Nursing Performance Regard Caring For Patients Undergoing Blood Transfusion: Exploratory Descriptive study

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ABSTRACT

Nursing management of patient undergoing blood transfusion is important. A comprehensive understanding of blood transfusion process and areas requiring special attention would be important to reduce the complications arising from blood transfusion. All staff must be aware of all aspect of care and the principles of safe effective patient identification, using aseptic technique during transfusion, proper documentation and adequate management of adverse reactions. ***The aim of this study*** was to assess the nurses' performance (knowledge& practice) regarding management of patient undergoing blood transfusion and factors affecting nurses' performance during blood transfusion. **Setting**: the study was carried out at surgical and hematology departments at Ain Shams University Hospitals. **Study subjects:** A convenient sample of all available nurses (n=60) were included in this study, their mean age 31.6± 5.7 .**Data collection tools:** a) self administered questionnaire sheet. b) nurses' practice observational checklist. **Results & conclusion:** 70% of nurses had unsatisfactory knowledge regarding to management of patient undergoing blood transfusion and 80% of them showed unsatisfactory level of practice regarding to management of patients undergoing blood transfusion. Furthermore, there were many factors affecting nurses' performance as: nurses' related factors, work' related factors and patient' related factors. **Recommendations:** This study recommends the importance of in-service training courses to enhance the nurse's knowledge and practice and to avoid complications of blood transfusion.

Key words: Nursing performance , patient , Blood transfusion.

Introduction

Blood transfusion is a highly effective and potentially life-saving treatment for many patients and an essential component of modern health care. Red cell transfusions are the backbone of blood transfusion therapy as they account for the majority of components issued to patients. Blood is very valuable especially in saving lives of patients. Blood components are expensive and their preparation is limited. Therefore, they should be correctly selected and used for patients by all means. The aim of blood and blood components

transfusion in medical treatments is to provide suitable and safe blood products to achieve best

clinical outcomes *(Taylor, Lillis &Limone , 2014).*

In spite of its vital role in saving lives, blood transfusion is associated with risks, serious hazards of transfusion reported that approximately one wrong blood transfusion occurred in every 13,000 transfusions. Most transfusion errors are due to human factors, which are preventable through training and revision of transfusion protocols. Making mistakes in blood transfusion and insufficient control of patients who receive blood during the transfusion are among causes of death for such patients. Since there is no substituting product for human blood, the need for blood transfusion is still continuing. More than 50% of patients hospitalized in intensive care units and 50% to 70% of patients in surgical and

orthopedic wards need blood transfusion *(Serious Hazards of Transfusion Committee, 2012).*

Annual reports in Britain show serious risks of blood transfusion such as neglect in identification of blood type and its components, wrong identification of patients, and neglect in controlling patients during transfusion as main causes of mistakes. Therefore, considering the severe need for blood and blood components, along with limited sources and limited possibility of preparing each blood product, it is crucial to try by all means to increase the knowledge of medical personnel and providing necessary education to reduce consumption of complete blood and to use just the components necessary for patients' health, in order to reduce blood waste and transfusion complications *(Dzic, 2014).*

Adequate Knowledge about blood transfusion is very essential to help the staff involved in the transfusion chain to give the right blood to the right patient at the right time and hopefully for the right reason. Transfusion is a complex process that requires everyone, from senior doctors to porters and telephonists,to understand the vital role they play in safely delivering this key component of modern medicine. Training and appropriate technological and managerial support for staff is essential for safe effective blood transfusion *(World Health Organization , 2015).*

Nurse role starting before collecting blood from blood bank as she/he should positively identify the patient to avoid errors that may occur from incompatibility, she plays a critical role in ensuring that the transfusion of blood products is safe and that the patient is monitored adequately for complications of blood transfusion *(Donaldson, Seaman &Park 2014).*

Significance of the study:-

The safe supply of blood and blood products is vital to Egypt's health system as it is used in medical and surgical procedures, the managementof cancer and hematological diseases. When safe practices are not followed, transfusion of blood and blood products can create life-threatening risks leading to the spread of infectious diseases. In Egypt the high rate of viral hepatitis poses a particular threat *.*

