

**Research Article**

# Nurses' Knowledge Toward Blood Transfusion Reactions: Is It Enough?

AMER ABDULLA SACHIT<sup>1</sup>, DOAA SAMI RASHASH<sup>1</sup>, HUSSEIN FAKHER KAMEL<sup>2</sup><sup>1</sup>University of Thi-qar<sup>2</sup>University of Basrah

Received: 14.04.20, Revised: 25.05.20, Accepted: 09.06.20

**ABSTRACT**

Blood transfusion has a remarkable and direct influence on condition of the patient. So, the role that nurse playing in this process is very important and integral role to preserve safety of the patient regarding blood transfusion. Aim. Current study intended to assess the knowledge level concerning reactions of blood transfusion among nurses. Setting. current study was implemented in various units in AL Hussein Teaching Hospital in Al-Nasiriyah city. Sample: A (random) sample that include 100 nurses working in multiple departments in AL Hussein Teaching Hospital. Tools: Structured questionnaire sheet was used to gather the data. Results: (62%) of nurses had low knowledge level regarding to reactions of blood transfusion. In addition, there were no statically significant relationships between socio-demographic characteristic of the nurses and their knowledge regarding to blood transfusion reactions. (except for place of work). Conclusion: Current study conclude that with lack in theoretical knowledge, nurses is at risk of using bad judgment and deficiency in the tools needed to learn from practice.

**Keywords:** blood transfusion reactions, assessment of knowledge, nurses.**INTRODUCTION**

Blood transfusion is a basic part and of tremendous importance in patient intervention worldwide. Along with current technological advancement, blood transfusion is attracts the nurses' concerns gradually. This imposes direct and close partnership with the health care team to guarantee appropriate and optimum application of blood transfusion services. Knowledge deficiency of safe blood transfusion practices amongst nurses can result in negative consequences in the transfusion beneficiaries.

Transfusion medicine has advanced and grown greatly during past few years and that consequently resulted in massive improvement in transfusion safety. Primarily, the emphasis of safety during blood transfusion was to lessen the infectious agent's transmission through blood transfusion in addition to enhance blood quality. While not focusing on noninfectious risks, these resulted in noninfectious hazards prevail over the infectious hazards. Now days, the attention has changed toward clinical setting of blood transfusion rather than the direct practice areas of the laboratory Khetan ,D. et al. (2018).

However, although transfusion of blood improve patients health outcome, it is carry some serious risks (Hijji et al.,2016). Nurses possess essential role of blood transfusion process. Also, the practice of nurses and blood transfusion safety is highly reliant on nurses' knowledge and skills which will result in minimizing hazards of blood transfusion process (International Society of Blood Transfusion,2011), (Khalil,S. et al., 2013).

A study by Mark, F.(2011) has identified that knowledge deficiency concerning blood transfusion among health care providers is perhaps the main problem in improving transfusion practices consistency. The researcher suggested educational sessions of end users to reduce the crack in medical education relating to blood transfusion medicine.

In addition, the hospital committee of blood transfusion ought to take authority in the hospital for determining blood transfusion policy within the hospital to minimize complication and solving problems(Liumburno,G.,M.,& Rafanelli,D.,2012) . However, beside hospital transfusion committee in making policies, the role of education and audit are still substantial in improving of blood transfusion practices ( Haynes, SL., Torella, F.,2004).

**MATERIAL AND METHODS****Study Design:**

Descriptive study design is applied during the current study to reach the aims of the study during the period from 19<sup>th</sup> of February 2019 to 1<sup>st</sup> of May 2019.

**Setting of the Study:**

The study was applied at AL Hussein Teaching hospital in Al-Nasiriyah city, Thi-Qar, Iraq.

**Study Sample:**

A probability (random) sample of (100) nurses was choosed, who were working in different areas of the AL Hussein Teaching Hospital.

**The Study Instrument**

Part 1: Demographic Data:

Socio-demographic data sheet composed of six points that included (age, gender, years of experience, educational level, place of work, training sessions).

Part 2: Part II. Clinical information regarding blood transfusion and its reactions:

The questionnaire is consisted of (18) items separated into three domains.

**First domain:** (6) items connected to general Information about blood transfusion.

**Second domain:** (6) items related to Information about blood transfusion reactions.

**Third domain:** (6) items linked information about blood transfusion reactions management.

These items were rated according to the following scale; ["correct" is given (1); "not sure" is given (2); "incorrect" is given (3)]

**Data Collection:**

Data were gathered by application of the constructed questionnaire after estimation of the reliability and validity.

**Pilot Study**

In order to estimate the study instrument (questionnaire) reliability, A (10) nurses sample were designated; pilot study was conducted at AL

Husseini Teaching Hospital during the period from 1<sup>st</sup> of February to 15<sup>th</sup> of February 2019. The sample of the pilot study was excluded from the original study sample.

