

## Effect of Guideline on Maternity Nurses Attitude about Umbilical Cord Blood Banking and Its Barriers

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**Abstract:** Umbilical cord blood (cord blood) is a source of blood stem cells that can help save lives. Cord blood is increasingly valued as a resource for transplantation and cell therapy. **Aim:** Assess maternity nurses' attitude about umbilical cord blood banking and its barrier and improve attitude about umbilical cord blood banking through health education given to nurses by providing guideline containing information about umbilical cord blood importance, advantages, disadvantages, types of banks, and diseases treated by cord blood **Research Design:** pre-posttest research design was utilized in this study. **Material and Methods:** This study was conducted at Minia university hospital & General Minia hospital. The study included 78 nurses. **Tool** in form of scale for measuring attitude by using 30 items rated on three points as usually (2), sometimes (1), and rarely (0). The items were reviewed by expert professor of psychology. **Results:** The main finding of the study were more than third of sample 38.5% in pretest have negative attitude about umbilical cord blood while 70.5% of sample in posttest have positive attitude. **Conclusion:** health education was effective in improving attitude about umbilical cord blood banking. **recommendation:** these finding indicate need to Adequate planned in-services related to cord blood collection and banking must established to develop nurses knowledge, attitude and practice

**Key Words:** Nurses, Maternity, Attitude, umbilical cord

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### I. Introduction

Umbilical cord blood, the 100 or so millilitres of blood retained in the placenta and cord after birth, is an accessible source of hematopoietic stem cells. It has become therapeutically valuable tissue over the last fifteen years because it can act as a substitute for bone marrow transplant in the treatment of blood disorders. Since the 1970s, bone marrow transplant has been used to rebuild the patient's blood system as part of the treatment for leukaemia, immune deficiency, aplasia and genetic metabolic disorders<sup>(1)</sup>

Further research is required to identify and investigate health care professionals concerns regarding the practice of cord blood collection, the sources and influences associated with health professionals' negative views about cord blood banking, timing of cord clamping and safety of mother and infant. Understanding these factors may assist in addressing health professional knowledge and attitude deficits, which in turn impact their ability to provide parents with evidence-based, unbiased information to support autonomous parental decision-making in this important area<sup>(2)</sup>

Concerning nurses' attitude towards cord blood collection and stem cells, studies revealed that nurses had negative attitude toward cord blood collection and stem cells. receiving information from educational intervention and high adherence with educational sessions and their active participation improving their knowledge and lead to positive attitude<sup>(3)</sup>

Cord blood banking was viewed by some of the midwives to be a 'trendy, grim, useless and a selfish act'. In the early days of cord blood banking, midwives felt pressured to collect cord blood for private banking purposes. Collection, labelling, packaging and associated paperwork for private banking were seen as an added burden to the midwifery workload and these activities were not seen as a priority of midwifery care<sup>(4)</sup>. The current study aims to assess maternity nurses' attitude about umbilical cord blood banking and its barrier and Improve attitude about umbilical cord blood banking through health education given to nurses.

### II. Research question

1. What is attitude of maternity nurses regarding umbilical cord blood banking?
2. What are barriers regarding umbilical cord blood banking?

### **III. Subjects and Methods**

**Research Design:** Pre-posttest research design was utilized to fulfill the aim of this study.

**Setting:** This study was conducted at Minia university hospital & General Minia hospital.

**Sample:** Convenient sample will utilized in this research 78 female nurses who work in Obstetrics and Gynecology Department at Minia university Hospital (60) & General Minia hospital (18)

#### **Inclusion criteria**

- All nurses working in Minia University Hospital in antenatal, labor, postpartum ward and outpatient clinics.
- All nurses working in General Minia Hospital in antenatal, labor, postpartum ward and outpatient clinics
- Nurses who accepted to participate in the study

#### **Exclusion criteria**

- Nurses who refuse to participate in the study
- Nurses in sick holiday or post-delivery holiday

