

Effectiveness of Nurse Led Intervention module on Cord Blood Banking in terms of knowledge and attitude among adolescents

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Abstract

Cord blood banking is the most important topic of science and technology today. Cord blood banking refers to collection and preservation of cord blood for the treatment of blood and immune disorders that may occur in the future. Female graduates (Adolescents) need to understand about cord blood banking hence they are going to give birth to the baby in future. The study aimed to evaluate the effectiveness of Nurse Led Intervention on Cord Blood Banking in terms of knowledge and attitude among adolescents in St. Jerome's college at Kanyakumari district. The study design used was pre experimental one group pretest posttest design. The samples were 60 adolescent girls selected through convenient sampling. Among the participants, majority 45 (75%) had inadequate knowledge on cord blood banking, 10 (17%) had Moderate knowledge and 5 (8%) had adequate knowledge about cord blood banking in the pretest. The Mean post-test knowledge (14.9) was higher than the mean pre-test knowledge (6.55) with standard deviation (14.82) and the obtained t value (2.72) was significant at $p < 0.05$. The Mean post-test level of attitude (36) was higher than the mean pre-test level of attitude (17.7) with the standard deviation (26.9) and the obtained t value (8.14) was significant at $p < 0.05$. The study concluded that nurse led intervention module was highly effective in improving knowledge and attitude on cord blood banking among adolescent college girls at Kanyakumari.

Keywords – Evaluate, effectiveness, Nurse Led Intervention, Knowledge, attitude, Cord blood banking

Introduction:

Good health is central to human happiness and well-being that makes an important contribution to prosperity and wealth. Day by day there are lot of changes in science. Scientists have invented a new avenue for harvesting stem cells from cord blood. Cord blood contains stem cells which are the building blocks of blood and immune system.

Cord blood is approved by FDA for the treatment for nearly 80 diseases, including cancers (lymphoma and leukemia), anemias, inherited metabolic disorders and some solid tumors and orthopedic repair.

Adolescence is the period of transition from childhood to maturity with rapid physical, intellectual, emotional and social growth. So it is essential to educate about Cord Blood Banking to adolescence as they become the parents in future. Cord blood can be stored in a cord blood bank so that we can protect our future generation from life threatening problems such as blood related disorders and cancer.

First Umbilical Cord Blood bank was started in New York during 1992. In India, 72000 deliveries are conducted every day, resulting in discarding seventy-two thousand stem cells. Today, parents bank or store their baby's umbilical cord blood because the stem cells it contains are currently utilized in the treatment of life-threatening diseases. Luckily for expectant parents, cord blood can be easily collected at the baby's birth via the umbilical cord and there is no harm to the mother or baby.

Cord blood is useful because it is a source of stem cells that form into blood cells. The cord blood should be processed and stored in a cord blood bank that is accredited by the American Association of Blood Banks (AABB) for the purpose of handling stem cells. Cord blood stem cells are pluripotent, and have the ability to differentiate into not only different blood cell types, but potentially into different types of tissue including bone, cartilage, and hepatic, pancreatic, neurologic. In India, a facility for banking is lacking and also due to lack of awareness most of the placental blood is discarded after delivery. Number of cord blood banks available in India is also less with three public and seven Private cord blood banks. So, creating awareness among public about the importance of saving cord blood is essential.

Cord blood is an important alternative to bone marrow for transplantation because it contains all the natural elements of blood and is rich in blood forming stem cells, but do not require as close match between the donor and recipient. Medical science has successfully treated many diseases like Blood cancer, Thalassemia and anemia through umbilical cord blood stem cell transplantation. Recent advancement in the medical science and technology has encouraged the extraction and storage of the stem cells from umbilical cord blood for treating various malignant and genetic disorders.

Adolescents is a critical link between childhood and adulthood will determine how a person will view and interact with the world as an adult. The adolescence stage of development is a critical time and is another opportunity for adults to support the continued development of Youth and young adults. They are moving into next step for child birth. So there is a need of raising awareness about stem cell banking and its importance among young undergraduates, especially female students, is imperative.