**Validity.**

Study instruments validity were determined by a group of (9) experts, who had more than 5 years of experience in the study field.

**Reliability.**

Questionnaire reliability was estimated by the use of test re-test method on ten nurses. Outcomes displayed acceptable level of constancy and internal consistency of major items regarding responses' of the questionnaire, responses were calculated through applying the Alpha Cronbach parameter, which exhibit that the person correlation coefficient = (0.83).

**Statistical Analysis.**

With the intention of analyze the study data, the statistical package of social sciences (SPSS) ver. (25) were used (Percentage, Frequency, Mean, Standard deviation, Mean of score, and Chi-square).

**RESULTS**

**Table 1: Distribution of Nurses according to Socio - Demographic Characteristic n= 100**

SDVs	Group	Frequency (F)	Percent (%)
Age	20-25 years old	70	70.0
	26-30 years old	12	12.0
	31-35 years old	12	12.0
	36 years old and over	6	6.0
	Total	100	100.0
$\bar{x} \mp S.D = 26.03 \mp .930$			
Gender	Male	22	22.0
	Female	78	78.0
	Total	100	100.0
Level of Education	Nursing school graduate	28	28.0
	Nursing institute graduate	32	40.0
	Nursing college graduate	40	32.0
	Total	100	100.0
Years of Experience	1-5 years	72	72.0
	6-10 years	14	14.0
	11 years and over	14	14.0
	Total	100	100.0
Place of Work	E.R	26	26.0
	I.C.U	34	34.0
	Ward	40	40.0
	Total	100	100.0
Do you attend blood transfusion sessions?	Yes	46	46.0
	No	54	54.0
	Total	100	100.0

%=percentage, F= frequency, n= number of samples

Table (1) shows that the most of the study subjects were female subjects (78%) from (20-25 years) age group. The highest educational status of the participants was reported to be (40%) of bachelor degree in nursing. Majority of the study subjects

(40%) are working in general wards with (1-5) years of experience.

Regarding attendance of blood transfusion sessions, more than half of the study subjects (54%) have not attended blood transfusion sessions

**Table 2: Assessment of nurses knowledge regarding items of the questionnaire (Cut of point= 2) (n=100)**

Item	Correct		Not sure		Incorrect		M.S	Ass.
	F	%	F	%	F	%		
Any hemorrhage (regardless of the severity) can be an indication for blood transfusion.	60.0	60.0	10	10.0	30	30.0	2.3	Pass
Whole blood should be stored at +10°C to +15°C.	44	44.0	54	54.0	2	2.0	2.42	Pass
Medication may be added to blood unit.	8	8.0	10	10.0	82	82.0	1.26	Fail
Blood transfusion order can be issued only by clinician.	88	88.0	0	0.0	12	12.0	2.76	Pass
Blood unit must be discarded if it has been out of the refrigerator for longer than 50 minutes.	78	78.0	14	14.0	8	8.0	2.7	Pass
Blood may be warmed in a bowl of hot water.	66	66.0	18	18.0	16	16.0	2.5	Pass
Transfusion reaction may be acute or delayed.	94	94.0	6	6.0	0	0.0	2.94	Pass
Acute transfusion reactions occur within first 12 hours.	42	42.0	36	36.0	22	22.0	2.2	Pass
Delayed transfusion reactions occur after 24 hours.	44	44.0	42	42.0	14	14.0	2.3	Pass
The reactions severity is related to the volume of blood transfused.	64	64.0	14	14.0	22	22.0	2.42	Pass
symptoms and signs of blood reactions may appear within minutes of transfusion of 5- 10 mL of blood.	84	84.0	10	10.0	6	6.0	2.78	Pass
The only transfusion reaction signs in an unconscious or anesthetized patient is itching and shortness of breathing.	54	54.0	24	24.0	22	22.0	2.32	Pass
The management of transfusion reaction is similar regardless of the severity.	64	64.0	24	24.0	12	12.0	2.52	Pass
The first step wen a transfusion reaction occur is to slow or stop the transfusion.	84	84.0	6	6.0	10	10.0	2.74	Pass
After stopping the transfusion, IV line should be kept open with normal saline in another site.	48	48.0	46	46.0	6	6.0	2.38	Pass
In case of mild reaction, I.V corticosteroids and bronchodilators may be given to the patient.	80	80.0	16	16.0	4	4.0	2.76	Pass
It's important to take a fresh blood and urine samples when a moderate or severe reaction occur.	52	52.0	42	42.0	6	6.0	2.46	Pass
If clinical improvement occurs in moderate reaction, transfusion can be restarted slowly using the same blood unit.	58	58.0	22	22.0	20	20.0	2.38	Pass

Table (2) shows that nurses have passed almost all items of the questionnaire (except for one item).

