

Assessment of Effectiveness of Information Booklet on Knowledge Regarding Cord Blood Stem Cell Therapy among B.Sc. Nursing 4th Year Students of Selected Nursing College at Jaipur

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ABSTRACT

The cell (from Latin *cella*, meaning "small room") is the basic structural, functional and biological unit of all known organisms. A cell is the smallest unit of life. Cells are often called the "building blocks of life". The study of cells is called cell biology, cellular biology, or cytology.

Cord blood stem cell research has been extensively explored worldwide to enhance human health in medical setting. Stem cells have strongly promise to helping us to understand and treat a range of various diseases, injuries and other health- related conditions. Their potential is evident in the use of cord blood stem cells to treat diseases of the blood, A cord blood stem cell therapy has saved the lives of thousands of children with leukemia; and can be seen in the use of stem cells for tissue grafts to treat diseases or injury to the bone, skin and surface of the eye. Important clinical trials involving stem cells are underway for many other conditions and researchers continue to explore new avenues using stem cells in medicine.

KEYWORDS: *Cord blood stem cell, Information Booklet, Knowledge*

INTRODUCTION

BACKGROUND OF THE STUDY

The **cell** (from Latin *cella*, meaning "small room") is the basic structural, functional and biological unit of all known organisms. A cell is the smallest unit of life. Cells are often called the "building blocks of life". The study of cells is called cell biology, cellular biology, or cytology.

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through a machine that extracts stem cells. B. Umbilical cord blood C. Blastocyst.

Embryonic stem cells are obtained from the inner cell mass of the blastocyst, a mainly hollow ball of cells, in the human, forms between three to five days after an egg cell is fertilized by a sperm.

Embryonic stem cells are pluripotent, meaning they can give rise to every cell type in the fully formed body, but not the placenta and umbilical cord.

Tissue-specific stem cells (also referred to as somatic or adult stem cells) are more specialized than the embryonic stem cells. Typically, these stem cells can generate different cell types for the specific tissue or organ in which they live. For example, blood-forming (or hematopoietic) stem cells in the bone marrow can give rise to red blood cells, white blood cells and platelets. Tissue-specific stem cells are difficult to find in the human body, and they don't seem to self-renew in culture as easily as embryonic stem cells do.

The future experts believe that umbilical cord blood is an important source of haematopoietic stem cells and expect that its full potential for treatment of blood disorders is yet to be revealed. Other types of stem cells such as induced pluripotent stem cells may prove to be better suited to treating non-blood-related diseases, but this question can only be answered by further research.

NEED FOR THE STUDY

This study aimed to assess the level of stem cell knowledge toward stem cell application in medicine. Now-a-days prenatal mothers may have inadequate knowledge regarding Cord blood stem cell therapy. Umbilical cord blood supplies are not sufficient to meet the high transfusion needs. This study was designed to determine opinion about preservation of umbilical cord blood, identify the reasons for the lack of motivation to donate umbilical cord blood and allow experts to establish better recruitment campaigns to enrich the donor pool.

Cerebral palsy, a condition where the brain is unable to control the muscles of the body, impacts as many as 10,000 newborns each, according to the Center for Disease Control (CDC). An experimental procedure at Duke University in North Carolina is being used with great success to treat this condition. Children with cerebral palsy are being infused with their own cord blood stem cells to heal and repair damaged brain tissue.

Genetic disorder rate in india 64.4 % (per 1000 live births), Rao and Ghose (2005) report that 1 out of 20

children admitted to hospital has a genetic disorder that ultimately account for about 1 out of 10 childhood deaths. In India ultimately urban area are affected with congenital malformation and genetic disorder are the third most common cause of mortality in newborns.

