

“A STUDY TO ASSESS THE KNOWLEDGE ON MENSTRUAL BLOOD DERIVED STEM CELL BANKING AMONG NURSING PERSONNEL IN GOLAGHAT DISTRICT OF ASSAM”

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Abstract:

Menstruation is always associated with myth and taboo in Indian society and the topic is very much uncomfortable to discuss in front of the public. Recent advancement in stem cells research have proved that menstrual blood containing this endometrial tissue is a very rich source of stem cells which is very cost effective & easy to find. Therefore a study was undertaken to assess the knowledge of menstrual blood derived stem cell banking among nursing personnel from 11th May 2026 to 14th Aug 2026. Data were collected by non-probability sampling technique from 234 nursing personnel working in both Govt. and private nursing schools and hospitals in Golaghat district of Assam. Structured questionnaire was administered among the nursing faculty members and staff nurses in the school & hospital settings. Data was analysed using descriptive statistics. The findings revealed that though majority of the respondents 180 (76.9 %) were aware of menstrual blood derived stem cells still out of 234, only very few 03 (1.2%) nursing personnel have good knowledge and majority 218 (93%) found to have average knowledge on menstrual blood stem cell banking while 94 (40.1%) nursing personnel showed willingness for menstrual blood donation. The study concluded that there is a need to promote interactive session on menstrual blood derived stem cell banking among nursing personnel so that the needy family will get benefited from this novel innovation.

KEYWORDS: Knowledge, Stem Cells, Menstrual Blood Derived Stem Cells, Health Care Personnel.

1. INTRODUCTION

Menstruation is always associated with myth and taboo in Indian society and the topic is very much uncomfortable to discuss in front of public. Menstruating girls and women are still considered impure due to the various cultural practices prevailing in many parts of India. In Assam, menstruating women are kept in isolation for three days without touching other family members and they are subjected to various restrictions in terms of household activities, religious activities and social activities.

Menstruation is a monthly period or cycle in which shedding of the endometrial lining of the uterus takes place in the form of blood along with partly tissue from inside the uterus. Women have been discarding menstrual blood as unwanted or unsanitary waste till today (1). But advances in science and new research have found that menstrual blood containing this endometrial tissue is a very rich source of stem cells. The stem cells are a group of primordial cells with the capacity of self-renewal, proliferation, and differentiation over a long period through cell division to perform specific functions in the body(2).

The concept of menstrual blood-derived stem cell (MeSC) banking began in 2007 with an American-based company, Cryo Cell. In India, Life Cell International was the first company to initiate this MeSC banking service. The famous actress and cancer survivor Lisa Ray had officially unveiled menstrual blood stem cell banking on 8th March 2011 at Mumbai to mark the 100th International Women's Day celebration(3).

Menstrual blood-derived stem cells (MeSCs) are a unique type of Mesenchymal Stem Cells which have similar regenerative capabilities as the stem cells found in umbilical cord blood and bone marrow(1). The unique properties of these mesenchymal stem cells demonstrate the possibilities of treating autoimmune diseases and offer vast scope in future therapeutic applications(4).

The use of MeSC for the treatment of different diseases is progressing rapidly and their therapeutic application are expanding day by day (4). There are several benefits of using menstrual blood-derived stem cells including management of various viral and respiratory diseases such as ARDS, Alzheimer's disease, heart disease, liver disease, inflammatory bowel disease, rheumatoid arthritis, osteoarthritis and a number of diseases including cancer patients as stem cell therapy(5,6).

Since it is a non-invasive and non-ethical procedure where a healthy woman of 25 -35 years can donate or collect menstrual blood at home on the 2nd or heaviest day of menstruation in a medical-grade silicone menstrual cup which can then be transferred into sterile media or container. The collection kit can be transported along with the refrigerated ice pack to the menstrual blood bank laboratory where it is processed, frozen and stored. The Life

Cell has a network of MeSC storage facilities with headquarter are located in Chennai, Gurgaon and Mumbai and more than 100 branches spread across 21 states in the country(1,7).

Menstrual blood bank charges a minimal annual fee for storage and preservation and allow women to have lifelong benefit from them.

To the best of the researcher's knowledge, there is very limited research related to this topic in Assam. Therefore, it is important to raise awareness on the benefits of menstrual blood and how it can be donated and utilized as stem cell therapy among women, especially nursing personnel, as they are connecting the community people with the health care industry. Hence, this study was conducted with an aim to assess the knowledge of menstrual blood-derived stem cell banking among nursing personnel in Golaghat district of Assam.

2. MATERIALS AND METHOD

A descriptive cross-sectional research design was adopted for conducting the study to assess the knowledge regarding menstrual blood-derived stem cell banking among nursing personnel working in two Govt organizations of Golaghat district namely Swahid Kushal Konwar Civil Hospital and GNM training centre and two private organizations of Golaghat district ie Vivekananda Kendra NRL hospital and VKNRL School of Nursing, from 11th May'2026 to 14th August'2026. Self-constructed structured questionnaire was prepared based on an extensive review of the literature (4,7) covering questions related to the concept of MeSC banking, collection and storage of MeSC banking. The questionnaire was validated by one pathologist, one gynaecologist and nursing experts and then pre-tested before the start of the survey. Data were collected using non-probability sampling from 234 nursing personnel taking prior permission from the head of the organizations and consent from the participants. Ethical clearance was obtained from the Institutional Ethics Committee of VKNRL School of Nursing and permission was obtained from the Joint Director of Health Service, Golaghat. Data were analysed using descriptive statistics.