Review of Literature:

A study reviewed by Nivethika Sivakumaran on Umbilical Cord Blood Banking and its Therapeutic uses revealed that the cord blood is used to treat malignant and non-malignant diseases due to its progenitor characteristics known as stem cells. Cord Blood banking is needed for proper storage of these progenitor cells. Cord blood banks are public, private and direct donation banks. Clinical trials are still at its very early stages having abundances to still be uncovered but results being obtained have demonstrated high potential and more scope towards effective development therapies and treatments for rare disorders.

A study was conducted by Jayesh shath on umbilical cord blood, its current status and promise for its future transplantation for Adolescence. The study findings was 13 cases of thalassemia for umbilical cord blood transplantation in Apollo Hospitals and the cord blood was collected from life cell especially for 6 cases and among this 83 % of the transplants was from their own transplants, seven cases were collected and treated with unrelated umbilical cord blood procured from Relicord and stemcyte.

Namita Yadav conducted a study to investigate the knowledge about Umbilical Cord Blood Banking among college students in East West College of Management, Bangalore, India from September 2018 to August 2019. 80 college students were selected by random sampling techniques. Self-structured questionnaire was used to assess the knowledge and attitude regarding cord blood and cord blood banking. The results of the study revealed that the maximum number of participants were from age group 19-21 years. The overall knowledge score was 21.05 ± 5.11 with mean percentage score of 60.14. 71.25% (57) of subjects had moderately adequate knowledge; whereas, 25% (20) of subjects had adequate knowledge. The study recommends that educational training is required for better outcome on cord blood banking practices.

Norsuhailah Md Desacarried out a descriptive study to determine the level of knowledge about umbilical cord blood donation and banking among 341 Health Science students at public university in Malaysia .Samples were selected by random sampling technique Structured questionnaire was used to collect the data which consists of 15 items using online survey. Results of the study implied that Out of 341 health sciences students participated in the study, 87.7% were female, with age ranging from 19 to 25 years. Findings of the study revealed that health science students had insufficient knowledge regarding donation and banking. Efforts should be taken to increase the awareness and knowledge of umbilical cord blood donation and banking among young generations in Malaysia

Louiza conducted a study on knowledge about umbilical cord blood banking among Greek citizens. Participants were between the age group of 18 and 42 years. The individuals were asked about their attitude about umbilical cord blood storage. Among 1,019 represents the majority 74% answered positively. Since 34% of these people did not know anything about umbilical cord blood transfusion. Respondents aged between 18 and 27 years old seemed to be less informed ,out of 1,019 respondents 292 (28.8%) were parents of whom 81.5% knew about umbilical cord blood transfusion and banking which anticipates the great impact efficacy on educational programs.

A cross-sectional study conducted byMajid Alhomrani to determine the knowledge and attitude on cord blood banking among Taif University students. Samples were selected randomly and Self-administered questionnaire and attitude scale were administered for 604 female students of Taif University. Result shows that most of the participants (70%) lacked sufficient knowledge and their attitudes were motivating, with more than 60% rated better than adequate. The study concluded that the Students with average knowledge on umbilical cord blood donation and those who are more educated showed a greater level of willingness to participate in banking of stem cells. Therefore, raising awareness about stem cell banking and its importance among young undergraduates, especially female students, is essential.

Abdullah Bukhari conducted a cross-sectional study on Women's attitude on cord blood banking in Riyadh City. Random sampling was used to select 800 participants in 5 different regions in Riyadh city. The participants were asked to complete a questionnaire that addressed their attitude, regarding cord blood banking. Result shows that only (37.8%) have positive attitude on cord blood banking. The most common reason for not donating stem cells was the lack of information about stem

cells and the value of the donation. It also recommends that to empower the willingness for stem cell donation probably there is a need for a well-designed campaign for advocating stem cell donation.