#### **Tool of the study:**

The nurses attitude were measured by scale contained 30 items rated on three points as usually (2), sometimes (1), and rarely (0).the items were reviewed by expert (*prof. Ali Ahmed Hassan*) professor of psychology, faculty of education, Assuit university.the items were: Umbilical cord blood banking uncertain scientific welfare and hasn't any benefits, Feel that cord blood collection has harmful effect on mother and fetus ,Cord blood collection time and effort consuming ,Believes that cord blood can be used in many scientific benefits, Believes that cord blood need for efficiency and expertice, Needs for workshop on cord blood collection ,Cord blood collection need for facilities difficult to finds beginning in cord blood banking immediately

Scoring: The items were judged according to a three point continuum from usually (2), sometimes (1), and rarely (0). Summing up the scores of the items then the overall score gave total attitude score. Nurses' total attitude score was graded as the following; negative when total score was less than 50% and positive when total score was more than 50%

#### **Validity of tools**

To establish validity, the scale was reviewed by expert of psychology, faculty of education, Assuit university who reviewed the tool for clarity, relevance, comprehensiveness, understanding, applicability and easiness. A pilot study was conducted on 10% of female nurses (8 nurses) from Minia University Hospital and General Minia Hospital, to test feasibility of tools and time required to be applied. Simple modification was done of some items of the scale that they were not consistent with this study. The participants of the pilot study were included in the study sample.

#### **Ethical consideration:**

Before the conduction of the pilot study as well as the actual study, an official permission and consent was obtained from the dean of the Faculty of Nursing, as well as the Director of Minia university hospital and General Minia hospital. Consent will be obtained from nurses that are willing to participate in the study, after explaining the nature and purpose of the study. Study subject have the right to refuse to participate and or withdraw from the study without any rational any time. Study subject privacy was considered during collection of data No health hazards was present.Participants were assured that all their data are highly confidential.

#### **Procedure:**

An official permission was obtained from the research ethical committee of faculty of Nursing, Minia university hospital and General Minia hospital, Participants nurses was recruited from Minia university Hospital and General Minia hospital. Each nurse in two hospitals had fill scale individually after taking their consent to participate in the study and given an explanation about the nature of the study by the investigators. Data included assessment of the nurses' attitude regarding stem cells and umbilical cord blood banking to collect baseline data, at the beginning of interview the researchers greeted each nurse, explained the purpose, duration, and activities of the study and taken oral consent. Based on baseline data obtained from assessment and relevant review of literature, the guideline was developed by the researcher in a form of printed Arabic brochure to satisfy the studied nurses' attitude regarding cord blood banking and its barriers. Immediately and after three months of implementation of the guideline, the follow up test for nurses' attitude were done by the same format of the scale to evaluate the effect of the implemented guideline.

**Statistical analysis**

The collected data will be tabulated, computerized, analyzed and summarized by using descriptive statistical tests to test research questions by using SPSS version (20). The level of significance will be accepted at  $P < 0.05$

**IV. Result**

**Table (1):** Distribution of sample according to personal characteristics

Socio-demographic characteristics		No. (n=78)	%
<b>Age (years)</b>			
•	<25 years	14	17.9
•	25-30 years	57	73.1
•	>30 years	7	9.0
<b>Mean ±SD</b>		<b>28.34±9.57</b>	
<b>Qualification</b>			
•	Nursing secondary school	36	46.2
•	Nursing technical institute	29	37.2
•	Nursing bachelor	13	16.7
<b>Years of experience</b>			
•	<5 years	28	36
•	5-10 years	31	39.7
•	> 10 years	19	24.3
<b>Mean ±SD</b>		<b>11.65±7.81</b>	

It show that mean of age 28.34±9.57. Regarding nurses qualification it was observed that near half of sample 46.2% were secondary educated. According to years of experience it was founded that sample with mean of 11.65±7.81 years

**Table (2):** Distribution of sample according to Attitude about cord blood banking in pre, immediate and post follow up

Attitude	Pre (n=78)		Immediate (n=78)		Post (n=78)		P value
	No.	%	No.	%	No.	%	
• <i>Negative</i>	30	38.5	22	28.2	23	29.5	0.174
• <i>Positive</i>	48	61.5	56	71.8	55	70.5	

It show that more than third of sample 38.5% of sample in pretest have negative attitude about umbilical cord blood banking while 61.5% of sample in pretest have positive attitude.as regarding results in post test it was observed that 29.5% of sample have negative attitude while 70.5% of sample in posttest have positive attitude

**Table (3) :** Relations between attitude of the nurses about the UCBB and socio-demographic characteristics of the studied nurses.

