

Effectiveness of Self Instructional Module on Knowledge Regarding Cord Blood Banking Among Staff Nurses at Selected Hospital, Villupuram District

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ABSTRACT

Introduction: Cord blood refers to the blood that remains in the placenta and umbilical cord after child birth. The child is physically and emotionally bonded to mother from the period of conception. The umbilical cord acts as a bridge between the mother and fetus. **Objectives:** To assess the effectiveness of Self- Instructional Module on knowledge regarding cord blood banking among staff nurses. **Material and Methods:** Quantitative research approach and Pre-Experimental One group Pre-test and Post-test research design was adopted for this study. 30 staff nurses were selected by using Non-probability convenient sampling at Government Villupuram Medical College and Hospital in Mundiampakkam. The data was collected by using demographic tools and structured knowledge questionnaire. The collected data was analyzed by using descriptive and inferential statistics. **Results:** The result of this study revealed that, In pre-test 22 (73.3%) nurses had inadequate knowledge 6 (20%) nurses had moderate knowledge and 2 (6.6%) nurses had adequate knowledge. In post test, all the staff nurses (i.e) 30 staff nurses had adequate knowledge regarding cord blood banking. The calculated “t” value 17.45 is greater than the tabulated “t” value 4.35 at 5% level of significance. So the Self-Instructional Module regarding cord blood banking is very effective. There was a significant association between the Pre-test levels of knowledge with their selected demographic variables such as marital status. **Conclusion:** Nurses can be the primary source of information and cord blood collection, at every stage of delivery process. So it is necessary to improve their knowledge regarding cord blood banking through an educational approach. Cord blood banking is once in the life time opportunity to save the baby’s cord blood stem cells because Child’s cord blood is a potential lifeline for the future of the child.

Keywords: Umbilical cord, Cord blood banking, Staff nurses.

INTRODUCTION

“Tears of the mother cannot save her child but her blood can”

The child is emotionally and physically bonded to mother from the period of conception. In physically the child attached with the mother through the placenta. The umbilical cord acts as a bridge between mother and fetus. Cord blood refers to the blood that remains in the placenta and in the attached umbilical cord after childbirth. Cord blood is obtained from the umbilical cord at the time of childbirth, after the cord has been detached from the newborn. Cord blood is collected because it contains powerful stem cells, including hematopoietic cells, which is useful to medical treatment¹.

Stem cells found in cord blood treat over 80 diseases like leukemia, lymphoma, autoimmune disorders, brain and spinal cord injuries, autism, hearing loss, cerebral palsy, type 1 diabetes and other dangerous conditions. Cord blood stem cells are currently used to restore haemopoiesis. It restores haemopoietic stem cell function in patients suffering from malignancies, bone marrow failure disorders and inherited metabolic and immunological disorders. The first clinically documented use of cord stem cells was in the successful treatment of a six-year-old boy

afflicted by Fanconi’s anemia by Dr. Elaine Gluckman in 1988, in Paris².

Out of 7 billion people in the world, Indian accounts for 1.21 billion people which means that one in every 6 people on Earth live in India. In India there are 26,932,586 births per year; 73,787 births per day; 3,074 births in each hour; 51 births in each minute; approximately one birth per one second. (Updated on FEB, 2017). The birth rate is resulting in discarding of 73,787 umbilical cords a day. Right now, about 1 in 200 patients require cord blood in their lifetime. However, cord blood therapy is more common in next several years³.

The hospitals, doctors, and nurses will be a part of every person’s life at some point of time in their life cycle. Among all health care professionals the nurses play a vital role in the treatment process. They are the closest that the patient comes to receiving a care at various stages of treatment. *“Nurses can be the primary source of information and cord blood collection, at every stage of delivery process.”* Nurses are the valuable resource in the process of cord blood collection and stem cell banking, provided they have been equipped with the knowledge and practice to do so as per a study conducted in two premier hospitals in Egypt in 2014, nurses played a vital role in

Table 1: Frequency distribution of samples according to the level of knowledge in pre-test and post-test.

Level of knowledge	Inadequate	Moderate	Adequate
Pre-test	22	06	02
Post-test	-	-	30