Arshid Nazir Shah done a study to evaluate the educational intervention for enhancement of knowledge regarding umbilical cord blood banking among basic 50 B.Sc. Nursing students studying in Rajiv Gandhi College of Nursing, Jammu. Samples were chosen by convenient sampling technique. An evaluative approach with one group pre-test, post-test design was used for the study. The data was collected with structured questionnaire before and after the structured teaching program. The results of the study revealed that overall mean knowledge score is 23.96 in post-test was higher than mean knowledge score 9.42 obtained in pre-test and with the improvement score as 14.54. The results of the study revealed that the structured teaching program was significantly effective in improving the knowledge of students regarding umbilical cord blood banking

Gracy done a study to evaluate the effectiveness of structured teaching programme on knowledge and attitude regarding cord blood banking among 50 female graduates at Sri Padmavathi women's college at Tirupati. Pre-experimental design was utilized. Data was collected using structured questionnaire and attitude scale. The results revealed that, in pretest out of 50 female graduates, 30(60%) were having inadequate knowledge, where as in posttest 70 per cent were having moderate Knowledge, 24 per cent were having adequate knowledge and remaining (6%) were having inadequate knowledge respectively. There was changes in the attitude towards cord blood banking before and after the intervention. The study findings denote that the implementation of structured teaching programme was effective among female graduates.

Materials and Methods:

A pre experimental research design was used to assess the impact of nurse led intervention on cord blood banking among nurses. The research tool consists of four parts.

Part I socio demographic variables:

The demographic variables consists of ten items which includes Age in years, Religion, Area of residence, type of family, education, educational level of the father and mother, occupation, monthly Income of the family, previous source of information on Cord Blood.

PART-II- Self structured knowledge questionnaire on cord blood banking

A total of 20 multiple choice questions were used to assess the level of knowledge regarding Cord Blood Banking among adolescent girls in pre and posttest.

PART –III: Modified Likert attitude scale about cord blood banking

It consisted of Modified Likert-four point attitude scale to assess the attitude of Adolescence regarding Cord blood banking which composed of 10 items which comprised of 5 positive and 5 negative statements.

PART-IV: Nurse led intervention on knowledge and attitude regarding cord blood banking

The content of the Cord Blood Banking includes Introduction, Umbilical Cord Blood ,Cord blood Transplantation ,Types of Cord Blood ,Cord Blood Banking criteria ,Collection Preservation ,Storing Methods

Validity and reliability of the tool:

The content validity of the tool was established by experts in the field of medicine and nursing. Based on their opinion and suggestions, further modification was done accordingly. The reliability of structured multiple choice questions and Attitude Scale were elicited by using test retest method. The "r" value was computed by Karl's Pearson's correlation coefficient formula and it was found to be 0.95, which indicated that the tool was highly reliable. After obtaining permission from the concerned authority the pilot study was conducted with 6 adolescents using simple random sampling technique.

The post-test mean knowledge and attitude score were higher than the pre-test mean knowledge and Attitude scores. The results of the data revealed that the tool was feasible to conduct the study.

Data collection procedure:

Prior to the collection of data, written permission was obtained from the authorities of St. Jeromes College, Kanyakumari district. The investigator utilized the simple random sampling technique to select the 60 study respondents, the respondents were assured anonymity and confidentiality of the information provided by them. The investigator selected the students between the age group of 18-21 years from arts and science department. Pre-test was conducted by administering knowledge questionnaire and Attitude Scale to assess the knowledge and Attitude level on Cord blood Banking. After the pre-test, the Nurse Led Intervention regarding cord blood banking was administered to the groups consist of 3-5 of adolescent girls through Power point presentation by lecture cum and discussion on cord blood banking for the period of 25 to 30 minutes. Post-test assessment was done for the same adolescent girls on seventh day of intervention by using the same tool.

