



Awareness and Attitude Regarding Stem Cell Banking among Eligible Couples in Selected Areas of Gurugram

Deepak*, Priya, Akoijam Mamta Devi, Rajni, Sonam, Komal

Dept. of Obstetrics and Gynecological Nursing, SGT University, Faculty of Nursing, Gurugram, Haryana 122505

*Email: deepak_nursing@sgtuniversity.org

ABSTRACT

Today's regenerative medicine has generated a lot of interest in stem cells, which are classified as clonogenic, unspecialized cells that can develop into one or more highly specialized mobileular kinds. Stem cell banking is the process of obtaining valuable stem cells from the human body, processing them, and storing them in anticipation of potential use in stem cell therapies in the future. The objective of present study was to assess the awareness and attitude about stem cell banking among eligible couples in the selected areas of Gurugram. Total 100 eligible couples were enrolled in the study using convenient sampling technique. Self-structured tools were used to collect data. Questionnaire was used to asses awareness and 3 point Likert scale was used to assess the attitude regarding stem cell banking. Study Results shows that 69% of subjects have Average Knowledge, 17% have Good Knowledge and 14% have Poor Knowledge about stem cell banking. The mean knowledge score is 8.03 ± 2.508 .

Keywords: Awareness, Attitude, Stem Cell Banking, Eligible Couples

Received 29.09.2022

Revised 23.10.2022

Accepted 11.11.2022

INTRODUCTION

The human body is composed of several cell types that work together to form tissues and organ systems. These components ensure that your internal body temperature is kept constant and that you live a healthy life [1]. The future health of your newborn and the entire family is guaranteed by the preservation of umbilical cord blood stem cells from the newborn at the time of delivery [9]. Stem cells are preserved by keeping them at temperatures that are well below freezing.

Private and public are the two different types of cord blood banking. [2, 3]. Private banking prevents anybody outside of your family from deciding to discard, donate, or use these cells for research; instead, these cells can be transplanted into the child, siblings, parents, or, in exceptional circumstances, any other relative. In public banking, after childbirth, the cells are not discarded as medical waste but are instead put to good use. They might match to someone looking through the public registries because they require a transplant. The parents are not charged for the public gift, and the consumer or needy will be responsible for covering the storage costs. The donors have no permission to use the given stem cells [5].

Umbilical cord blood (UCB) stem cells are being recognized as a non-invasive, efficient source of hematopoietic stem cells for the treatment of a variety of blood and bone marrow issues, blood cancers, metabolic abnormalities, and immunological deficits [6, 10]. Millions of people are being affected by an influx of new diseases as globalization and population growth continue to rise. For the development of therapies for diverse illnesses, stem cell research is crucial. Researchers conducted a survey about UCB banking awareness in 2016 and discovered that India's general banking knowledge was lacking. Only 26.5 percent of women recognized exactly what UCB stem cell banking was, whereas 31 percent were familiar with private cord blood banking and only 16 percent with public cord blood banking [7].

Eligible couples are the future parents who need to have access to a wide range of information regarding stem cell banking to make informed choices concerning their child's future. In order to make an informed decision, Parents must be informed of all available cord blood alternatives for their child and have access to the appropriate facts. According to reports, parents are generally unaware of and uninformed about cord blood donation and banking, and that it is difficult to judge the accuracy of information. Furthermore, there is little knowledge of use this information by parents to guide their decisions about banking of cord blood. [8].

Many researches have been carried out to assess the understanding and attitudes of healthcare professionals, nursing students, etc. regarding stem cell banking. However, there aren't many research studies done to determine how the general public of reproductive age perceives stem cell preservation, banking, or banking of umbilical cord tissue. In the present study, the knowledge and attitudes of eligible couples regarding stem cell banking were assessed to support the development of various education programme for imparting knowledge about stem cell preservation and banking among future parents.

MATERIAL AND METHODS

The study was done using descriptive research design with an objective to assess the awareness and attitude regarding stem cell banking among eligible couples in selected areas of Gurugram. The study subjects were 100 eligible couples between 20-45 years of age. The study subjects were enrolled using convenient sampling technique. After receiving official approval from the relevant authorities, data was collected both by online and offline modes. Each participant gave their informed consent after being informed of the study's objectives. Data collection tool consisted three sections: (a) Socio- Demographic profile (b) Questionnaire to assess knowledge regarding stem cell banking which comprised 15 items. (c) Likert scale to assess the attitude regarding stem cell banking. It consist of 9 items with Agree, Neutral and Disagree response options. After a thorough literature review, tools were designed, and they were then validated by subject specialists.

