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**Rachna Gill**

Nursing Demonstrator, Dept of  
OBG, State Institute of  
Nursing & Paramedical  
Sciences, Badal, (Sri Muktsar  
Sahib) Punjab, India

**Bhupinder Kaur**

Professor & HOD, Dept of  
OBG, University College of  
Nursing, Faridkot, Punjab,  
India

**Mohinder Kaur**

Professor, Dept of COM,  
University College of Nursing,  
Faridkot, Punjab, India

**P Latha**

Associate Professor & HOD,  
Dept of OBG, Narayana  
College of Nursing, Nellore,  
Andhra Pradesh, India

## **Knowledge and attitude of health care professionals regarding placental stem cell, cord blood banking and its utilization in Guru Gobind Singh medical college & hospital, Faridkot, Punjab**

**Rachna Gill, Bhupinder Kaur, Mohinder Kaur and P Latha**

**Abstract**

**Background:** The notion of stem cells is a developing concept. Stem cells are undifferentiated cells, capable of self-regeneration and differentiation into specific lineage cells. Self-regeneration can be maintained along many generations, increasing the number of cells.

**Aim:** The present study aims to assess the knowledge and attitude of health care professionals regarding placental stem cell, cord blood banking and its utilization.

**Objectives:** 1. To assess the knowledge of health care professionals regarding placental stem cell, cord blood banking and its utilization.

2. To assess the attitude of health care professionals regarding placental stem cell, cord blood banking and its utilization.

3. To co-relate the knowledge and attitude with various demographic variables.

**Methods:** A descriptive survey approach with Purposive sampling was used to select 150 health care professionals working in GGSMC&H, Faridkot (Punjab).

**Results:** Maximum no. of health care professionals (55.33%) had inadequate knowledge and most of them (98%) had positive attitude.

**Conclusion:** The study concluded that, 55.33% of health care professionals had inadequate knowledge and 98% of health care professionals had positive attitude.

**Keywords:** knowledge, attitude, health care professionals, placental stem cell, cord blood banking, utilization

**Introduction**

The notion of stem cells is a developing concept. Stem cells are undifferentiated cells, capable of self-regeneration and differentiation into specific lineage cells. Self-regeneration can be maintained along many generations, increasing the number of cells. Umbilical Cord blood (UCB), which is also called "placental blood," is the blood that remains in the umbilical cord and placenta following birth and after the cord is cut. Umbilical cord blood could be considered as a rich source of stem cells<sup>[2]</sup>.

The Cord blood is one of the richest and non controversial sources of stem cells. Cord blood is the blood left in the umbilical cord and placenta after the birth of the child and is collected within 10-15 minutes after the cord has been cut off by simple venipuncture, in the umbilical vein followed by gravity drainage in to a sterile anti- coagulant filled blood collection<sup>[3]</sup>.

The placenta is one of the most important sources of stem cells, and has been studied extensively over the past period. The placenta fulfills two main desiderata of cell therapy: obtaining of an as high as possible number of cells and use of non-invasive methods for their harvesting. Stem cells in cord blood have exceptional properties that make them desirable, such as high proliferative potential, increased ability for self-renewal, and decreased ability for antigen presentation<sup>[4]</sup>.

**Need for the study**

During the 1970's researcher discovered that umbilical cord blood could supply the same kind of hematopoietic stem cells as bone marrow donor. And so, umbilical cord blood banking began by collecting and storing umbilical cord blood.

**Correspondence**

**Rachna Gill**

Nursing Demonstrator, Dept of  
OBG, State Institute of  
Nursing & Paramedical  
Sciences, Badal, (Sri Muktsar  
Sahib) Punjab, India

Cord blood stem cells are banking began by collecting and storing umbilical cord blood. Cord blood stem cells are currently used in the treatment of several life-threatening diseases, and play an important role in the treatment of blood and immune system related genetic diseases, cancer and blood disorders [5].

The first clinically documented use of cord blood stem cells was in the successful treatment of a six-year-old boy affected by Fanconi anemia in 1988. Since then, cord blood has become increasingly recognized as a source of stem cells that can be used in stem cell therapy [6].

Rajeshwari C (2015) conducted a study on knowledge and attitude of health professionals regarding placental stem cell, preservation and utilization. The study concluded that 84% of health professionals had inadequate knowledge and 25% had neutral attitude [7].

Perlow JH. (2008) conducted a study to determine the Knowledge on umbilical blood banking among 425 patients. The data were collected by using questionnaire. This revealed that 37% patients had no knowledge regarding umbilical cord blood banking, 2.6% patients had knowledge and 74% patients were minimally informed about umbilical cord blood banking only 14% patients were educated about umbilical cord blood banking by their nurses, although 90% patients expected their obstetrician to answer their questions on umbilical cord blood banking. This study concluded that patients are poorly informed about umbilical cord blood banking and they are expecting information from the health care professionals [8].

Though there are many benefits of cord blood these fascinating stem cells are continued to be discarded as a medical waste even today due to the lack of Knowledge and negative attitude caused by the high cost involved. It is the responsibility of the health professionals to create awareness about Cord Blood Banking and to motivate its utilization by general public to move towards this bio health insurance [9].

**Problem Statement**

A study to assess the knowledge and attitude of health care professionals regarding placental stem cell, cord blood banking and its utilization in GGSMC&H, Faridkot, Punjab.

