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A STUDY TO ASSESS THE EFFECT OF STRUCTURED TEACHING PROGRAMME ON THE KNOWLEDGE REGARDING MENSTRUAL BLOOD BANKING AMONG B.Sc NURSING STUDENTS OF SELECTED COLLEGE OF NURSING, KERALA.

ABSTRACT

Menstrual blood, traditionally regarded as biological waste, is now recognized as a rich and accessible source of mesenchymal stem cells (MenSCs) with significant potential in regenerative medicine. Despite its therapeutic purpose, awareness and acceptance of menstrual blood banking remain limited, particularly in a country like India, where culture stigma and lack of education persist. This study aimed to assess the effectiveness a structured teaching program on the knowledge regarding menstrual blood banking among B.Sc. Nursing students of a selected college in Thiruvalla. One group pre-test post-test design was employed, involving 65 samples selected by purposive sampling. Demographic data was collected and the pretest knowledge was assessed by using a self-structured knowledge questionnaire. A structured teaching program on menstrual blood banking was given. The results revealed a significant improvement in knowledge scores, with the mean pre-test score of 12.97 increased to mean post test score of 24.55. (t value =20.35, P=0.05). The findings demonstrated the effectiveness of structured educational programs in enhancing awareness and understanding of menstrual blood banking. Furthermore, associations were observed between knowledge levels and selected demographic variables such as religion and occupation of parents. This study demands the need for integrating emerging biotechnological topics like menstrual blood banking into nursing education to empower future healthcare providers and promote the broader adoption of regenerative medical practices.

Key words: effect; structured teaching program; knowledge; menstrual blood banking.

INTRODUCTION

The menstrual cycle is a normal process that happens to nearly all women during their childbearing years from puberty till menopause. Menstrual blood is not just blood it's also made up of tissue from the uterine lining. Menstrual blood contains millions of stem cells that have properties and characteristics similar to those of stem cells found in bone marrow and embryos. These menstrual stem cells (MenSCs) exhibit high proliferation rates and the ability to differentiate into various cell types, including bone, cartilage, fat, and nerve cells. The collection process is simple and does not require any medical procedure, unlike bone marrow or umbilical cord blood collection. Typically, menstrual blood is collected during the first few days of the menstrual cycle using sterile, medical-grade collection kits provided by menstrual blood banks. Once collected, the sample is shipped to the laboratory where stem cells are isolated, tested for viability, and cryopreserved for future therapeutic use.

Menstrual blood banking is an emerging and innovative branch of regenerative medicine that involves the collection, processing, and cryopreservation of stem cells derived from menstrual blood. This concept, though relatively new, has gained increasing interest in medical and scientific communities due to its non-invasive nature and the rich source of mesenchymal stem cells (MSCs) found in menstrual fluid. These stem cells have shown potential in treating a range of conditions, including cardiovascular diseases,

neurodegenerative disorders, and autoimmune diseases, as well as in tissue engineering and regenerative therapies. Moreover, because these cells are autologous (originating from the same individual), the risk of immune rejection during future treatments is significantly reduced.

The concept of menstrual blood banking is especially empowering for women, as it allows them to preserve a biological resource that is regularly shed during their reproductive years. This provides a personal, ethical, and non-controversial alternative to other sources of stem cells. This study aimed to assess the knowledge regarding menstrual blood banking among nursing students of a selected college in Kerala. Several studies supported the need for educational programs in enhancing awareness and understanding of menstrual blood banking among health care professionals.

OBJECTIVES

- To determine the level of knowledge regarding menstrual blood banking among 6th semester B.Sc nursing students.
- To evaluate the effectiveness of structured teaching program on knowledge regarding menstrual blood banking among 6th semester B.Sc nursing students.
- To find association between knowledge level of students regarding menstrual blood banking with selected demographic variables.