Blood transfusions are common in clinical practice. In 2014/2015 National Health Service concerned with blood issued transfusion of 1.7 million units of red blood cells, 275,000 units of platelets, 215,000 units of fresh frozen plasma and 165,000 units of cryoprecipitate to hospitals in England and North Wales, despite considerable efforts to ensure the safety of blood transfusions, they are associated with significant risks, *(Serious Hazards Of Transfusion, 2015).*

World Health Organization, (2013) reported that the main bulk of errors, 80% can be due to human error and 42% of those errors occur when collecting and checking blood at the bedside, the risk of transfusion-related death was 5.6 per million blood components issued, and the risk of transfusion-related major morbidity was 63.5 per million blood components issued, the most common cause of death associated with transfusion was transfusion associated circulatory overload, right blood, right patient, right time, and bedside checking are the last chance to prevent an error.

While revising statistical office of blood bank at Ain Shams hospitals, it was found that 37.000 units of RBCs , 15.000 units of platelets and about 20,000 units of plasma was transfused last year, The highest rate of transfusion occurred at hamatology department (about 6500 units of different types of blood) Patients who need blood transfusion are usually ill and require advanced vigilant nursing care to prevent serious complications and decrease the incidence of morbidity. Complications that are more likely to occur if nurses caring for these patients do not have the necessary skills and training *(Statistical office of blood bank, Ain Shams hospitals)*

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Aim of the study:

This study is aimed to assess nurses' performance caring for patient undergoing blood transfusion through the following:-

- Assess nurses' level of knowledge regarding caring for patient undergoing blood transfusion.

- Assess nurses' practice regarding caring of patient undergoing blood transfusion.

- Assess factors affecting nurses' performance during blood transfusion.

Research questions:

- What is the level of nurses' knowledge regarding blood transfusion process?

- What is the level of nurses' practice regarding caring of patient undergoing blood transfusion?

- What are the errors that may result during blood transfusion?

subjects and methods

Study design: A descriptive exploratory design was utilized to meet the aim of the study.

Research setting:- The study was conducted in the surgical department and hematology units at Ain Shams University Hospitals.

Subjects:(Convenient sample) all available nurses (n=60) caring for patients undergoing blood transfusion in the previously mentioned units and agree to participate will be recruited in this study.

tool of data collection

Three tools were used to collect data of the study as following:-

Tool1: Nurses' knowledge and factors affecting nurses' performance during blood transfusion questionnaire sheet consists of two parts:

Part1: concerned with demographic data of nurses under study that include (age, gender, qualification, marital status…..etc)

Part 2: concerned with nurses opinion about factors affecting their performance that included (Work system, Work satisfaction, social factors, psychological factors and environmental factors).

Scoring System:-This part consists of 80 statement which grouped to five subgroups, work system (19 items), Work satisfaction (13 items), social factors (14 items), psychological factors (14 items) and environmental factors (20 items), the responses was ranged from 0 (strongly agree) to 5 (strongly disagree) and vice versa for negative factors.

All factors were positive except work system factor (2,6,8 &17), social factors (1,2,3,4&5) and all psychological factors)

-The scores of the items in each subgroups were summed up and the total multiplied by the number of items, give a mean score for the subgroups and a total mean for nurses opinion was categorized into negative or positive effect, the total score was (400) and divided into two categories as follows:
- < 70% had a positive effect on nurses' performance.
- ≥ 70% had a negative effect on nurses' performance.

Tool2: Routine blood transfusion knowledge questionnaire sheet, it used to assess nurses' knowledge about blood transfusion and consists of 5 parts:-
- Nurses' knowledge regarding patient preparation before transfusion,(10 items).
- Nurses' knowledge regarding blood pack collection (5 items).
- Nurses' knowledge regarding Pre-transfusion initiation nursing activities (4 items) .