Data were analysed using descriptive and inferential statistics. For the purposes of the descriptive analysis, calculations were made using frequency, percentage, mean, and standard deviation. Pearson's Chi square was used to determine the relationship between knowledge and sociodemographic factors.

Ethical Consideration

Ethical permission was taken from the ethical committee SGT University. The written consent was obtained from each study participants, assurance was given to the subject that the anonymity of each individual will be maintained and the information obtained from them will be kept confidential.

RESULTS

Table 1: Percentage Distribution of subjects according to Socio-demographical Variables [N = 100]

Variables	Frequency	Percentage
Age		
20-25 years	59	59%
26-30 Years	26	26%
31-35 Years	14	14%
36-40 Years	1	1%
Education		
Primary Education	2	2%
Secondary Education	11	11%
High School	15	15%
Intermediate	14	14%
Graduation and above	58	58%
Religion		
Hindu	92	92%
Muslim	5	5%
Christian	3	3%
Occupation		
Business person	7	7%
Working	26	26%
Student	10	10%
Home Maker	13	13%
Private Job	44	44%
Type of family		
Nuclear Family	46	46%
Joint Family	54	54%
Monthly family income		
Less than 10,000	12	12%
10,001 - 15,000	14	14%
15,001 - 20,000	22	22%
More than 20,000	52	52%
Area of residence		
Rural	55	55%
Urban	45	45%
Source of information		
Friends and relatives	41	41%
Mass Media	21	21%
Doctor	28	28%
Other	10	10%

Table 1 depicts that majority 59% of subjects were in the age group 20-25 years, 26% of subjects were in the age group of 26-30 years, 14% of subjects were in the age group of 31-35 years, and remaining 1 % subjects were in the age group of 36-40 years. Majority of subjects 58% were educated up to Graduation and above. 15% of subjects were having High school education, 14% of subjects were having Intermediate education, 11% of subjects were having Secondary Education and the remaining 2% of subjects were having primary education. 92% of the subjects were Hindus, 5% were Muslims, 3% percent were Christians. Majority of subjects 44% were doing private jobs. Most of the subjects 54% were from Joint families and the remaining 46 belonged to Nuclear families. 52% of subjects were having monthly family income of More than 20,000. Majority of subjects 55% were belonging to Rural residences and the remaining 45% belonged to Urban Residence. As per source of Information 41% of subjects came to know about stem cell banking from friends and relatives, 28% got information from doctors, 21% used mass Media as source of information and remaining 10% got information from other sources.

Figure 1: Percentage Distribution of subjects according to level of knowledge regarding stem cell banking [N = 100]

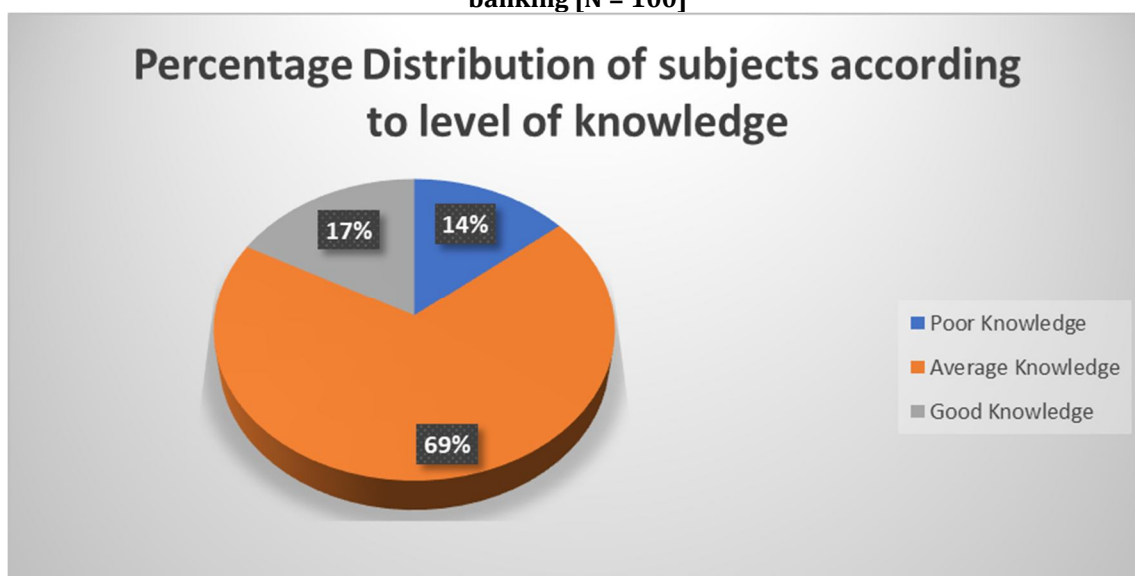


Figure 1 depicts that majority 69% of subjects had Average Knowledge, 17 had Good Knowledge and 14% had Poor Knowledge. Knowledge level was divided into three categories Poor Knowledge (0-5), Average Knowledge (6-10) and Good Knowledge (11-15) based on scores. The mean knowledge score was 8 ± 2.508 .