MATERIALS & METHODS

Research design: Pre-experimental One group pre-test post-test design

Research variables:

Dependent Variable: Knowledge of 6th semester B.Sc. Nursing students regarding menstrual blood banking.

Independent Variable: Structured teaching program on menstrual blood banking

Sample: 6th semester BSc nursing students in the age group of 17 to 25 years studying in TMM College of Nursing, Thiruvalla

Sampling technique: Purposive sampling.

Sample size: 65 nursing students

TOOLS FOR DATA COLLECTION

Section A: Socio-demographic data.

It consisted of items such as name, age, sex, religion, education of father, education of mother, occupation of father, occupation of mother, prior awareness regarding menstrual blood banking and the source of information.

Section B: Structured questionnaire regarding menstrual blood banking

To assess the level of knowledge among students, a structured questionnaire was used which consisted of 30 multiple choice questions and each question carried 1 mark. The samples were instructed to select the most appropriate answer from the given options. Total 30 marks were allotted. The knowledge level of the students was analysed and scored as:

Knowledge level	Range
Poor knowledge	1 to 10
Moderate knowledge	11 to 20
Good knowledge	21 to 30

RESULT

SECTION -A: Demographic data of samples

Table 1 showing demographic data of the samples. (N= 65)

Demographic variables	F	%
Age in years		
a) 18-19	1	1.5
b) 20-21	47	72.3
c) 22-23	17	26.2
d) Above 23	0	0
Gender		
a) Female	62	95.4
b) Male	3	4.6
Education of father		
a) SSLC	17	26.2
b) Pre--degree	23	35.4
c) Under--graduate or diploma	13	20
d) Post-- graduate	12	18.5
Education of mother		
a) SSLC	10	15.4
b) Plus two	23	35.4
c) Under-graduate or diploma	20	30.8
d) Post-graduate	12	18.5
Occupation of father		
a) Daily wage labor	12	18.5
b) Private	26	40
c) Government job	6	9.2
d) Any other	21	32.3
Occupation of Mother		
a) Daily wage labourer	4	6.2
b) Private	15	23.1
c) Government	1	1.5
d) Any other	45	69.2
Are you aware of any stem cells bank in India?		
a) Yes	22	33.8
b) No	43	66.2

SECTION-B: Assessment of pre--test and post--test level of knowledge regarding menstrual blood banking

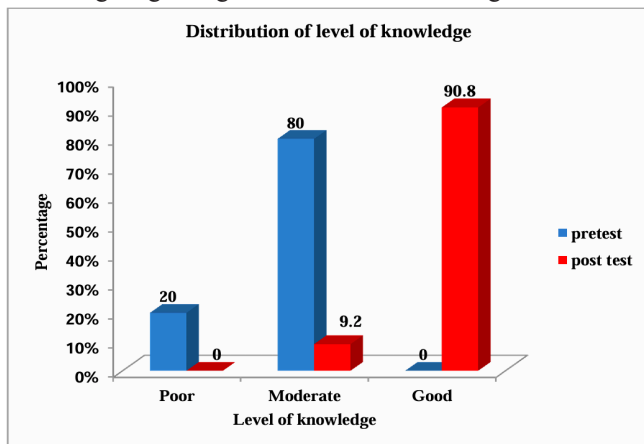


Figure 1 showing the pretest and post test level of knowledge about menstrual blood banking.

SECTION-C: Effectiveness of structured teaching programme on knowledge regarding menstrual blood banking. Mean, mean difference, standard deviation and 't' value of pre--test and post--test knowledge of samples.

