

ORIGINAL ARTICLE

Knowledge and Practice of Blood Transfusion among nursing students in UiTM Puncak Alam Campus

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Abstract:

This study aimed to determine the knowledge and practice of blood transfusion among nursing students in UiTM Puncak Alam Campus. The study utilized a descriptive cross-sectional design approach using 157 nursing students who were selected. A modified Routine Blood Transfusion Knowledge Questionnaire (RBTKQ) was used to collect information in seven sections consists of demographic details, issues relating to patient preparation, blood pack collection, pre-transfusion, post-transfusion initiation nursing activities, a complication related to blood transfusion and issues related to blood transfusion policies and procedure. The practice of blood transfusion questionnaires which were structured along a three-point Likert scale. Data were analysed with SPSS version 22. Results showed that nursing students have poor knowledge in blood transfusion but they have good practice in blood transfusion. On common error, the respondents sometimes forgot to practice to take vital sign, especially about measured baseline respiration throughout the transfusion process. This study concludes that nursing students have poor knowledge of blood transfusion but always good in practice.

Keywords: blood transfusion, knowledge, nursing, practice, students

ARTICLE HISTORY

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1. INTRODUCTION

Blood transfusion was a method in which the components of blood are transferred from an individual to another [1]. The reason for blood transfusion was to improve the blood capacity to increase its oxygen-carrying capacity. Blood contains of red cells, platelets, fresh frozen plasma and cryoprecipitate in which treatment was often used in curing hematologic diseases [10]. Most procedures depend on blood products as support. Blood transfusion was the only choice for survival for many patients which depend on blood transfusion of the nurses' knowledge and practice [1].

Moreover, there are greater risk in error of blood transfusion for instance errors in identify the correct patient, blood types, cross-matching and other of human errors. Error in patient's identifications because of the vague or lacks of standard of the procedures in recognize the patient. Healthcare centre should be more concern to avoid error in blood transfusion and guard patient safety due transfusion of incompatible of blood can endanger a person's life [5]. A total of 3288 cases were reported in the Serious Hazard of Transfusion (SHOT) report in the year 2015 regarding blood transfusion [3]. Through a trend of blood transfusion, it has increased globally which has increases from 85 million units of transfusion in 2012 to 112.5 million of donations in the year 2016 [4,16]. Lack of knowledge of safe transfusion practices among health clinicians can cause to unfavourable consequences in the transfusion to the patients [9].

Therefore, the collaboration with the other healthcare was required to ensure proper utilization of blood transfusion services.

Almost half of the nurses were not aware that most of wrong blood transfusions that result in severe morbidity and mortality which affected by misidentification of patients, especially when blood sampling is taken and final bedside checking [12].

In addition, the previous study found that nurses knowledge was lack regarding blood transfusion which can threaten patient's safety and thus placed the patients at life-threatening conditions [6]. Nursing has an important role in ensuring safety transfusion, because the nursing team is responsible for knowing the indications for transfusions, checking data to prevent errors, guiding patients on blood transfusion, detecting and acting in compliance with transfusion reactions and documenting the procedure [15].

Objectives

1. To identify student nurses' knowledge of blood transfusion
2. To determine student nurses' practice of blood transfusion
3. To identify the relationship between student nurses' knowledge and practice of blood transfusion

2. MATERIALS AND METHODS

2.1. Study Setting and Design

This study was conducted in Universiti Teknologi MARA (UiTM) Selangor, Puncak Alam Campus. The design used was descriptive quantitative with an approach of cross-sectional study design.

2.2. Population and sampling method

Second, third and fourth-year full-time nursing students at UiTM Puncak Alam Campus was involved in this study as they have learnt the topic of blood transfusion. Students who are on extended leave and e-pjj students were excluded. Convenient sampling technique was used to gather the participants.

2.3. Sample Size

The minimal sample size required from the total of the population ($N=262$) were $n=157$. The margin of error 5%, the confidence level of 95% and population proportion of 50% were calculated using Raosoft Sample Size Calculation.

2.4. Instruments

Routine Blood Transfusion Questionnaire was adopted with permission [7]. This questionnaire had 40 items consists of true or false and multiple choice question with 7 sections.

Section A: A socio-demographic data which 4 items where included education level, age, year of study, and gender.