Qualification	Nursing secondary school	Nursing technical institute	Nursing bachelor	p-value
• <b>Pre</b>	60.77±5.75	64.55±9.49	66.81±8.63	0.137
• <b>Immediate</b>	68.31±8.55	68.14±10.30	67.50±8.19	0.772
• <b>Post</b>	68.92±6.63	69.83±6.64	68.14±8.75	0.725
Years of experience	< 5 years	5-10 years	> 10 years	p-value
• <b>Pre</b>	66.21±8.36	58.30±10.12	62.60±3.78	0.26*
• <b>Immediate</b>	67.35±9.54	70.20±6.56	69.80±4.49	0.739
• <b>Post</b>	69.10±8.41	69.60±7.97	65.00±8.77	0.640

It show significance differences between attitude and years of experience, but no significance differences between attitude and level of education

**Table (4):** Distribution of studied nurses according to Barriers of Conducting Umbilical Cord Blood Banking in their hospital from Nurses' Point of view.

Level of knowledge about Barriers of conducting Umbilical Cord Blood Banking	Pre N=78		Immediate N=78		Post N=78		P value
	No.	%	No.	%	No.	%	
<b>*Barriers of conducting cord blood collection in hospital</b>							
Religious barriers	15	19.2	29	37.2	24	30.8	0.096
Policies and procedure of hospital	48	61.5	78	100.0	61	78.2	0.023*
Women refuse	27	34.6	29	37.2	23	29.5	0.493

Fear on child life	26	33.3	29	37.2	32	41.0	0.320
Cost of cord blood banks	34	43.6	33	42.3	52	66.7	0.004*
Culture believes of placenta	15	19.2	29	37.2	22	28.2	0.023*
Ethical believes	15	19.2	29	37.2	22	28.2	0.188
Labor is improper time to educate women ant take consent for blood collection	21	26.9	29	37.2	30	38.5	0.125

\*More than one item was checked

It show that 78% of sample identified that policies and procedure of hospital are barriers for conducting cord blood collection , 66.7% of sample identified cost of cord blood banks is barrier, 41% of sample thinking that fear on child life is barrier for collecting cord blood and 38.5% of sample thinking that labor is improper time to educate women and take consent for collection cord blood is the barrier

## V. Discussion

The attitude and perceptions toward cord blood collection and banking varied between midwives and obstetricians. Midwives were supportive of the altruism behind cord blood donation although many could not see the advantage of private cord blood banking with the collection process considered burdensome and interfering with midwifery care<sup>(5)</sup>

In addition, from the researchers' clinical experience, they found that there was negative attitude regarding cord blood collection and stem cells among maternity nurses. Hence, it is imperative to improve nurses' attitude about recent issues of cord blood collection and stem cells. <sup>(6)</sup> This study was aimed to improve maternity nurses' attitude regarding cord blood collection and its utilization.

When exploring the attitude of the nurses about the umbilical cord blood banking , an important element highlighted in this study is negative attitude regarding UCBB. In the present study it was observed that more than third of sample 38.5% of sample in pretest have negative attitude about umbilical cord blood banking while 61.5% of sample in pretest have positive attitude.as regarding results in post test it was observed that 29.5% of sample have negative attitude while 70.5% of sample in posttest have positive attitude

Concerning nurses' attitude towards cord blood banking results showed that no statistical significance difference between attitude in pre, and posttest assessment. Results of current study was different from study done by <sup>(7)</sup> Hend S. Mohammed,2015 at Zagazig , who study knowledge and attitude of maternity nurses regarding umbilical cord blood collection and stem cells who findings of their study revealed that about two thirds of the sample had negative attitude toward cord blood collection and stem cells before intervention. On the other hand, immediately and after three months of intervention the percentage changed to more than two thirds of sample had positive attitude toward cord blood collection and stem cells.