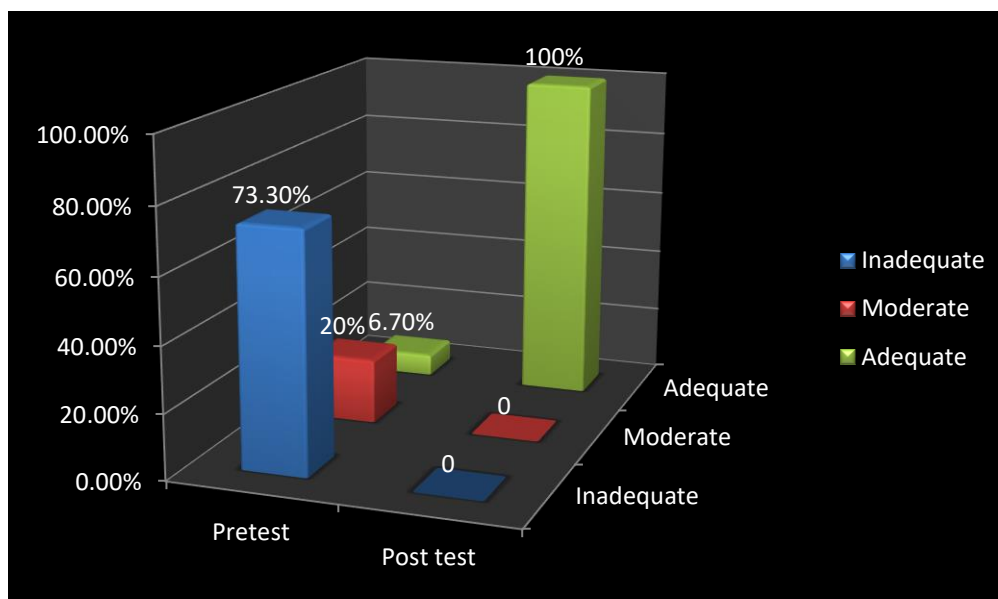


Figure 1: Percentage distribution of samples according to the level of knowledge in pre-test and post-test.

performing a variety of functions in stem cell banking, right from understanding the structure of the umbilical cord to defining the sides of procuring stem cells. However, the study found that most nurses were unaware of how to collect cord blood, or even the uses of stem cells in medicine⁴.

MATERIALS AND METHODS

A Quantitative approach and Pre-experimental research design was adopted for this study. One group pre-test and post-test research design was adopted. The variables studied were study variable and demographic variables. The study variable was knowledge regarding cord blood banking among staff nurses and demographic variables comprises of Age, gender, education, years of clinical experience, residence, religion, type of family, marital status, clinical field experience and source of information. The study variable was knowledge on cord blood banking. The study was conducted at Government Villupuram Medical College and Hospital in Mundiampakkam, villupuram district, Tamilnadu. The setting was chosen on the basis of feasibility in terms of availability of adequate samples at a time and the co-operation extended by the authority. Accessible population consists of the staff nurses who are present during the time of data collection. The sample consists of the staff nurses those who fulfill the inclusion criteria. 30 staff nurses were selected by using Non-probability convenient sampling technique. The inclusion criteria were the Staff nurses who will be present at the time of data collection, who are willing to participate, both male and female nurses. The exclusion criteria were the Staff nurses who are not available during data collection, who are not willing to participate and who already attended any courses regarding cord blood banking

within six months. The tool comprises of two sections. Section A deals with the demographic details of staff nurses such as Age, gender, education, years of clinical experience, residence, religion, type of family, marital status, clinical field experience and source of information. Section-B was structured knowledge questionnaire includes 30 questions to assess the knowledge on cord blood banking among staff nurses. Each correct answer was awarded score 1. Each incorrect answer was awarded score 0.

Content validity obtained from the principal and vice principal of E.S College of Nursing and experts from the department of nursing and medical. Based on the suggestion given by the experts, few modifications were made after getting consent from the experts.

Data Collection Procedure

The study was conducted to 30 staff nurses who met the inclusion criteria. Prior to data collection procedure the investigator obtained formal permission from the medical officer of Government Villupuram Medical College and Hospital in Mundiampakkam to conduct this study. Initially the investigator was selected the staff nurses for assessing the demographic profiles and knowledge regarding cord blood banking by using structured knowledge questionnaire. The samples were selected by non-probability convenient sampling. After assessing the pre- test level of knowledge, the self-instructional module was given to the staff nurses. After 3 days, the post test was conducted to evaluate the effectiveness of self-instructional module and level of knowledge. During the data collection period the researcher maintained good rapport with the staff nurses. With their full co-operation, the investigator finished the data collection successfully.

Table 2: Comparison between Pre- test and Post-test score.

S.no	Characteristics	Mean score	Standard deviation	Calculated value	“t”	Tabulated value	“t’
1.	Pre-test	13.2667	3.96	17.20		2.05	
2.	Post-test	25.9000	1.61				

Table 3: Association between the Pre-test level of knowledge on cord blood banking among staff nurses and with their selected demographic variables. N= 30