Results:

The study findings are discussed under five sections. Section I deals with Frequency, percentage distribution of demographic variables of adolescent girls.

Majority of adolescence 26 (43%) were at the age group of 18 years. Most of Adolescence 33(55%) were belongs to Hindus. Regarding type of family, 28 (47%) adolescence were from Nuclear family, with regard to education 6(10%) of their father had no formal education and 19(32%) of them were graduates. Majority of Adolescence 57(95%) did not receive any information on cord blood Banking. SECTION II: Percentage distribution of knowledge and attitude scores of adolescent girls before and after the nurse led intervention.

Figure 1 depicts the frequency and percentage distribution of pretest and posttest level of knowledge on cord blood banking among adolescent girls. Among the participants, majority 45 (75%) had inadequate knowledge, 10 (17%) had Moderate knowledge and 5 (8%) had adequate knowledge about cord blood banking in the pretest. It was found that, after the intervention, most of the participants, 48(80%) had adequate knowledge, 07 (12%) had Moderate knowledge and 5 (8%) had inadequate knowledge on cord Blood banking in the posttest.

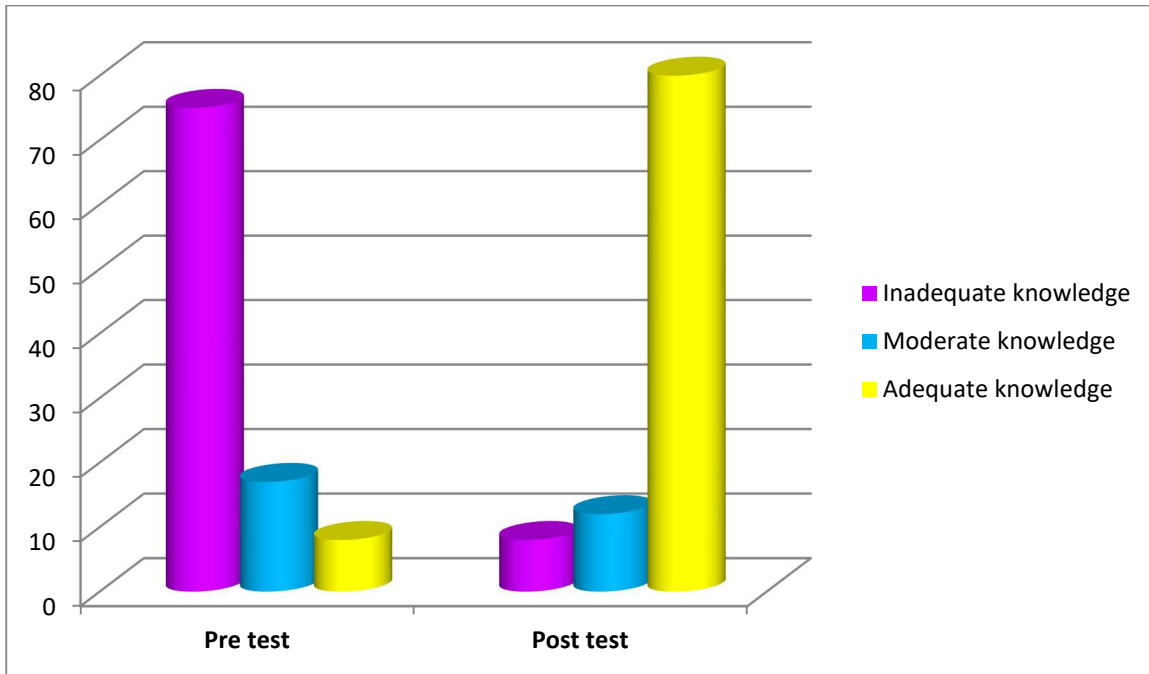


Figure 1: level of knowledge before and after intervention

Figure 2 depicts Frequency and percentage distribution of pretest and posttest level of Attitude on Cord blood banking among adolescent girls

Majority 43 (72%) of the samples had negative attitude, 17 (28%) had positive attitude about cord blood banking in the pretest. It was found that, most of the participants, 51 (85%) had Positive Attitude, 9 (15%) had negative attitude on cord Blood banking in the posttest.