Haemophilia A (clotting factor VIII deficiency) is the most common form of the disorder, occurring at about 1 in 5,000 to 10,000 male births. Haemophilia B (factor IX deficiency) occurs at about 1 in about 20,000- 34,000 male births, with no significant racial difference. Female carriers may also bleed abnormally, because some have low levels of the relevant clotting factor. The birth rate haemophilia in India is 32 per 1,000 live births. Thalassaemia is a blood related disorder that is mostly transmitted in autosomal recessive mode. There are an estimated 60-80 million people in the world who carry the beta thalassaemia trait. People who carry thalassaemia in India alone number approximately 30 million. In India, beta thalassaemia is very common in the north eastern region with a frequency of 7-64%. High frequency of beta thalassaemia trait is also reported in Gujarat, Punjab, Tamil Nadu and West Bengal.

OBJECTIVES

1. To assess the pre test knowledge regarding cord blood stem cell therapy among B.sc. Nursing 4th year students
2. To assess the effectiveness of Information booklet on cord blood stem cell therapy among B.sc. Nursing 4th year students
3. To find out association between pretest knowledge regarding cord blood stem cell therapy among B.sc. Nursing 4th year students with selected demographic variables.

HYPOTHESIS

H¹- There will be significant difference between pre and post test knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students.

H²- There will be significant association between pre test knowledge regarding cord blood stem cell therapy among B. Sc Nursing 4th year students and selected demographic variables.

ASSUMPTIONS

The study assumes that

1. B. Sc. Nursing 4th year students may have inadequate knowledge regarding cord blood stem cell therapy
2. Information booklet will enhance knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students

OPERATIONAL DEFINITION

Assess:- It refers to value the level of knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students

Knowledge:- It refers to the information acquired from structure teaching programme regarding importance of stem cell therapy.

Effectiveness:- It refers to significant gain in knowledge determined by significant difference between pre and post test knowledge score after providing Information booklet.

Information booklet:- It refers to the systematic and scientific information and specific instructions related to cord blood stem cell therapy.

Cord blood stem cell therapy:- It Refers to meaning of Normal cell structure, Normal cell division, Definition, History, Types , Diseases treated by umbilical cord blood, Procedure, Nurses responsibilities of cord blood stem cells as stated in Information booklet.

DELIMITATION

1. The study is delimited to B.sc.nursing 4th year only
2. The study is delimited to six weeks only
3. The study is delimited to 40 samples only.
4. The study is delimited to B.sc.nursing 4th year students who are all coming to selected Nursing College only.

RESEARCH METHODOLOGY

Methodology of research organizes all the components of study in a way that most likely we need to valid answers for the problems that have been posted.

(Burns and Groove, 2008)

This chapter deals with the methodology adopted for the study. It includes the research approach, research design, variables, setting, population, sample and criteria for selection of the sample, sample size, sampling technique, development and description of the tool, content validity, pilot study and reliability of the tool, data collection procedure and plan for data analysis.

RESEARCH APPROACH:

The research approach is an overall planned or blue print chosen to carry out the study. The selection of the research approach is the basic procedure for conduct of research enquiry. An evaluative research is an applied form of research that involves finding out how well a programme, practice, procedure, or policy is working.⁴⁵

In view of the nature of problems selected for the study and the objectives to be accomplished, an evaluative research approach. Pre-experimental design was used for the study with single pre-test & post -test design.

RESEARCH DESIGN

The research design refers to the plan or organization of specific investigation. Research design refers to the overall plan for obtaining answers to the research problem. Pre experimental design was used for the study with single group pre-test, post-test design. The schematic representation of research study design used by the research investigation is given below.

Table No-1

	Pre test	Nursing Intervention	Post test
One group	O1	X	O2

Key:

O1: Present knowledge score before teaching

X: Nursing Intervention (Information booklet) teaching programme

O2: Post test knowledge score after 2days of administering structured teaching programme.

SETTING OF THE STUDY:

The word setting point out to the where the Study will be conducted. The setting for the present study was on the B. Sc. Nursing 4th year students in selected college of Nursing at Jaipur. The study is selected to the availability of the sample, feasibility for the conducting study, geographical proximity & ethical clearance.

VARIABLES:

A variable is any phenomenon or characteristics are the measurable characteristics of a concept of logical of attributes. They are of two types.

A. Independent variable:

The independent variable of the study refers to the Information booklet regarding knowledge on cord blood stem cell therapy among B. Sc. Nursing 4th year students.