Results of current study were different from Study done by <sup>(8)</sup> Ikuta LM. 2008, who study Human umbilical cord blood transplantation: what nurses need to know, demonstrated that targeted education could positively impact negative attitudes towards cord blood collection, with positive correlations between knowledge and attitude, and improved knowledge being associated with positive attitudes.

Results of current study were similar to study done by <sup>(9)</sup> Bombas et al.,2012, who study Knowledge, attitude and practice survey among gynecologists regarding cord blood collection and banking, who reported that sample attitude in the study showed least significant improvement and added there were difficulties in changing attitude

Regarding relations between attitude and socio-demographic characteristics Results show significance differences between attitude and years of experience, but no significance differences between attitude and level of education.

The finding of current study was different from study done by <sup>(7)</sup> Hend et al. 2015, who study knowledge and attitude of maternity nurses regarding umbilical cord blood collection and stem cells at Zagazig, who founded that there was negative statistical significance correlation between knowledge, attitude and age, as well as between knowledge, attitude and years of experience at different time of assessment. This might be due to nurses who have more experience will be responsible for administrative and managerial activities

Regarding barriers of cord blood collection ,The results of present study showed that more than three quarter of sample identified that policies and procedure of hospital are barriers for conducting cord blood collection , more than half of sample identified cost of cord blood banks is barrier, near half of sample thinking that fear on child life is barrier for collecting cord blood and one third of sample thinking that labor is improper time to educate women and take consent for collection cord blood is the barrier

The results of current study was different from study done by <sup>(10)</sup> Moustafa MF, 2015, in Assuit, who study Nurses, Knowledge about Umbilical Cord Blood Banking and it's Barriers who founded that barriers from the sample 'point of view is the cost of initiation of such high standardized unit takes the greatest priority. It also requires that umbilical cord blood banks establishments are inspected and accredited by a Competent Authority. More than half of sample mentioned barriers perceived by the nurses is the hospital policy and

lacking of the time which needed to educate the nurses. The time needed for educating is an avoidable barrier while all nurses in such places underwent planned training courses in the required subjects periodically and as needed, while one third of sample thought that religious barriers

The findings of current study are different from study done by <sup>(2)</sup> Abdullah, 2011, who study Cord blood banking; what nurses and healthcare providers should know, they found that from the health care providers' point of view the greatest barrier could be the time to educate the patient. Information given to the patients can be misinterpreted, misunderstood, or miss-communicated. The thoroughness of education provided to the patient is critical to the outcome, and yet the time to provide such education is not always available.

Results of current study was different from study done by <sup>(11)</sup> Salvaterra E.2010 An analysis of decision making in cord blood donation through a participatory approach. Who reported that over two thirds reported that cord blood collection in addition to their routine obstetric care did not place pressure on them, with only a few sample indicating that the consent process and collection documentation was extra work and time consuming

There were many barrier for collecting cord blood because Nurses felt pressured for Collection, labeling, packaging and associated paperwork for banking were seen as an added burden to the nursing workload and these activities were not seen as a priority of nursing care.

## **VI. Conclusion& Recommendations**

Study can be concluded that there was slightly improvement in nurses' attitude immediately, and three months after intervention. The implementation of an educational intervention was effective and improved nurses' attitude towards cord blood collection and banking. We can recommended from our study that, Training programme related to cord blood collection and banking should be provided for health care professional. Nursing curriculum should include current technologies such as stem cells

- Booklet regarding cord blood collection and stem cells should be available in labour unit. Counseling should be provided for pregnant women during antenatal period about umbilical cord blood banking options , benefits, and procedure not adversely affect health of mother or newborn. Official websites of ministry of health should play important role in giving updated and evidence based information about umbilical cord blood collection and banking. More studies should be done and we should increase sample to generalize finding

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