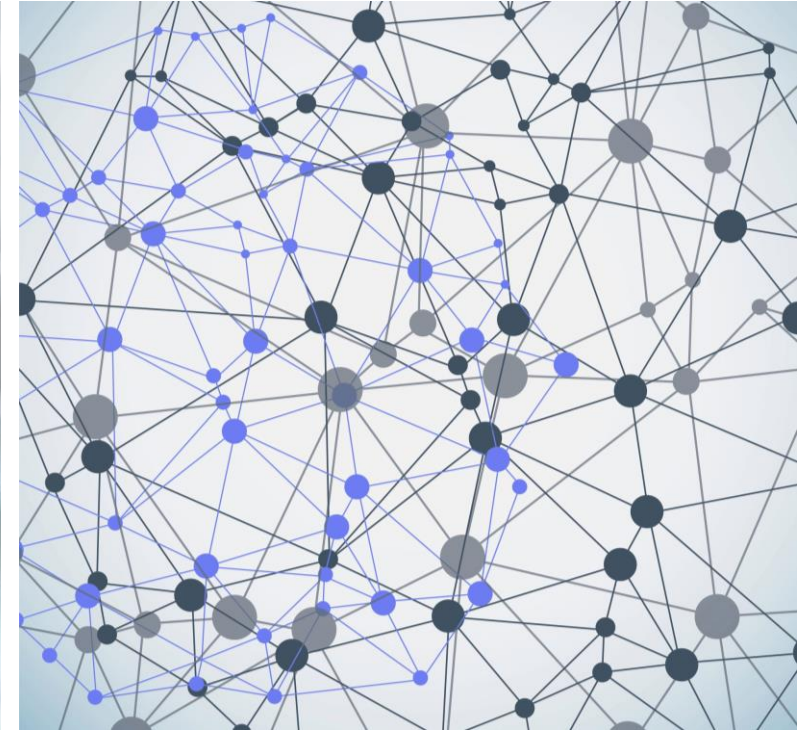




STUDY ON AWARENESS ABOUT UMBILICAL CORD STEM CELLS BANKING AMONG PEOPLE

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INTRODUCTION: STEM CELL BANKING

- Stem cells are the master cells which have amazing capacity to form different type of cells.
- Stem cells when divides, each cell have potential to remain same or form other type of cell which specialized in nature and perform specialized function such as muscle cell, bone cell, blood cell, brain cell. Stem cells divide themselves in different way, one is by cell division and other is by experimental conditions.
- Stem cells which helps to treat the diseases are hematopoietic cells. Stem cells which are immature in nature and converted into mature cells to perform the functions.
- Stem cells are also present in the umbilical cord through which baby is attached to mother. The baby can change the lives forever for everyone. New-born 's stem cells have potential to change the life, too.
- The blood from baby's umbilical cord is a rich source of these powerful stem cells. Cord blood stem cells have used in the treatment of 80+ diseases and disorders such as certain cancer, immune disorders, metabolic disorders, blood disorders as a part of transplant medicine.

LITERATURE OF REVIEW

➤ **STUDY IN ANAND AND KHEDA DISTRICT OF GUJRAT PUBLISHED IN JOURNAL OF FAMILY MEDICINE & PRIMARY CARE:-**

Study was done to assess the knowledge among the mothers of **Anand and Kheda district of Gujrat**, Sample of **100** women were taken and study concluded that Despite of having knowledge among few mothers, they denied opting this because of the high cost expenditure. With knowledge and being informed they refused as price of storing cells are rising it becomes more business for the banking agents.

➤ **STUDY WAS DONE BY UNIVERSITY OF MALTA, MALTA ON STEM CELL THERAPY:-**

4 patient who were suffering from **chronic immune thrombocytopenic purpura in which 3 were females and 1 was male patient between age of 26-56 years** was taken. Stem cells were infused into them. This study shown that stem cells are helping to treat various life-threatening illnesses and people have knowledge among this and they are accepting and responding to the treatments.

➤ **STUDY BY Lowdermilk DL, Perry SE(2007):-**

Two antenatal clinics of Istanbul was taken for the study. Study was done assess the pregnant women's knowledge and attitude toward umbilical cord cell and their banking. Sample was 334 women; Conclusion was that **86.6% of participants did not have any knowledge about umbilical cord banking**. It was observed that most of them wanted to have information before they conceived from their doctors. **78.2% women wanted to save the cord blood cells for their child future** and they demanded to save it in public cord banks as they felt they could not afford the cost of private cord banks.