- Nursing knowledge about activities that should be done during transfusion (14 items).
- Nursing knowledge about complications of blood transfusion and how to deal with (7 items).

Scoring system:-

The responses was on scale ranged from 0 (incorrect answer) to 1 (correct answer). A total score was(40 degree) the points were summed and converted into percentage, the total scoring system was classified as unsatisfactory level($<$70%),satisfactory level($\geq$70%)

Tool3:- Nurses Practice observational checklistse to assess nurses' practice regarding caring for patients undergoing blood transfusion; this part includes the following:

- **Pre-transfusion measures (10 steps).**
- **Verifying the right patient and right blood group(9 steps).**
- **During transfusion measures (30 steps).**
- **Post transfusion measures (11 steps).**

The scoring system for performance checklist :-(1) mark was given for done and (zero) for not done or done incorrectly. Total score of performance test was (62) The points were summed and converted into a percentage scoring, the total scoring system was classified as, unsatisfactory level ($<$70%), satisfactory level ($\geq$70%).

Content validity and reliability:

Testing validity of the proposed tools were reviewed by a panel of seven experts from medical-surgical nursing staff at faculty of nursing Ain Shames University to ascertain their face and content validity and relevance .**Testing reliability** of the proposed tools was done by Chronbach Alpha test.

Research implementation:-

- Explain the aim of the study to the hospital director to apply this study with nurses' caring for patient' undergoing blood transfusion .
- Explain the aim of the study to each nurse and take the approval consent from the participate in the study.

Assured that the obtained information will be confidential and used only for the purpose of the study

Ethical consideration:-

Ethical approval was obtained from the Scientific Ethical Committee of Faculty of Nursing, Ain Shams University. The purpose of the study was explained to the nurses before conducting the study and oral consent was obtained from them to participate in this study. They were given an opportunity to withdraw from the study without given a reason and they were assured that anonymity and confidentiality of information was protected. Ethics, values, culture, and beliefs were respected.

Pilot study:-

A pilot study were carried out on 10% of the total number of the study sample to test the applicability, clarity and efficacy of the tools, then the tool were modified according to the results of the pilot study. Those nurses were excluded from the study.

Field work

-The tools were developed by the researchers based on reviewing the recent and related literature.
-Data collection for this study was carried out in the period from December2015 to Febrauery 2016.
-Three tools sheets were used to assess nurses' knowledge and practice regard caring of patients undergoing blood transfusion.

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-The total time needed for monitoring the three activities for each nurse consumed about 110 minutes.

-The researchers were available in the morning shift four days per week by rotation.

Statistical analysis:

All data were collected, coded, tabulated and subjected to statistical analysis. Statistical analysis is performed by statistical package SPSS, also Microsoft office Excel is used for data handling and graphical presentation. Quantitative variable are described by the mean, standard deviation (SD), while qualitative categorical variables are described by percentage and proportions. Descriptive statistics are used to analyze the response to individual items and the respondents' characteristics. Chi-square and P-value test used to test correlation.

Results

Table (1):- Frequency distribution of demographic characteristics of studied nurses (n=60).

Items	NO	%
Age group (years):		
• 20-30	28	**46.6%**
• 30-40	24	40.0%
• 40-50	8	13.7%
Mean =31.6 **SD** = 5.7		
Gender		
• **Male**	15	25.0%
• **Female**	45	75.0%
Marital status		
• Married	40	66.7%
• Unmarried	20	33.3%
Level of Education		
• Diplome	34	**56.7%**
➢ Secondary school diploma	24	40.0**%**
➢ Technical institute diploma	10	16.7%
• BSC	26	43.3%
Experience in blood transfusion		
• <5	6	10%
• 5-10	26	**43.3%**
• 10-15	20	33.3%
• >15	8	13.3%
Mean =10 **SD**= 3.3		
Attendance of training courses		
• Yes	0	0.0%
• No	60	**100%**
Presence of policy related to blood transfusion		
• Yes	22	36.7%
• No	24	**40.0%**
• Don't know	14	23.3%
Reading the policy		
• Yes	6	27.3%
• No	16	72.7%

table (1): shows that, 46.6% of nurses under study were aged from 20 to 30 years old, mean ± SD (31.6± 5.7), and 43.3% of them had BSC degree in nursing , in addition 43.3% of nurses' years of experience were between 5-10 years, whenever all of them didn't attend training courses, regarding presence of policy 40.0% of the studied

nurses mentioned that there is no policy related to blood transfusion in their unit, and even the policy is present 72.7% of them reported that they didn't read it.