3. RESULTS

The findings of the study (Table1-2) reveal that the majority 192 (82 %) of the sample under study belong to the age group of 30–40 years and most of them 193 (83%) have GNM education. The majority, 146 (62.3%) have a private sector job while almost half of the respondents, 50.7% had a monthly family income between 1lakh to 1.5 lakhs. The majority i.e. 180 (76.9%) were aware of menstrual blood-derived stem cells, while 59.8% were unaware that menstrual blood can be donated. The majority of the participants 173 (73.9%) opined that menstrual blood-derived stem cell banking will be helpful for the society and more than one third 94 (40.1 %) nursing personnel showed willingness for menstrual blood donation. Data depicted in Table-3 shows that out of 234 participants only 03 (1.2%) participants had good knowledge and the majority 218 (93%) are found to have average knowledge on menstrual blood-derived stem cell banking.

Further, the data depicted in Table-4 shows that a maximum of 163, (69.7%) nursing personnel knew about the type of stem cells found in menstrual blood and 124 (53%) respondents had knowledge of the advantages of menstrual blood stem cell banking.

Table-5 depicts that 64 (27.3%) respondents had knowledge on eligibility criteria to donate menstrual blood and 76 (32.4%) respondents had knowledge on the procedure to collect menstrual blood stem cells.

Further, the data depicted in Table - 4 revealed item-wise knowledge level of respondents on the concept of menstrual blood stem cell banking and table -5 revealed item-wise knowledge on the process of collection and storage MeSC banking.

4. DISCUSSION

To the best of the researcher's knowledge, very few studies are available related to awareness and knowledge on MeSC banking and its therapeutic applications. Generating more studies on this aspect will give new rays of hope for many families during their medical emergency period.

According to the findings of the present study, 93% of nursing personnel had average knowledge on MeSC banking, while 03 (1.2%) had good knowledge and 13 (5.5%) had poor knowledge. The result was similar to the study conducted by Pathrose A et al (2022) 89.6% nursing students reported to have average knowledge, Sasikala P (2021) 70% nursing staff have inadequate knowledge & none of them had adequate knowledge while another study in India by Kaur KN et al (2023) found only 49% female health workers had average knowledge on MeSC banking which could be due to sociodemographic characteristics of the study sample.

5. CONCLUSION:

The study concluded that only very few (1.2%) nursing personnel have good knowledge on menstrual blood stem cell banking, which is a cost-effective, novel and ethically acceptable alternative concept of umbilical cord blood stem cell banking. This needs to be popularized in the public health field through healthcare professionals and therefore they need to be equipped with knowledge on menstrual blood-derived stem cell banking.

Table-1: Frequency and percentage distribution of sample characteristics n= 234

Variable		Frequency	Percentage (%)
Age	Below 30 years	29	12.3%
	30 to 40 years	192	82.0%
	40 -50 years	06	2.5%
	Above 50 years	07	2.9%
Qualification	ANM	04	1.7 %
	GNM	193	83 %
	B.SC (N)	21	8.9 %
	M.Sc (N)	16	6.8 %
Religion	Hindu	210	89.7%
	Islam	09	3.8%
	Christian	10	4.2%
	Others	05	2.1%
Type of Job	a) Private	146	62.3 %
	b) Govt	88	37.6 %
Family income per month	a) Below 50 thousand	31	13.2%
	b) 50 thousand -1 lakh	65	27.7%
	c) 1 – 1.5 lakh	118	50.4%
	d) Above 1.5 lakh	20	8.5%

Table-2: Frequency and percentage distribution of MeSC banking related information n= 234

Question	Option	Frequency	Percentage
Aware on menstrual blood derived stem cells	Yes	180	76.9%
	No	54	23.0%
Source of awareness	Educational course	34	18.8%
	Social media	132	73.3%
	Colleague	08	4.4%
	Other	06	3.3%
Willingness to donate menstrual blood.	Yes	94	40.1%
	No	140	59.8%
Menstrual blood banking will be helpful for society	Yes	173	73.9%
	No	61	26.0%

Table-3: Level of knowledge of respondents on menstrual blood derived stem cell banking n= 234

Level of knowledge on menstrual blood stem cell banking	Score range	Frequency	Percentage
Poor knowledge	0- 06	13	5.5%
Average knowledge	07-12	218	93%

Good knowledge	13-18	03	1.2%
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Table-4: Item-wise knowledge level of respondents on concept of menstrual blood derived stem cell banking. n=234

Sl. No	Questions	Correct Answer	
		Frequency	Percentage
1.	Meaning of stem cell	81	34.6%
2.	Properties of stem cell	116	49.5%
3.	Source of stem cell	107	45.7%
4.	Type of stem cell found in Menstrual blood	163	69.7%
5.	Use of stem cell therapy	107	45.7%
6.	Stem cell banking	137	58.5%
7.	Actress & cancer survivor who officially unveiled menstrual blood stem cell banking on 8th March 2011 in India.	117	50%
8.	First company to initiate menstrual blood stem cell banking service in India?	123	52.5%
9.	Advantage of menstrual blood stem cell banking.	124	53%

Table-5: Item wise knowledge level of respondents regarding collection and storage of menstrual blood derived stem cell banking. n=234

Sl No	Questions	Correct Answer	
		Frequency	Percentage
1.	Eligibility criteria to donate menstrual blood	64	27.3%
2.	Timing of collection of menstrual blood	128	54.7%
3.	Amount of blood required for collection	102	43.6%
4.	Criteria before collection of menstrual blood	156	66.7%
5.	Screening test done before collection of menstrual blood stem cell	183	78.2%
6.	Procedure to collect Menstrual blood stem cell	76	32.4%
7.	Temperature at which the menstrual blood stem cell is stored	115	49.1%
8.	The gas used to store the menstrual blood stem cell	158	67.5%
9.	Centre for collection and storage of Menstrual blood stem cell in India?	105	44.8%

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