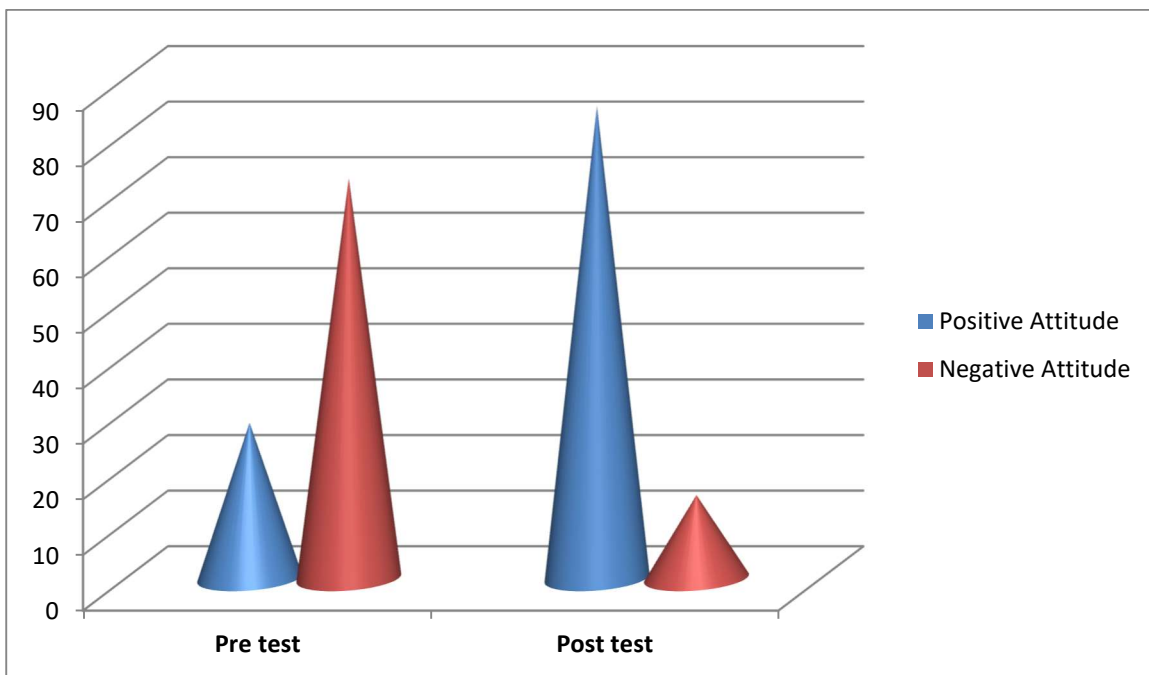


Figure 2 Pre and posttest level of attitude

SECTION – III: It dealt with the comparison of mean score between pretest and post-test knowledge and attitude score before and after Nurse Led Intervention. The Mean post-test knowledge (14.9) was higher than the mean pre-test knowledge (6.55) with standard deviation (14.82) and the obtained t value (2.72) was significant at $p < 0.05$ level.

SECTION IV: It dealt with correlation between knowledge and attitude scores. The inferences made are There was a significant positive correlation ($r=1.01$) between the post level of knowledge (Mean=14.9, Standard Deviation=14.82) and post-test level of attitude (Mean=36, Standard Deviation=26.9)

SECTION V: Association between post level of Knowledge and attitude of adolescent girls regarding cord blood Banking and selected demographic variables.

It shows that there is a Significant association between the post level of attitude and selected background variables of adolescence such as area of residence ($\chi^2=12.1, p < 0.05$) and source of information regarding cord blood banking. ($\chi^2= 6.61, p < 0.05$).