Table(2):-Frequency distribution of total Nurses' Knowledge regarding blood transfusion (n=60).

Knowledge items	Satisfactory		Unsatisfactory	
	NO	%	NO	%
• Patient preparation pre-transfusion	36	**60.0%**	24	40.0%
• Blood pack collection	40	**66.7%**	20	33.3%
• Pre-transfusion initiation nursing activities	2	3.3%	58	**96.7%**
• Nursing activities during blood transfusion	20	33.3%	40	**66.7%**
• Nursing activities post transfusion	15	25.0%	45	**75.0%**
• Complications of blood transfusion	14	23.3%	46	**76.7%**
knowledge total	18	30.0%	42	**70.0%**

table (2): shows that studied nurses have satisfactory knowledge about patient preparation pre transfusion and blood pack collection (60.0% & 66.7% respectively) while there is a drop in nursing knowledge about pre-transfusions initiation nursing activities, activities that should be done during and post blood transfusion and complications of blood transfusion (96.7%, 66.7%, 75.0%, 76.7% respectively). So that 70% of nurses have un satisfactory total knowledge.

Table (3):-Frequency distribution of total nurses' practice during caring for pts undergoing blood transfusion (n=60).

ITEMS	Satisfactory		Unsatisfactory	
	NO	%	NO	%
Pre-transfusion phase	48	**80.0%**	12	20.0%
Verification of patient and blood product identification	32	53.3%	28	**46.7%**
During transfusion	10	16.7%	50	**83.3%**
Post-transfusion	14	23.3%	46	**76.7%**
Total	12	20.0%	48	**80.0%**

table (3): revealed that 80.0% of nurses under study have satisfactory practice during pre transfusion phase (mean=7.2) while 46.7 % of nurses aren't concerned about verification of patient and blood product identification. there is also unsatisfactory practice during and post blood transfusion phase (83.3% & 76.7%) respectively whenever total nursing practice during blood transfusion is unsatisfactory (80%).

Table(4):- Correlation between knowledge and practice with job satisfaction (n=60).

Nursing performance	Job satisfaction		
	R	P	Sig
Knowledge	0.56	0.00000328	HS
Practice	0.64	0.00000004	HS

Table (4): shows the relation between nurses' performance (knowledge& practice) with job satisfaction, the studied sample revealed that there is a positive correlation between knowledge and practice with job satisfaction (R< 0.65).

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Table (5):- Correlation between total knowledge& Total practice (n=60*)*

Practice	Knowledge				X^2 Test			R
	Satisfactory		Unsatisfactory					
	No	%	No	%	X2	P	Sig	
Unsatisfactory	7	11.7%	5	8.3%	5.7	< 0.05	S	0.48
Unsatisfactory	11	18.3%	37	61.7%				

Table(5): reveals the correlation between nursing knowledge and practice, the study shows that there is a positive correlation between total level of nurses' knowledge and their practice (R<0.65).

Discussion

Since its establishment in the early twentieth century, blood transfusion or its constituents are infused to individuals through intravenous administration, it has been one of the most common procedures administered to hospitalized individuals. The transfusion of blood products is essential for restoring the body's oxygen transport capacity or replenishing depleted blood components (***Dzic***,***2013***).