B. Dependent variables:

The Dependent variables of the study self the knowledge cord blood stem cell therapy.

POPULATION: -

B. Sc. Nursing 4th year students were the target population in selected college of nursing.

SAMPLE: -

The sample for the present study was on B. Sc. Nursing 4th year students in selected college of nursing.

SAMPLE SIZE:

The sample comprises 40 B. Sc. Nursing 4th year students who met the inclusion criteria and present during sampling in selected college of nursing at Jaipur.

SAMPLING TECHNIQUE

The sampling technique and for the study was purposive sampling technique which is a type of non-probability criteria for sample collection.

INCLUSION CRITERIA

1. The students who are study in B. Sc. Nursing 4th year in selected college of nursing.
2. The B. Sc. Nursing 4th year students who are willing to participate in the study.

EXCLUSION CRITERIA

1. The B. Sc. Nursing 4th year students who are not co-operative.
2. The B. Sc. Nursing 4th year students who are not available at the time of data collection.

The tool used for gathering relevant data about knowledge on cord blood stem cell therapy was structure knowledge questionnaire.

DATA COLLECTION TOOL

The tool consists of three sections

SECTION – A

It deals with demographic variables, which includes Gender, Area of living, Marital status, Source of information, Types of family of B.Sc. Nursing 4th year students regarding on stem cell therapy.

SECTION – B

This section consists of structured questionnaire to assess the knowledge among B. Sc. Nursing 4th year students. It consists of 30 multiple choice questions. Scoring was done for each items. In each question there was only one right choice. Each correct answer was given a score of one and wrong answer carries score of zero. Knowledge was measured in terms of knowledge score. The total scores of knowledge were 30.

SECTION-1**TABLE-1**

Table 4.1 Frequency and percentage distribution of demographic variables of B.Sc. nursing first year students

(N=40)				
Sr. no.	Demographic variable		Frequency	Percentage(%)
1.	Gender	A. Male	33	82.5
		B. Female	7	17.5
2.	Area Of Living	A. Rural area	34	85.0
		B. Urban area	6	15.0
3.	Marital Status	A. Unmarried	35	87.5
		B. Married	5	12.5

Scoring key each correct answer carries – 1 mark each incorrect answer carries – 0 marks, and it is classified as

Table 3.1: Total scores of knowledge

Score	level of knowledge
1-25%	Inadequate Knowledge
26-50%	Mild Knowledge
51-75%	Moderately Knowledge
76-100	Adequate Knowledge

Section-C: Structure knowledge questionnaire on cord blood stem cell therapy among B. Sc. Nursing 4th year students.

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data collected from 40 B. Sc. Nursing 4th year students in selected college of nursing, to assess the effectiveness of information booklet on knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students. The data collected for the study was grouped and analyzed as per the objectives set for the study. The findings based on the descriptive and inferential statistical analysis are presented under the following sections.

ORGANIZATION OF DATA

The findings of the study were grouped and analyzed under the following sessions.

Section A: Description of the demographic variables.

Section B: To assess the level of knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students by conducting pre- test and post- test.

Section C: Effectiveness of information booklet on knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students.

Section D: Association of pretest level of knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students with selected demographic variables

4.	Source of information	No information	10	25.0
		Mass media	15	37.5
		Books	6	15.0
		Family and friends	4	10.0
		Health worker	5	12.5
5.	Types of family	A. Nuclear	37	92.5
		B. Joint	3	7.5

Table 4.1 shows that most of the samples 33 (82.5%) are gender, Area Of Living are Rural area 34 (85%) and majority of them are Unmarried 35 (87.5%), most of sample are have information from mass media 15(37.5%), 92.5% of them are belong Nuclear family.

Figures 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5 depict the percentage distribution of the sample according to their gender, Area Of Living, Marital Status, Source of information and type of family.

4.1.1-Distribution percentage of workers according to their gender

Gender	No of workers	Percentage
Male	33	82.5
Female	7	17.5
Total	40	100%

It depicts that the percentage distribution of the total sample according to their gender was found to be highest in the male of 33 (82.5%) and lowest in the female of 7 (17.5%).