Section B to G: Training, issues relating to patient preparation, blood pack collection, pre and post-transfusion initiation nursing activities, a complication related to blood transfusion and issues related to blood transfusion policies and procedure. Reliability, validity test and reliability coefficients (Cronbach's Alpha) is 0.727.

Preparation Before and After Blood Transfusion Questionnaire were adopted with permission [14]. This questionnaire consists of 22 questions of preparation before blood transfusion and 12 questions after blood transfusion with three-point Likert scale which are always, sometimes, and not at all. Its validity and reliability were tested with Cohen's kappa = 1.

2.5. Ethical Approval

Ethics was approved by the Research Committee, UiTM Shah Alam in February 2019 with reference number 600-IRMI (5/1/6).

2.6. Pilot Study

Ten percent of total respondents' equivalent to 20 respondents was involved in this study.

2.7. Data Collection

Data collection started on 23rd March and was completed by 6th April 2019.. A short briefing was given regarding the title and objectives before the respondents were allowed to answer the questions. This is to ensure they have good understandings. They were allowed to ask for help if were to have difficulty during answering questionnaires. The subject information and consent form was attached with the questionnaires for them to fill up. The respondent took about 20 minutes to complete the questions. The completed questionnaires were collected to be analysed. All the data of the respondents are kept private and confidential in one envelope.

2.8. Data Analysis

Data entry and analysis were done using the statistical software Statistical Package for Social Sciences (SPSS) Version 22.

Frequency and percentage were calculated to determine the level of knowledge and level of practice of the blood transfusion. The data of the knowledge was given a score which the total mark was 56. Each correct answer was awarded one mark; the item in the identification of patient was awarded five marks because it was a multiple step procedure. No mark was awarded if nursing students selected two answers that are conflicting in meaning. Besides, if nursing students answer to an item by "I do not know", it will be treated as incorrect. For poor knowledge, the percentage was less than 50%, the moderate knowledge ranged from 50%-75% and good knowledge was ranged 75% and above [6].

The maximum score for the question of the practice was 34 points. If nursing students were responds to the Likert-scale "not at all and sometimes", it will be awarded zero mark while for Likert-scale "always", the respondents will get one mark. For poor practice, the percentage was less than 50%, while good practice was more than 50% [8].

Chi square test was used to determine the relationship between knowledge and practice of blood transfusion.

3. RESULTS

3.1. Socio-demographic Information

Table 3.1 shows the background of the respondents. The educational level showed 72 respondents (45.9%) have a diploma and 85 respondents (54.1%) have a bachelor. This represented the highest number of respondents are Bachelor and the lowest are Diploma.

Next, the age showed 54 respondents (34.4%) are 20 years old, 26 respondents (16.6%) are 21 years old, 52 respondents (33.1%) are 22 years old, 24 respondents (15.3%) are 23 years old and 1 respondent (0.6%) is 24 years old. The

highest number of respondents showed 20 years old and the lowest is 24 years old.

Based on a year of study, 73 respondents (46.5%) are the Second Year and followed by 61 respondents (38.9%) are the Third Year. Besides that, 23 respondents (14.6%) are Forth Year. This represented the highest number of respondents for the Second Year and the lowest are Forth Year.

Then, the gender showed 17 respondents (10.8%) are male and 140 respondents (89.2%) are females. It showed that the number of female respondents is higher than male.

Lastly, based on performed blood transfusion showed 8 respondents (5.1%) are none at all. Meanwhile, the respondent performed blood transfusion by one to four times with 102 respondents (65%) and between 5 to 8 times showed 44 respondents (28%). There are three respondents (1.9%) performed blood transfusion between 9 to 12 times. This represented that the highest number of respondents are between 1 to 4 times and the lowest are between 9 to 12 times.