**Table 3: Relationship between SDVs and nurses knowledge regarding main domains**

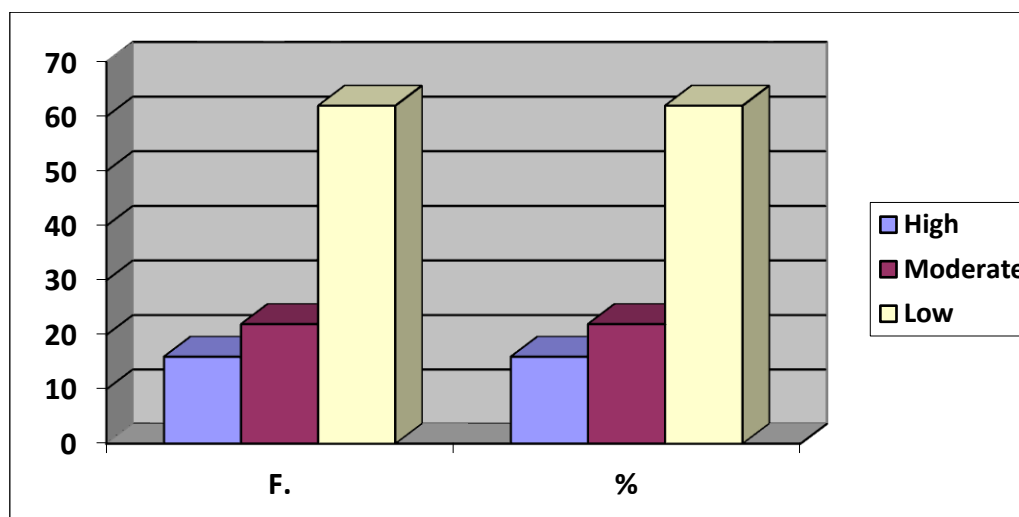
Main Domains \ SDVs	Age		Gender		Level of education		Years of experience		Place of work	
	X <sup>2</sup>	Sig.	X <sup>2</sup>	Sig.	X <sup>2</sup>	Sig.	X <sup>2</sup>	Sig.	X <sup>2</sup>	Sig.
General Information about blood transfusion	19.177	.574	3.278	.858	20.261	.122	9.717	.783	26.359	.023
Information about blood transfusion reactions	27.747	.271	19.704	.012	23.658	.097	23.851	.093	36.634	.002
Information about blood transfusion reactions management	30.908	.275	14.074	.120	17.212	.509	19.694	.350	34.428	.011
<b>Total</b>	<b>64.694</b>	<b>.796</b>	<b>23.291</b>	<b>.561</b>	<b>60.847</b>	<b>.140</b>	<b>44.084</b>	<b>.709</b>	<b>71.069</b>	<b>.027</b>

SDVs: Sociodemographic variables, X<sup>2</sup>: Chi-square, Sig.: Significance.

Table (3) illustrates the relationship between SDVs and knowledge level concerning main domains and total level of knowledge.

Figure (1) shows knowledge levels of nurses

where most of them (62%) were have low level and (22%) were have moderate level, while only (16) were have a high knowledge level regarding blood transfusion reactions.



n= number of samples, F= frequency, %= percentage.

**Fig.1: Total Knowledge of nurses regarding blood transfusion reactions**

**DISCUSSION**

The role of the nurses during blood transfusion process is very essential and important. Therefore, the nurses should have sufficient knowledge to all aspects regarding process of blood transfusion to preserve safety of the patient.

The results of the current study presented that the majority of the sample were females; most of them were have BSc degree in nursing. This result was in congruence with Asmaa & Zeinab (2017), Silva et al. (2016) who stated that most of studied sample were female that have Bachelor degree in nursing. The present study demonstrated that mainstream of study sample did not receive any training program related to blood transfusion, this result agreed with

hamed, G.,H.(2011) who found that most of nurses did not join or participate in any preceding educational program regarding blood transfusion process.

The current study identified that majority of study participant had poor knowledge associated with blood transfusion reactions, this result agree with Khalil,S. et al.,(2013) who showed that inadequate knowledge level about blood transfusion and reactions of blood transfusion, which exhibit the deficiency in their scientific training.

The present study presented that the majority of study sample had poor knowledge regarding blood transfusion complication, this outcome as the same line with Silva et al.(2009 ) who detected that most

of the study sample had insufficient knowledge and care associated to blood transfusion complications, however this result in incongruence with Yaghoobi et al. (2014 ) who clarified that majority of studied sample had sufficient knowledge related to complication of blood transfusion.