4.1.2-Distribution percentage of students according to their area of living

Area Of Living	No of workers	Percentage
Rural area	34	85
Urban area	6	15
Total	40	100%

It depicts that the percentage distribution of the total sample according to their **area of living** was found to be highest in the rural area of 34 (85%) and lowest in the urban area of 6 (15%).

4.1.3-Distribution percentage of students according to their Marital status

Marital status	No of workers	Percentage
Married	5	12.5
Unmarried	35	87.5
Total	40	100%

It depicts that the percentage distribution of the total sample according to their **Marital status** was found to be highest in the Unmarried of 35 (87.5%) and lowest in the Married of 5 (12.5%).

4.1.4-Distribution percentage of students according to their Source of information

Source of information	No of workers	Percentage
No information	10	25.0
Mass media	15	37.5
Books	6	15.0
Family and friends	4	10.0
Health worker	5	12.5
Total	40	100%

It depicts that the percentage distribution of the total sample according to their Source of information was found to be highest in the mass media of 35 (37.5%) and lowest in the Family and friends of 4 (10%).

4.1.5-Distribution percentage of students according to their Types of family

Types of family	No of workers	Percentage
A. Nuclear	37	92.5
B. Joint	3	7.5
Total	40	100%

It depicts that the percentage distribution of the total sample according to their Types of family was found to be highest in the nuclear family of 37 (92.5%) and lowest in the Family and friends of 3 (7.5%).

SECTION – II

Table 4.2.1 Pre test, frequency, percentage, distribution, mean and standard deviation of cord blood stem cell therapy among B. Sc. Nursing 4th year students by conducting pre- test.

Sr. no.	Level of stress	Frequency	Percentage (%)	Mean	Standard deviation
1.	Inadequate Knowledge	8	20.0	16.33	7.908
2.	Mild Knowledge	23	57.5		
3.	Moderately Knowledge	9	22.5		
4.	Adequate Knowledge	0	0		
	Total	40	100.0		

Interpretation- Data presented in Table-2 reveals that most of pre test knowledge on cord blood stem cell therapy of students has 8 (20%) had Inadequate Knowledge score, 23 (57.5%) had Mild Knowledge score, 9 (22.5.0%) had Moderately Knowledge score, and 0 (0.0%) had Adequate Knowledge score of B. Sc. Nursing 4th year students as the mean score was 16.33 with the sample standard deviation of 7.908

Table 4.2.2 Post test, frequency, percentage, distribution, mean and standard deviation of cord blood stem cell therapy among B. Sc. Nursing 4th year students by conducting post- test

Sr. no.	Level of stress	Frequency	Percentage (%)	Mean	Standard deviation
1.	Inadequate Knowledge	1	2.5	57.18	18.694
2.	Mild Knowledge	13	32.5		
3.	Moderately Knowledge	14	35.0		
4.	Adequate Knowledge	12	30.0		
	Total	40	100.0		

Interpretation- Data presented in Table-2 reveals that most of knowledge on cord blood stem cell therapy of students has 1 (2.5%) had Inadequate Knowledge score, 13 (32.5%) had Mild Knowledge score, 14 (35.0%) had Moderately Knowledge score, and 12 (30.0%) had Adequate Knowledge score of B. Sc. Nursing 4th year students as the mean score was 57.18 with the sample standard deviation of 18.694.

SECTION C:

EFFECTIVENESS OF INFORMATION BOOKLET ON KNOWLEDGE REGARDING CORD BLOOD STEM CELL THERAPY AMONG ANTENATAL MOTHERS.

Table 4.3.1: Comparison of pretest and post test knowledge scores regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students.

Knowledge	Mean	S.D	Paired „t“ Value
Pretest	11.50	2.70	t = 57.742 p = 0.000, S***
Post Test	33.06	3.93	

***p<0.001, S – Significant

The table 4.3.1 shows that in the pretest, the mean score of knowledge was 11.50 with S.D 2.70 whereas in the post test the mean score of knowledge was 33.06 with S.D 3.93. The calculated paired “t” value of t = 57.742 was found to statistically significant at p<0.001 level. This clearly shows that the information booklet imparted to B. Sc. Nursing 4th year students had significant improvement in the post test level of knowledge regarding cord blood stem cell therapy.