Hijji,Parahoo,Hussien&Barr, (***2012***) whose study named Knowledge of blood transfusion among nurses coducted in England , stated that administration of blood products is consisting of five phases:1.patient preparation before collecting blood units from the blood

bank, 2.blood bag collection, 3. pre-transfusion activities, 4.activities that should be done during &post transfusion 5.monitoring of transfusion complications. While decisions to transfuse are determined by physicians, other phases are controlled by nursing staff. All phases need to be monitored and safeguarded by multiple parties to ensure efficacy and efficiency of the transfusion. Safe blood administration must be accompanied by proper documentation of related tasks, especially of reasons, time, duration, and operators, to ensure traceability and to facilitate look back procedures. Nurses are generally trained on the procedures of blood transfusion during their years of service. However, the level of knowledge varies among individuals and healthcare centers.

Regarding demographic characteristics of studied nurses the current study showed that, about half of nurses' ages were between 20 to < 30 years and had experience less than 10 years. This may explained that young nurses are occupied on less critical units to tolerate the nature of the work and to acquire more experience, the study is consistent with ***Pacard*** & ***Motowidlo,*** (***2014***)whose study named subjective stress and job satisfaction in italy revealed that about half of his studied subjects were between 20 to <30 years old with years of experience less than 10 years.Concerning nurses' qualifications, the present study indicates that, more than half of the studied nurses were diploma nurses (secondary school diploma & technical institute diploma),this might elaborate the current condition of nursing qualification on surgical and hematology departments as highly educated nurses are occupied in more critical departments such as intensive care

units and operative theaters. This finding is consistent with what was reported by ***Smith,Pirie&Donaldson*,(2014)**whose study named Adult nurses transfusion and safe transfusion practice in London stated that the largest numbers of nurses were recruited as staff nurses in the majority clinical nursing position in hospital. Moreover, ***WHO,(2012)***whose study named The clinical use of blood in Geneva stated that nurses graduated after completion of three years of nurses training are yield for largest number of nurses graduate and staff the majority of clinical nursing position in Egypt.

As regard to training courses, the result of the present study showed that, almost all nurses didn't receive training course about management of patient undergoing blood transfusion,In my point of view this may be due to lack of in-service training programs, the staff nurses did not aware about the importance of blood transfusion and the severe complications that may occur if an error occurred during transfusion process and there is no time for attending any extra training program because of work overload. The training course for nurses about management of patient undergoing blood transfusion is very important to improve their performance that affect positively on quality of care and prevent complication.

this results is agreed with ***Hegner, Acello& Caldwell,*** (***2012***) whose study named Nursing process approach in USA found that most of nurses didn't receive training courses about blood transfusion so that overall nurses had significant knowledge deficits of many aspect of blood transfusion as evidenced by the very low mean score they achieved. Whenever The results of current study is incongruent with ***Craig&Bower*,** (***2012***) whose study named blood administration in preoperative unites in Australia revealed that about three quarters of his studied subject attended training course about blood transfusion that result in a

satisfactory practice during transfusion process .

Regarding presence of policy, This study shows that more than one third of nurses said that there is no policy about blood transfusion in their unit and even the policy was present about two thirds of studied nurses didn't read it, this may be due to lack of awareness about the importance of the main purpose of blood transfusion policy which ensuring that the right patient receive the right blood component at the right time. This is supported by ***Mohammed*, (*2014)*** whose study named patient needs and nurses role in major trauma ,Faculty of nursing Ain Shams university stated that most hospitals have a lack of policies due to lack of awareness about the importance such issues.the study is incongruent with ***Bayraktar&Eradil,(2014***) who reported that more than three quarters of nurses have apolicy about blood transfusion that has been produced to state standards, manage risk and improve the quality of care to patients in relation to blood products transfusion. And this is agreed with ***Hall*, (*2014*)** whose study named the relationship between supervisors and registered nurses outcomes, stated that the blood transfusion policy aims to inform and guide healthcare professionals who are involved in the transfusion process of safe transfusion practice.