From the researchers' viewpoint, this incongruity may be because of that experience teaches nurses how to manage reactions of blood transfusion. In addition, poor education and training program and insufficient sustenance of knowledge intermittently result in poor nurses' knowledge that expose patients to jeopardy during the period post blood transfusion.

The current study showed that there were statistically significant relationship related to knowledge score and sociodemographic data (place of work in specific), the researcher clarified this as some nurses in particular places have more chances to utilize blood transfusion process and gain a more "practical experience" than other nurses in other places of the hospital, and thereby will have more knowledge regarding blood transfusion process and its reactions.

#### RECOMMENDATIONS

Taking in consideration the results of the study, the researcher recommend the following:

- Increase the knowledge level of nurses about correct handling of blood and utilization of blood transfusion process, which will lead to better practice and reduce reactions of the process.
- Continues follow up of the blood transfusion process can help in prevention of adverse reactions.
- Using and application of blood transfusion standards will help in preserving of patient safety and wellbeing.

#### REFERENCES

1. Asmaa & Zeinab.(n.d.)Nurses' Knowledge Assessment Regarding Blood Transfusion to Ensure Patient Safety. IOSR Journal of Nursing and Health Science. 6, ( 2 ), PP 104-111
2. Friedman, M.,T.(2011). a little consistency please. Blood Transfusion . Blood transfusion practices: 9,362–365.
3. hamed, G.H.(2011).Effect of Designed Nursing Protocol On Nurse's Knowledge and Practice Regarding Hemodialysis Patients. (Published Thesis )Submitted For Partial Fulfillment Of Master Degree In Medical And Surgical Nursing Faculty Of Nursing,Assiut University. Retrieved from: [https://www.researchgate.net/publication/315343580\\_Nurses'\\_Knowledge\\_Assessment\\_Regarding\\_Blood\\_Transfusion\\_to\\_Ensure\\_Patient\\_Safety](https://www.researchgate.net/publication/315343580_Nurses'_Knowledge_Assessment_Regarding_Blood_Transfusion_to_Ensure_Patient_Safety).
4. Haynes, SL, & Torella, F.(2004). The role of hospital transfusion committees in blood product conservation. Transfus Med Rev .18,93–104.

5. Hijji, B., Oweis, A., Dabbour, R.(2012). Measuring Knowledge Of Blood Transfusion: A Survey Of Jordanian Nurses. American International Journal Of Contemporary Research. 2(10) Retrieved from: [Www.Ajcrnet.Com](http://www.ajcrnet.com) .
6. International Society of Blood Transfusion.(2011). ). the Role of the Transfusion Nurse in the Hospital and Blood Center. Retrieved from: <https://onlinelibrary.wiley.com>
7. Khalil,S., Mohammad,Z., Ez El-Deen,M., & Ahmed,N.(2013). Blood Transfusion. Impact Of Implementing A Designed Nursing Intervention Protocol On Nurses' Knowledge And Practice Regarding Patients Undergoing Blood Transfusion. Med. J. Cairo Univ. 81(2) 163-71 Retrieved from: [Www.Medicaljournalofcairouniversity.Net](http://www.medicaljournalofcairouniversity.net)
8. Khetan D., Katharia, R., Pandey ,H.,C., Chaudhary, R., Harsvardhan, R., Pandey, H., & Sonkar, A.(2018). Assessment of bedside transfusion practices at a tertiary care center: A step closer to controlling the chaos. Asian J Transfusion Science 12(1), 27-33
9. Liumbruno, G.,M.& Rafanelli, D.(212). Appropriateness of blood transfusion and physicians' education: a continuous challenge for hospital transfusion committees. Blood Transfus 10:1–3
10. Silva,K., Floriano,D., Duarte,R., Tavares,J., Félix,M., Silva,Q., Andrade,L., Ferreira,L., Barichello,E., & Barbosa,M.(2016). Blood Transfusion In Cancer Patients: Knowledge Of The Nursing Team. International Archive of Medicine. 9(1), 341.
11. Silva. MA., Torres, GV., Melo, GSM., Costa, IKF., Tiburcio, MP, Farias,TYA.(2016). Conhecimento Acerca Do Processo Transfusional Da Equipe.De Enfermagem Da UTI De Um Hospital Universitário. Ciênc. Cuid.Saúde .8(4), 571 .578. Fetrieved from: [Http://Periodicos.Uem.Br/Ojs/Index.Php/Ciencuidsaude/Article/View/9676/5389](http://periodicos.uem.br/ojs/index.php/ciencuidsaude/article/view/9676/5389).
12. Yaghoobi, M., Shirzaie,Kianoosh, Sotvaan, Homa,Yaghoobi Pheyzabad, Esmat, Yoosefian Miandoab, & Nazanin(2014). Knowledge Level of the Staff's About Blood Transfusions in Hospitals in East of Iran. Science Road Journal. 02 (01), 91-96.