**Objectives of the study**

1. To assess the knowledge of health care professionals regarding placental stem cell, cord blood banking and its utilization.
2. To assess the attitude of health care professionals regarding placental stem cell, cord blood banking and its utilization.
3. To co-relate the knowledge and attitude with various demographic variables such as age, sex, work experience, educational status and designation.

**Delimitations**

The study is delimited to:

1. Health care professionals who are working in GGSMC&H, Faridkot (Punjab).
2. Who are willing to participate in the study.

**Materials & Methods**

**Research approach:** Non-experimental descriptive approach

**Research design:** Descriptive cross-sectional research design

**Setting:** The present study was conducted in GGSMC&H, Faridkot (Punjab).

**Sample:** Health care professionals in GGSMC&H, Faridkot (Punjab) who fulfilled the inclusion criteria were selected for the study.

**Sampling technique:** Purposive sampling technique

**Sample size:** The sample size of the study was 150 health care professionals.

**Criteria for sample selection**

**Inclusion criteria**

- Health care professionals working in GGSMC&H, Faridkot (Punjab).
- Health care professionals who are present during study period and are willing to participate during the study period.

**Exclusion criteria**

- Health care professionals not working in GGSMC&H, Faridkot (Punjab).

**Description of the tool**

The tool is divided into three parts.

**Part I:** This part of tool included demographic information of study subjects such as age, sex, work experience, educational status and designation.

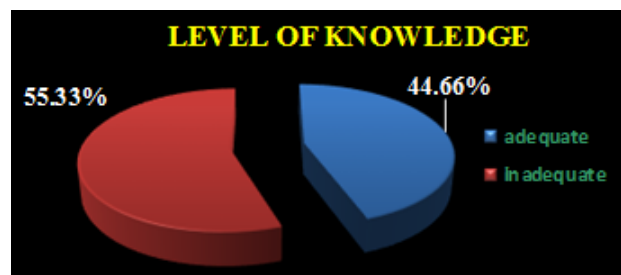
**Part II:** This part consisted of 20 structured multiple choice questions having one best answer among four options to assess the knowledge of health care professionals regarding placental stem cell, cord blood banking and its utilization.

**Part III:** This part consisted of 12 statements concerning the attitude of health care professionals regarding placental stem cell, cord blood banking and its utilization. The statements were developed for the respondents to respond on five points Likert’s scale i.e. strongly agree, agree, uncertain, disagree and strongly disagree.

**Results & Discussion**

**Table 1:** Frequency, Percentage distribution of health care professional’s knowledge regarding placental stem cell, cord blood banking and its utilization. (N=150)

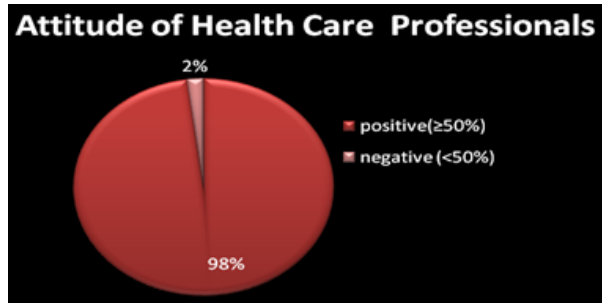
| Level of knowledge | Frequency (n) | Percentage (%) |
|--------------------|---------------|----------------|
| Adequate (≥50%)    | 67            | 44.66          |
| Inadequate(<50%)   | 83            | 55.33          |



**Fig 1:** Frequency, Percentage distribution of health care professional’s knowledge regarding placental stem cell, cord blood banking and its utilization

**Table 2:** Frequency, Percentage distribution of health care professional's attitude regarding placental stem cell, cord blood banking and its utilization. (N=150)

| Level of attitude        | Attitude      |                |
|--------------------------|---------------|----------------|
|                          | Frequency (n) | Percentage (%) |
| Positive ( $\geq 50\%$ ) | 147           | 98             |
| Negative ( $< 50\%$ )    | 3             | 2              |



**Fig 2:** Frequency, Percentage distribution of health care professional's attitude regarding placental stem cell, cord blood banking and its utilization

### Major findings of the study

- The study shows that 44.66% of health care professionals were having adequate knowledge and 55.33% of health care professionals were having inadequate knowledge.
- Majority of health care professionals (98%) had positive attitude and only 2% of them had negative attitude regarding placental stem cell, cord blood banking and its utilization.
- The co-relation of attitude regarding placental stem cell, cord blood banking and its utilization according to age, sex, work experience, educational status and designation was found statistically non significant at ( $p < 0.05$ ) level.

### Conclusion

The study concluded that, 55% of health care professionals were having inadequate knowledge and 98% health care professionals had positive attitude regarding placental stem cell, cord blood banking and its utilization.

### Recommendations

- On the basis of present findings it is recommended that a large sample should be studied in order to provide better picture of knowledge and attitude regarding stem cell, cord blood banking and its utilization.
- The study may be conducted at different community setting.
- The instrument used for assessing knowledge and attitude towards stem cell, cord blood banking and its utilization can further be developed and field tested for standardizing.
- There should be in- service workshop and seminar to enhance the health care professionals knowledge regarding stem cell, cord blood banking and its utilization.

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