Concerning the total level of nurses' knowledge about all aspect of blood transfusion as; knowledge before, during and after blood transfusion, the study revealed that about three quarters of nurses had unsatisfactory level of knowledge regarding caring of patient undergoing blood transfusion.The lack of nurses knowledge may be due to few training courses were conducted in surgical and hematology departments, the wide base for nurses' education in Egypt is diploma, lack of awareness about the importance of blood transfusion, high turn over of nurses and annual leaves for child care that affect on

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number of nurses and this was supported by *Shulmanetal* (*2013*) who reported that insufficient knowledge has been attributed to deficiency in orientation or training and high turnover of nurses*,* whenever the UAE Ministry of Health requires nurses to engage in life long learning to maintain and improve professional knowledge.Similar results were reported by *BayraktarandErdil,* (*2014*) whose study named blood transfusion knowledge and pracice among nurses in Turkey revealed that about half of nurses had unsatisfactory knowledge about all phases of blood transfusion which result in improper practice. Whenever the study was in congruent with *Hossain,* (*2014*) whose study named Knowledge and attitude toward voluntary blood donation in East Africa reported that about three quarters of nurses have satisfactory knowledge about blood transfusion and only one quarter have unsatisfactory knowledge.

Regarding to nursing practice
during transfusion phase more than three quarters had unsatisfactory practice for example, regarding **use of aseptic technique** the study result revealed that the most of the nurses had inadequate practice score in relation to washing hands by aseptic technique and wearing sterile gloves before transfusion however their level of knowledge was satisfactory, this may be due to nurses not understanding how to use universal precaution in their work, lack of training courses about infection control practice, lack of supervision and lack of awareness with component of infection control program for patient undergoing blood transfusion. These explanations were agreed by *Fernandez et al. (2014)* whose study named blood transfusion outcomes reported that the lack of a formal infection control program was in most cases due to lack of availability of resources. Nurses might give more importance to hand washing after rather than before any interaction.These findings was consistent with, *Henger, Acello& Coldwell, (2012)* whose study named Nursing process

Approach in USA showed that the performance of three quarters of nurses was unsatisfactory regarding washing hand. The study was also consistent with *Ward and Wilson (2015)* who noted that the majority of the subjects were not seen to wash their hands and wear sterile gloves before caring of patient undergoing blood transfusion. Meanwhile, the results is incongruent with *Hafeze (2012),* whose study named acquisition of infection among nurses at faculty of nursing Ain Shams university revealed that sterile technique was followed by more than half of his study sample.

As regard nurses' practice in relation to measuring vital signs during transfusion phase, the current study revealed that most of nurses had unsatisfactory practice, this may be due to work over load and nurse was assigned to care for more than four patients at the same time, the study is agreed with *Harrisetal.,* (*2013*)s on administration of blood component in Paris whose study named Guidline, who revealed that only 2% of studied nurses measure vital signs frequently during transfusion phase while, *Atterbury*& *Wilkinson* (*2014*),whose study named Blood transfusion nursing standard showed that more than half of his study sample measure vital signs first after 15 minutes, then after 30 minutes and hourly until transfusion is finished, vital signs is very important measure that nurse should take care of for early detection and adequate management of any adverse reaction, (*Dzik*,*2013*).

Concerning nurses' practice
regarding to assessing signs & symptoms of adverse reaction during blood transfusion process, most of nurses had unsatisfactory practice related to assessing vital signs for fever, tachycardia,hypotension or tachypnea, assessing the patient for abdominal pain, observing the patient for jaundice that may occur due to hemolysis and assessing urine out put as it decrease if reactions occur. In my point of view this may be due to nurses

believe that the physical assessment done only by physician and not the responsibility of the nurses. The study was consistent with *Murphy et al.,*(*2013*) whose study named Indications of transfusion in Australia revealed that one quarter of his study sample had adequate knowledge about manifestation of transfusion reaction,Acute transfusion reactions may occur in 1% to 2% of patients and may be fatal (*WHO , 2012*).