DISCUSSION:

The aim of the study was to evaluate the effectiveness of Nurse Led Intervention on Cord Blood Banking in terms of knowledge and attitude among adolescent in St.Jeromes College, Kanyakumari district. A pre experimental one group pretest posttest design was used to conduct the study. Knowledge and attitude were assessed by Knowledge questionnaires and attitude scale before and after Nurse led intervention. Simple random sampling technique was used. The study findings revealed that Majority of adolescence 26 (43%) were at the age group of 18 years. Majority of Adolescence 57(95%) did not receive information on cord blood Banking. In present study majority 45 (75%) had inadequate knowledge on cord blood banking, 10 (17%) had Moderate knowledge and 5 (8%) had adequate knowledge about cord blood banking in the pretest. It was found that, after the intervention, most of the participants, 48(80%) of them had gained adequate knowledge, 07 (12%) had Moderate knowledge and 5 (8%) had inadequate knowledge on cord Blood banking. They showed interest to learn things to improve their knowledge on cord blood banking. In present study level of attitude on cord blood banking during pretest was negative attitude on cord blood banking among 43 (72%) adolescent girls, 17 (28%) had positive attitude Whereas during posttest , most of the 74 participants 51 (85%) of them had Positive Attitude, 9 (15%) had negative attitude on cord Blood banking. The Findings proved that structured teaching programme had yielded good result among younger population in terms of gain positive attitude score. The Mean post-test knowledge (14.9) was higher than the mean pre-test knowledge (6.55) with standard deviation (14.82) and the obtained t value (2.72) was significant at $p < 0.05$. Results concluded that structured teaching programme enhances the knowledge attitude score on cord blood banking among adolescent girls. The study shows that there was a significant positive correlation ($r=1.01$) between the post level of knowledge (Mean= 14.9, Standard Deviation=14.82) and post-test level of attitude (Mean=36, Standard Deviation=26.9) Where as in attitude a Significant association was found between the post level of attitude and area of residence of students. ($\chi^2=12.1, p < 0.05$).

CONCLUSION:

The following conclusions were drawn based on the study findings. Adolescent girls attitude towards cord blood banking were deficient, and education have an effect to improve the attitude of

adolescent girls on cord blood banking. The present study revealed that adolescent girls will use this awareness in their life time when they become motherhood. The findings of the study shows that the nurse led intervention on cord blood banking in terms of improving knowledge and attitude on adolescence is effective. The study findings also imply that there was a significant association between knowledge and attitude with selected demographic variable area of residence and education. The study was concluded that there is a need for mass educational program for adolescent girls who become the future mother of the nation. Implications:

The findings of the study has implications in different branches of nursing profession.

Nursing service:

Numerous implications can be drawn from the present study, which promotes and creates a new dimension of nursing that will bring enormous changes in the health behaviors. The nurses should take an initiate and imparting knowledge, practice and attitude on cord blood banking to general population through periodical health education program in the school, hospitals and community settings. The nurses have major role in creating awareness of cord blood banking to promote healthy practice to reduce the mortality and morbidity among people from various diseases.

Nursing administration:

Nurse administrators can encourage the nurses to conduct the health awareness programs and regular health visits to the urban and rural people to insist on life saving of people by cord blood banking.

Nursing education:

Health education should be imparted regularly based on evidenced based practice in all nursing curriculum. The faculty members in nursing education can motivate the students to arrange health programs to general population regarding the cord blood banking in attractive way and make them to practice it.

Nursing research:

Extensive research can be conducted to find out the life threatening problems that occurs due to lack of awareness on cord blood banking and can be incorporated in the nursing education and practice. The impact of cord blood banking can also be studied to improve the quality of life among public.

Recommendations:

Based on the research findings the recommendations are as follows:

A study can be conducted to find out the knowledge of parents and teachers on cord blood banking

Similar study can be conducted with large samples to generalize the findings.

Similar study can be conducted by using experimental and control group.

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