Table 2: Percentage Distribution of subjects according to Attitude regarding stem cell banking [N = 100]

Statement	Agree		Neutral		Disagree	
	f	%	f	%	f	%
1. Following delivery, umbilical cord blood must be collected.	1	1%	27	27%	72	72%
2. Only the baby and members of his immediate family should receive treatment using umbilical cord blood.	14	14%	38	38%	48	48%
3. Collecting cord blood will not harm the baby.	14	14%	32	32%	54	54%
4. Collecting cord blood is wasting of time and money.	52	52%	29	29%	19	19%
5. Do you worry that the baby's cord blood may be exploited in other ways	8	8%	47	47%	45	45%
6. Cord blood and stem cell is beneficial to everyone.	8	8%	27	27%	65	65%
7. Umbilical cord blood collection should be included as routine care in delivery rooms.	16	16%	37	37%	47	47%
8. Religious authorities have permitted the collection of stem cells and umbilical cord blood.	30	30%	30	30%	40	40%
9. Cord blood collection is necessary.	9	9%	30	30%	61	61%

Table 2 depicts that majority of subjects 72% disagreed that the umbilical cord blood should be collected immediately after delivery. 48% of subjects disagreed with the statement that Umbilical cord blood should

be used baby and his immediate family only. Almost half the of subjects 54% disagreed that Collecting cord blood will not harm the baby. 52% of subjects agreed that Collecting cord blood is wasting of time and money. 45% of subjects disagreed that they were concerned that the baby's cord blood may be exploited in other ways. 65% subjects disagreed that Cord blood and stem cell is beneficial to everyone. 47% of subjects disagreed that Umbilical cord blood collection should be included as routine care in delivery rooms. 40% of subjects disagreed that umbilical cord blood and stem cells collection are approved by religion. Majority of subjects 61% disagreed that Cord blood collection is necessary.

Table 3: Association between Knowledge and Demographic variables [N= 100]

Variables	Knowledge level			Chi Value p Value
	Poor (frequency)	Average (frequency)	Good (Frequency)	
Age				
20-25 years	7	45	7	5.348 0.223 ⁿ
26-30 Years	5	15	6	
31-35 Years	2	9	3	
36-40 Years	0	0	1	
Education				
Primary Education	1	1	0	15.507 0.482 ^{ns}
Secondary Education	1	8	2	
High School	4	7	4	
Intermediate	1	10	3	
Graduate	7	43	8	
Religion				
Hindu	13	66	13	12.591 0.056*
Muslim	0	2	3	
Christian	1	0	2	
Occupation				
Business person	1	6	0	15.507 0.003*
Working	0	20	6	
Student	0	10	0	
Home Maker	6	4	3	
Private Job	7	29	8	
Type of family				
Nuclear Family	4	35	7	5.991 0.287 ⁿ
Joint Family	10	34	10	
Monthly family income				
Less than 10,000	4	7	1	9.283 0.0001*
10,001 - 15,000	2	10	2	
15,001 - 20,000	5	12	5	
More than 20,000	3	40	9	
Area of residence				
Rural	4	43	8	5.877 0.052 ^{ns}
Urban	10	26	9	
Source of information				
Friends and relatives	6	28	7	12.591 0.011*
Mass Media	0	16	5	
Doctor	3	22	3	
Other	5	3	2	

* Significant at 0.05 level of significance

NS - Non significant

Table 3 reveals that Eligible couples' knowledge regarding stem cell banking was found to be significantly associated with demographic variables like Occupation, Monthly family Income, and Source of Information as p-value is < 0.05. Chi-square test was used to find the association between knowledge and socio-demographic variables.

DISCUSSION

Placenta and umbilical cord blood (UCB) were previously discarded as garbage after delivery. In recent decades, it has been shown to be an excellent source of hematopoietic stem cells, which are essential for maintaining life. In a number of facilities across the world, cord blood stem cell transplantation is done for a variety of genetic, hematologic, immunologic, metabolic, and oncologic disorders. In recent years, a number of private cord blood banks have sprung up, advising parents to store their children's umbilical cord blood for future autologous or allogeneic use on a family member.

Newly expectant parents who are nervous and feel a sense of responsibility for their own children are unaware of the benefits and applications of cord stem cells. In the present study 69% of subjects had Average Knowledge, 17 had Good Knowledge and 14% had Poor Knowledge. Almost similar findings were reported by an integrative review which shows that the knowledge of stem cell banking is generally low among par [5].

