percentage of staff nurses had low competency level of total skills about core competencies regarding (infection control , hazards materials and medication administration) at both hospitals. Also, the total measuring of competencies of staff nurses regarding their knowledge and skills at El-demerdash hospital was higher than the total measuring of competencies of staff nurses regarding their knowledge and skills at orabi hospital. There was a positive Significant correlation between staff nurses' knowledge and their skills. Also, There was a positive Significant correlation between staff nurses' years of experience and their total knowledge and skills.

Recommendations

In view of the main study findings, the following recommendation are proposed:

1. Nursing administration should develop effective training program related to Infection control, medication administration and hazards materials safety.

2. Nursing administration should improve supervision system to ensure the application and adherence to policies related to Infection control, medication administration and hazards materials safety.

3. Infection control manual should be available in burn units to be well known to all heath team members working in every unit particularly nurses.

4. Nursing administration should develop effective departmental policies and procedures for staff nurses related to nursing care for burned patients .

5. Provision of in-service training on regular basis in order to update and refresh practice related to nursing care of burned patients.

6. The researcher recommends that training course be mandatory yearly and that it should be a requirement for yearly nursing registration in hospitals.

For Research:-

1.Barriers affecting compliance to infection prevention and control measures among nurses providing care for burned patients.

2.Impact of nursing competencies on quality of nursing care and safety of nursing practice in burn unit.

Financial Support

No funding was received.

Conflict of interest:

No Yes

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