Table 3.1: Background of the Respondents

Demographic	Frequency (f)	Percentage(%)
Educational Level		
Diploma	72	45.9
Bachelor	85	54.1
Age		
20 years old	54	34.4
21 years old	26	16.6
22 years old	52	33.1
23 years old	24	15.3
24 years old	1	0.6
Year of Study		
Second Year	73	46.5
Third Year	61	38.9
Forth Year	23	14.6
Gender		
Male	17	10.8
Female	140	89.2
Performed Blood Transfusion		
None at all	8	5.1
1-4 times	102	65.0
5-8 times	44	28.0
9-12 times	3	1.9

3.2. Knowledge of blood transfusion

Table 3.2 shows the result based on knowledge about blood transfusion among nursing students. Based on the result, there were 77 respondents (49%) are poor knowledge of blood transfusion. Then the moderate knowledge showed 65 respondents (41.4%) and good knowledge are 15 respondents (9.6%).

Table 3.2: Knowledge of Blood Transfusion

Knowledge	Frequency (f)	Percentage (%)
Poor	77	49.0
Moderate	65	41.4
Good	15	9.6
Total	157	100.0

3.3. Practice of blood transfusion

Table 3.3 shows the result based on practice of blood transfusion among nursing students. Based on the result, there were 7 respondents (4.5%) are poor practices of blood transfusion. The poor practice showed the respondents not at all and sometimes practice of blood transfusion. While the good practice showed 150 respondents (95.5%). The good practice showed the respondents always practice of blood transfusion.

Table 3.3: Practice of Blood Transfusion

Practice	Frequency (f)	Percentage (%)
Poor	7	4.5
Good	150	95.5
Total	157	100.0

3.4. Relationship between knowledge and practice of blood transfusion

Table below showed relationship between level of knowledge and level of practice about blood transfusion. Based on the chi square result showed $\chi^2=4.01$, $p=0.135$.

Table 3.4: Relationship between knowledge and practice of blood transfusion

4. DISCUSSION

The findings in this study indicated the nursing students knowledge is at poor level due to inexperience yet in the learning process to become proficient in blood transfusions practice. They have to learn more to ensure their knowledge improved and reduce the risk of the practice. The previous report by Bolton-Maggs, on year 2015 revealed 3288 cases reported to the serious hazard of blood transfusions (SHOT) where 50 percent of the numbers came from human errors [3]. The knowledge is significantly crucial to minimizing the equivalent cases happening and the blood transfusion procedures will run smoothly.

Referring to the similar research conducted by Hamed et al. [2017] showed that the nurses also had a poor knowledge in which the nurses hands-on the skills throughout the employment period [6]. Hence, the knowledge and skills will strengthen over each moment they deal with the situations and responsibilities.

According to the previous research conducted by Shamshirian, Alirahimi, & Ghorbanpour [2017] the awareness and knowledge of the blood transfusion is at moderate level [15]. Barely small groups well understand it but poor knowledge about blood and its product which result found on questions about cryoprecipitate and fresh frozen plasma (FFP).

The findings in this study showed the practice among nursing students is at good level seeing the ability improves blood transfusion practice and the procedure smoothly. Those findings obtained are in line with the previous studies conducted by previous researchers [6]. There was a previous study against the findings by Hijji et al. [2010] where the practices score is poor due to underperformed every procedures such as identification steps, availability and patency of intravenous access line, designated box usage to transport the blood and initiation the transfusion more than 30 minutes [8].

The findings as stated in this study showed the blood transfusion's knowledge are not related to the practice of nursing students. The hands-on practice will improve their capabilities to undergo transfusions with donors and the execution will run smoothly. The respondents knowledge of blood transfusions is at poor level that needs to hands-on practice consistently to enhancing the understanding and skills seeing that dealing with a person lives. Nurses under burden at work so do not seek to gain any information and depend only on what nurses learn from the practice [13]. Hence, it clearly had shown showed no relationship between practice and knowledge of blood transfusion among nursing students.

	Practice		Total	Chi Square (x ²)	P-value
Knowledge	Poor	Good			
Poor	6 7.8%	71 92.2%	77 100.0%	4.01	0.135
Moderate	1 1.5%	64 98.5%	65 100.0%		
Good	0 0.0%	15 100.0%	15 100.0%		

5. CONCLUSION

In conclusion, knowledge of blood transfusion was not associated with the practice of blood transfusion. Healthcare worker need to have both knowledge and skill to undertake their role safely and effectively [2]. A hospital must organize continued nursing education and in-service training programs and blood diseases unit as well as equipped with the necessary educational facilities and materials to upgrade the knowledge and skills of practicing nurses in which to produce better outcome [10].

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