S. no	Characteristics	Inadequate	Moderate	Adequate	Chi-square	Tabulated value
1.	Age					
	a)20-30 years	13	02	01		
	b)31-40 years	09	03	01	4.70	9.49 ^{NS}
	c)41-50 years	-	01	-		
2.	Gender					
	a)Male	01	-	-	0.37	5.99 ^{NS}
	b)Female	21	06	02		
3.	Education					
	a)Diploma in nursing	20	06	02	0.78	9.49 ^{NS}
	b)Bachelor in nursing	02	-	-		
	c)Post b.sc nursing	-	-	-		
4.	Years of clinical experience					
	a)<1year	--	-	-		
	b)1-5years	07	-	01		
	c)5-10years	11	04	-	6.69	12.59 ^{NS}
	d)>10years	04	01	02		
5.	Clinical field experience					
	a)Medical ward	08	03	03		
	b)Surgical ward	06	01	-	3.49	12.59 ^{NS}
	c)OG ward	04	02	-		
	d)NICU	03	-	-		
6.	Residence					
	a)Rural area	10	01	-	2.66	9.49 ^{NS}
	b)Urban area	12	05	01		
	c)Any other destination	01	-	-		
7.	Religion					
	a)Hindu	16	06	02		
	b)Muslim	-	01	-	5.59	9.49 ^{NS}
	c)Christian	05	-	-		
8.	Type of family					
	a)Nuclear family	13	03	02	1.59	
	b)Joint family	09	03	-		9.49 ^{NS}
	c)Extended family	-	-	-		
9.	Marital status					
	a)Married	04	17	02		
	b)Unmarried	05	02	-	7.57	3.84 ^S
10.	Source of information from					
	a)Newspaper and Magazines	04	01	01		
	b)Journals and Net references	05	-	-		
	c)Book studies	11	06	02		
	d)Seminars and Workshop	01	-	-	4.25	12.59 ^{NS}

Note: Association at 5% level of significance.

Both descriptive and inferential statistics were used to make the analysis and interpretation.

RESULTS

Description of demographic variables:

According to Age, 16 (53.3%) of them belongs to 20-30 years, 13(43.3%) of them belongs to 31-40 years and

01(3.3%) of them belongs to 41-50 years. While considering the Gender, 01(3.3%) of them belongs to male and 29(96.6%) of them belongs to female. About Education, 28(93.3%) were completed Diploma in Nursing and 02(6.6%) were completed Bachelor in Nursing. In Years of clinical experience, 08(26.6%) have 1-5 years, 15(50%) have 5-10 years and 07 (23.3%) have

above 10 years. According to Clinical field experience, 14(46.6%) have Medical ward, 07(23.3%) have Surgical ward, 06(20%) have OG ward and 03(10%) have NICU. With regard of Residence, 11(36.6%) of them belongs to rural area, 18(60%) of them belongs to urban area and 01(3.3%) of them belongs to any other destination. About Religion, 24(80%) of them belongs to Hindu, 01(3.3%) of them belongs to Muslim and 05(16.6%) of them belongs to Christian. In Type of family, 18(60%) have been living in Nuclear family and 12(40%) have been living in Joint family. Regarding Marital status, 23(76.6%) of them Married and 07(23.3%) of them Unmarried. While considering Source of information, 05(16.6%) from Newspapers and Magazines, 05(16.6%) from Journals and Net references, 19(63.3%) from Book studies and 01(3.3%) from Seminars and Workshops.

This table shows that the effectiveness of SIM on knowledge regarding cord blood banking. Here, the pre-test and post-test score were compared. The Paired "t" test with equal variance was applied for statistical analysis. The observed value is 17.20. This calculated "t" value is greater than the tabulated "t" value 2.05 at 5% level of significance. This shows that is highly significant. So the investigator concluded that the SIM have greater effectiveness. There is a significant difference in pre-test and post-test level of knowledge.

DISCUSSION

Table 1 shows that, in pre-test, 22(73.3%) staff nurses having inadequate knowledge, 06(20%) of them having moderate knowledge and 02(6.6%) of them having adequate knowledge. In post-test, all the staff nurses 30 (100%) are having adequate knowledge. This study supported by the findings of the study was conducted in selected tertiary care facility in New Delhi 2016, most of the nurses 42.8% had average knowledge followed by equal numbers of the nurses 28.6% had good and poor knowledge and None of them having excellent knowledge. Hence, the researcher concluded that the majority of staff nurse having inadequate knowledge regarding cord blood banking due to lack of source of information like workshop, magazines, newspaper, and there is no previous experience of cord blood banking⁵.

Table 2 shows that the calculated "T" value is (17.20) are greater than the tabulated "T" Value (2.05) and 5% level of significance. This shows highly significant. This study was supported by an another study conducted on effectiveness of self-instructional module on the

knowledge regarding placental cord blood banking among staff nurse in selected hospitals in Kasargoad (2009). The result showed the significance difference suggesting the self-instructional module was effective in increasing the knowledge of staff nurse ($t=14.34$). The mean post-test knowledge ($x_2=43.17$) higher than the mean pre-test knowledge ($x_1=30.40$). There was a significant effectiveness in the self-instructional module⁶. The present study also revealed that the married nurse have adequate knowledge on cord blood banking when compared to unmarried nurses.

CONCLUSION

The findings of the present study revealed that staff nurses had adequate knowledge regarding cord blood banking after introduced the self instructional module. So the staff nurses should have a thorough knowledge on cord blood banking for enhances the practice of saving the cord blood. Saving the baby's cord blood could save the baby's life.

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