In the present study most of the eligible couples were found to disagree with the need and uses of stem cell banking. Study subjects had mixed attitudes towards stem cell banking. The findings were almost similar to a study conducted to assess the knowledge and attitude of prospective parents regarding cord blood banking in selected areas of Vadodara, which concludes that the majority of parents had a neutral attitude about cord blood banking [7].

As per the source of information is concerned most of the subjects got information about stem cell banking from their friend and relatives. Which question the quality of information given to them. These findings emphasize the need for information to be provided by experts in the field. In the present study, a significant association was found between the knowledge and demographical variables such as Occupation, Monthly family Income, and Source of Information. This shows this knowledge gap can prevent parents from making informed choices regarding stem cell banking. All young parents need to have access to information that is relevant, need-based, accurate and based on current evidence. The present study was conducted on only 100 subjects which limits the generalization of its findings. Same study can be replicated for a larger sample of Eligible couples.

CONCLUSION

Although parents have had the option of cord blood donation and banking for a number of years, there is still a dearth of knowledge about these alternatives and consistency in the information provided to parents cannot be validated. The study's findings emphasized the significance of providing parents with this knowledge as part of routine prenatal education.

REFERENCES

1. Ballen, K. K., Verter, F., & Kurtzberg, J. (2015). Umbilical cord blood donation: Public or private? *Bone Marrow Transplantation*, 50(10), 1271–1278. <https://doi.org/10.1038/bmt.2015.124>
2. Marskole, P., Sethia, S., Yadav, R., Parmar, S., & Parihar, L. (2021). An Educational Interventional Study on Stem Cell Awareness among Eligible Beneficiaries in Central India. *Journal of Evolution of Medical and Dental Sciences*, 10(43), 3715–3719. <https://doi.org/10.14260/jemds/2021/752>
3. Matsumoto, M. M., Dajani, R., Khader, Y., & Matthews, K. R. W. (2016). Assessing women's knowledge and attitudes toward cord blood banking: Policy and ethical implications for Jordan. *Transfusion*, 56(8), 2052–2061. <https://doi.org/10.1111/trf.13650>
4. Pandey, D., Kaur, S., & Kamath, A. (2016). Banking Umbilical Cord Blood (UCB) Stem Cells: Awareness, Attitude and Expectations of Potential Donors from One of the Largest Potential Repository (India). *PLoS ONE*, 11(5), e0155782. <https://doi.org/10.1371/journal.pone.0155782>
5. Peberdy, L., Young, J., Massey, D. L., & Kearney, L. (2018). Parents' knowledge, awareness and attitudes of cord blood donation and banking options: An integrative review. *BMC Pregnancy and Childbirth*, 18(1), 395. <https://doi.org/10.1186/s12884-018-2024-6>
6. Poomalar G.K., Manivasakan J. (2016). Awareness of cord blood banking among pregnant women in semi urban area. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 5(8), 2601–2606. <https://doi.org/10.18203/2320-1770.ijrcog20162629>
7. S. Adithya A Study to Assess the Knowledge and Attitude of Prospective Parents Regarding Cord Blood Banking in Selected Areas of Vadodara – *International Journal of Psychosocial Rehabilitation*. (n.d.). Retrieved August 8, 2022, from <https://www.psychosocial.com/article/PR2020675/28089/>
8. Waller-Wise, R. (2011). Umbilical cord blood: Information for childbirth educators. *The Journal of Perinatal Education*, 20(1), 54–60. <https://doi.org/10.1891/1058-1243.20.1.54>
9. Wankhede, A. A., & Laghate, K. (2015). Stem Cell Banking-Awareness and Acceptance by Expecting Mothers in Mumbai Region. *International Journal of Business and Management*, 10(12), p181. <https://doi.org/10.5539/ijbm.v10n12p181>

10. Yadav, N., D'Souza, V. L., & Geethamani, T. (2021). Assessment of Knowledge and Attitude Among College Students Toward Umbilical Cord Blood and its Banking. *Nepal Journal of Health Sciences*, 1(1), 1-7. <https://doi.org/10.3126/njhs.v1i1.38493>

CITATION OF THIS ARTICLE

Deepak, R Kumar, Mansi, Karishma, G Sirohiwal. Pre-Experimental Studies to Assess the Effectiveness of Planned Teaching Programme Regarding Breast Self-Examination on Adolescent Girls in the Selected Colleges of Gurugram. *Bull. Env. Pharmacol. Life Sci.*, Spl Issue [4]: 2022: 533-538