Pertaining to the relation between performance (Knowledge and practice) with job satisfaction, the current study revealed that there was significant correlation this may be explained that satisfied nurses doing well and are motivated for acquiring knowledge and practice this is agreed with *Dieleman et al.,* (*2013*) who stated that several organizational theories are based on that organizations that are able to create a positive environment and make their employees happy will have more productive employees. Over the years, experts examined this idea that a happy worker is a productive worker; however, this study was consistent with *AlBadayneh&Sonnad* (*2014*) whose study named Performance and satisfaction relationship in Jprdain revealed that there is significant relation between job satisfaction and performance The study identified a strong relationship between nurses overall effectiveness and overall satisfaction, as well as a relationship between nurses' job satisfaction and performance. Job satisfaction leads to a number of consequences among nurses such as more productivity, high quality of care, and intent to remain in the organization. Job dissatisfaction on the other hand was found to lead to absenteeism, grievance, decreased productivity, poor performance and affects turnover intentions as well as absenteeism among nurses *Shader et al.,*(2014).

Regarding to the relation between nurses' knowledge and practice, the current study revealed that there is significant relation.Whereas, nurses who got unsatisfactory knowledge had unsatisfactory practice, this means that the level of nurses' performance depend on the nurses' knowledge. This may be due to lack of in-service training program to provide nurses' with continuous professional development, knowledge also make nurses aware about how to deal with any reaction this study is consistent with (*Hossain et al., 2014*) whose study named Knowledge and attitude toward voluntary blood donation in East Africa revealed that there is strong correlation between knowledge and practice.

In summary, the results of the study revealed that, about three quarters of study subjects have unsatisfactory knowledge, four fifth of nurses practice unsatisfactory and about half of nurses are unsatisfied about factors affecting their performance so that there is a need to focus on development of nursing staff knowledge, skills and attitude, so effort should be directed towards enhancing creativity among nurses. Nurses must have access to updated information, learning resources, and continuous educational opportunities. The nurses must constantly seek better ways to improve their care to patients undergoing blood transfusion through acquiring knowledge and through implementing the established standards of care which must be up dated periodically.

Conclusion

It was concluded from this study that:
About three quarters of nurses had unsatisfactory knowledge regarding to different aspects of management of patient undergoing blood transfusion and majority of them showed unsatisfactory level of practice regarding to management of patients undergoing blood transfusion. Furthermore, there were many factors affecting nurses' performance as: nurses' related factors as negative effect on their performance from work overload, work' related factors such as improper health insurance and patient' related factors.

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Recommendations

In the light of the findings, the following recommendations are proposed:-

Recommendations to improve service:-

-Hospitals should establish policies for blood transfusion and should be available at each department.

-All departments of hospitals should be supplied by blood transfusion checklists, supplies and equipment.

-For the administrative point of view, clear job description for nurses and sufficient number of qualified nurses should be provided throughout the three shifts for improving efficient quality of care needed to patients undergoing transfusion.

-Close supervision is needed to ensure that quality of care is provided by nurses while management of patients undergoing transfusion.

- *Recommendations for nurses education*
-Establish in-service training programs for continuous updating nurses' knowledge about blood transfusion and periodic test about blood transfusion and how sterile technique should be followed.

-Because of the potential associated hazards, nurses require procedural skill to improve nurses practice.

-Develop a protocol for blood transfusion,written in Arabic and English which contain checklist about technique of blood transfusion, blood transfusion complications, how to assess patient and nursing care during transfusion.

-Establish workshop to improve patient identification practice and proper bedside checking, the workshop presentations outlined avariety of technological (barcoding, red label system and photoidentification) and non technological (continuing educational and training solutions that were selected by an expert panel.

-Periodic test about blood transfusion and how to use sterile technique should be done.

- *Recommendations for further studies:-*

-Further studies is recommended to evaluate the reflection of in-service training program regarding management of patients undergoing blood transfusion on nurses' performance and consequently on the patients' outcome.

-Developing a simplified and comprehensive booklet including guidelines about nursing management of patients undergoing blood transfusion.

- *Limitations of the study:-*

-The study should be replicated on large sample and different hospitals setting in order to generalize the results.

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