Variables	Mean	Standard Deviation	Mean Difference	' t ' value	Table Value
Pre-test	12.9	3.263	11.58	20.35*	1.658
Post test	24.5	3.490			

*significance level 0.05

SECTION--D: Association between the selected demographic variables and knowledge regarding menstrual blood banking
Table 3 showing association between knowledge level with their selected demographic variables N=65

Sl. No.	Demographic variables	Poor	Moderate	Good	df	Table Value	χ^2	Significance
1	Age in years							
	18--19	0	0	1	4	9.49	5.26	Not Significant
	20--21	10	25	11				
	22--23	4	6	8				
	Above 23	0	0	0				
2	Gender							
	Male	1	1	1	2	5.99	0.35	Not Significant
	Female	13	30	19				
3	Religion							
	Hindu	6	5	0	4	9.49	23.48	Significant
	Hindu	8	5	39				
	Christian							
	Muslim	0	1	1				
4	Education of father							
	SSLC	4	10	3	6	12.59	3.54	Not Significant
	Pre degree	5	11	7				
	UG/Diploma	3	6	4				
	PG/Others	2	4	6				
5	Place of residence							
	Urban	3	8	31	2	5.99	0.57	Not significant
	Rural	1	6	16				
6	Occupation of father							
	Daily wage	2	2	2	6	12.59	13.70	Significant
	Private job	4	8	14				
	Govt. job	4	7	1				
	Any others	4	14	3				
7	Occupation of mother							
	Daily wage	1	2	1	6	12.59	12.93	Significant
	Private job	1	4	10				
	Govt. Job	0	1	0				
	Any others	12	4	9				

0.05 level of significance

Section A: Description of socio demographic variables of students

- Out of the 65 samples, 1 sample (1.5%) belonged to the age group of 18 to 19, 47 samples (72.3%) belonged to the age group of 20 to 21, 17 samples (26.2%) belonged to the age group of 22 to 23, none of the samples were above age of 23.
- Regarding gender, 62 samples (92.4%) were females, and 3 samples (4.6%) were male
- Out of 65 samples, 11 samples (17%) were Hindus, 2 samples (3%) belonged to Muslim, 52 samples (80%) belonged to Christian.
- Regarding area of residence, 42 samples (65%) belonged to urban areas, 23 samples (35%) belonged to rural areas.

Section B: Assessment of pre-test and post-test knowledge of students regarding menstrual blood banking

- During pre-test, 20% of students had poor knowledge, 80% had moderate knowledge and 0% had good knowledge on menstrual blood banking
- During post-test, 90.8% of the students had good knowledge, 9.2% students had moderate knowledge on menstrual blood banking

Section C: Effect of structured teaching programme on menstrual blood banking

- In post-test, mean (24.55) and standard deviation (3.49) were higher than the pretest knowledge mean (12.97) and standard deviation (3.26).
- The mean knowledge score of pre-test was 12.97 and mean knowledge score of post-test was 24.9, the mean difference was 11.58 with df of 64.

The structured teaching programme was effective in improving knowledge regarding menstrual blood banking, as the post-test mean knowledge score (24.55 ± 3.49) was substantially higher than the pre-test score (12.97 ± 3.26). The mean improvement of 11.58 points ($df = 64$) indicates a significant gain in participants' knowledge following the intervention.

Section D: Association between the selected demographic variable and knowledge regarding menstrual blood banking

- There was significant association between the knowledge regarding menstrual blood banking among nursing students and demographic variables such as religion ($\chi^2 = 23.48$, $P = 0.05$), occupation of father ($\chi^2 = 12.59$, $P = 0.05$), and occupation of mother ($\chi^2 = 12.59$, $P = 0.05$).

CONCLUSION

The present study was undertaken to assess the effectiveness of structured teaching program on knowledge regarding menstrual blood banking among 6th semester B.Sc. Nursing students of TMM College of Nursing, Thiruvalla. The research design adopted was one group pre-test post-test design and the sampling technique used was non-probability purposive sampling. The tool used was a structured

knowledge questionnaire, developed based on literature review, expert inputs, and objectives of the study. The results proved that the structured teaching programme was effective in enhancing knowledge regarding menstrual blood banking among nursing students.

Declaration by Authors

Ethical Approval: Approved by college ethical committee.

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Conflict of Interest: The authors declare no conflict of interest.

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