SECTION D:**Table 4.4.1: Association of Pre test level of knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students with selected demographic variables.****N = 40**

Demographic variables		Df	X ² Value	P<0.05	Significance
Gender	A. Male	3	3.58	7.82	Not Significant
	B. Female				
Area Of Living	A. Rural area	3	8.65	7.82	Significant
	B. Urban area				
Marital Status	A. Unmarried	3	6.01	7.82	Not Significant
	B. Married				
Source of information	No information	12	22.31	21.03	Significant
	Mass media				
	Books				
	Family and friends				
	Health worker				
Types of family	A. Nuclear	3	5.46	7.82	Not Significant
	B. Joint				

Table 4.4.1: shows that in B.sc nursing 4th year students in area of living and source of information are closely associated with their level of knowledge.

DISCUSSION

This chapter discusses in detail the findings of the study derived from the statistical analysis and its pertinence to the objectives of the study and further discussion exemplify these objectives were satisfied by the study. The purpose of the study was to assess the effectiveness of information booklet on knowledge regarding cord blood stem cell therapy among B.sc nursing 4th year students. The findings based on the descriptive, comparative and inferential statistical analysis are presented under the following sections.

Description of the demographic variable among B.sc nursing 4th year students with cord blood stem cell therapy

With regard to the demographic variables 15(50%) of B.sc nursing 4th year were 33 (82.5%) are gender, Area Of Living are Rural area 34 (85%) and majority of them are Unmarried 35 (87.5%), most of sample are have information from mass media 15(37.5%), 92.5% of them are belong Nuclear family had no previous knowledge on cord blood stem cell therapy.

Table 7 shows that all demographic variables had not shown statistically significant association with pre test level of knowledge regarding cord blood stem cell therapy among B. Sc. Nursing 4th year students at p<0.05 level.

IMPLICATIONS

The implications drawn from this study are of importance to the field of nursing including nursing service, administration, education and research.

Nursing Practice

The nurse as a service provider should periodically organize and conduct mass education programme on cord blood stem cell therapy among B. Sc. Nursing 4th year students.

The nurse implements the information, education, communication to create aware to the B. Sc. Nursing 4th year students about stem cell therapy.

As a service provider the nurse should implement cord blood stem cell therapy among B. Sc. Nursing 4th year students and improve their knowledge.

Nursing Education

Nurses must be reinforced in-service education regarding define stem cell therapy and it's types, disease treated by umbilical cord, procedure to collect stem cells.

Nursing students have to be educated regarding cord blood stem cells therapy among B. Sc. Nursing 4th year students.

Nurse educators should emphasize the proper education about stem cell therapy as well as provide opportunity for students to apply the knowledge in their practice.

Nursing Administration

The nurse as an administrator should implement formal teaching programme on cord blood stem cell therapy among B. Sc. Nursing 4th year students.

Provide opportunities for nurses to attend training programmes.

The nurse must instrumental in pointing out relevant policies of the state and central level of ensure effective programme to educate the public and facilitate optimal recourse allocation for implementation of the programme and create intersectional network about cord blood stem cell therapy.

Nursing Research

Nurse researchers can promote more research with regard to utilization of disease treated by cord blood stem cell therapy.

Nurse researchers can collaborate with the other health team members in developing evidence based nursing practice.

Nursing researcher can encourage clinical nurse to apply the research findings in their daily nursing care activities.

RECOMMENDATIONS

Nursing research is a widely expanding area with need for validating conservative, interventions and development of new knowledge. This study recommends the following for achieving this end.

A comparative study can be carried out to assess the factors leading to the development of cord blood stem cell therapy between rural and urban population.

A video teaching program on cord blood stem cell therapy can be conducted in larger samples for better generalization.

A comparative study can be conducted to compare the effect of structured teaching programme among experimental group and control group without intervention.

LIMITATIONS

The study was confined to small number of subjects and shorter period.

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