➤ **MOST RECENT STUDY , researchers performed stem cell therapy in Israel:-**

It was experimented on **covid-19 patients** for their treatment and had shown positive results among people. **Mesenchymal stem cells (MSCs)-based immunomodulation treatment** has been proposed as a suitable therapeutic approach and several clinical trials have began. After the infusion of cells intra venously, it is determined that cell accumulates in the lungs and preparing the alveolar epithelial tissue of pulmonary area. However, **currently, there are no approved MSC-based approaches** for the prevention and/or treatment of **COVID-19** patients but clinical trials ongoing.

RATIONALE:

- This study is intended to inspect the knowledge and attitude of the people about umbilical cord cell banking. Main purpose to know the awareness among the people that how the stem cells are becoming the helping hand to fight with harmful diseases. Study aims to enhance the knowledge of Mechanism of this therapy, clinical research, and their use among people. Also focuses to fill the knowledge gap among people of the society and give them direction that cord banking is beneficial for potential future transplantation. They have ability to fight with many harmful diseases

RESEARCH QUESTION AND OBJECTIVES

RQ:

How much people are aware and have knowledge about Stem Cell Banking?

- **General Objective:** To inspect awareness about Umbilical cord stem cells banking among people.
- **Specific Objective:**
 - ✓ To assess the knowledge about placental stem cells and its utilization in banking among various mothers.
 - ✓ To study the various benefits of stem cell banking

RESEARCH METHODOLOGY

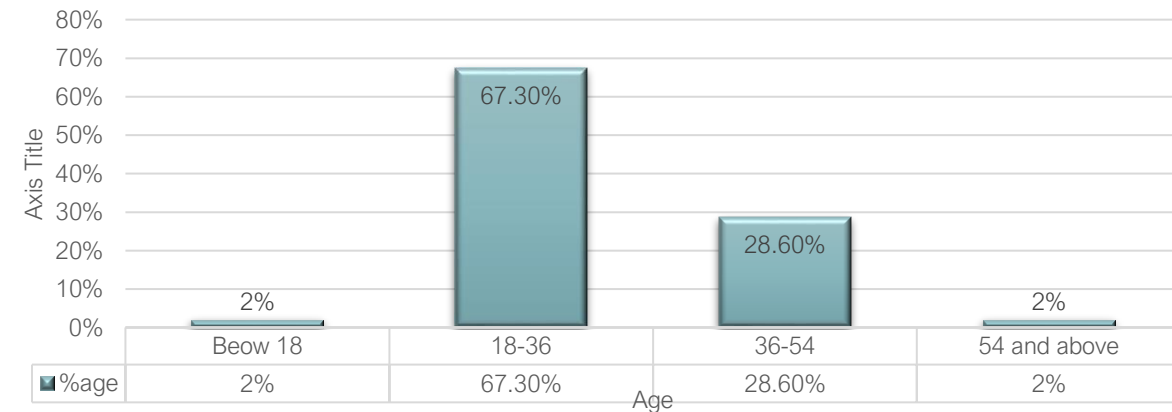
- Type of study: Observational →Analytical→Cross-sectional study (mixed-method approach).
- Setting : Surya Niketan, Anand Vihar , East Delhi.
- Duration of study: 2 months.
- Sample size: 100 patients.
- Sampling Technique: Random sampling.
- Tool for data collection: Primary Data- Online Forums
- Secondary Data- Online Portals
- Data analysis plan: MS excel with pie charts and bar graphs
- Data collection procedure: Mixed- method approach Primary data: Online Survey with help of google questionnaire form. Many questions were asked with appropriate choice of “Yes or NO” from patients and their attendants to know their opinion. Secondary data: Through registered records, website of organization and Literature available about the organization like magazines, brochures, pamphlets, CDs, and written documents.
- The research design is **mixed method research design**. The sampling technique adopted was random sampling with sample size of 100 patients. Setting selected was the people of the **Surya Niketan society in Anand Vihar , EAST DELHI**. Tool used was structured questionnaire to assess the knowledge about placental stem cells. Questionnaire with 3 options and respondent have mark the appropriate response of their knowledge. Data analysis is done with the help of Ms. Excel.

QUESTIONNAIRES

- Age
- Gender
- Have You Any Idea of What Stem Cells Are?
- Are you aware that stem cells are very beneficial ?
- Have you heard of dental stem cells?
- Do you know that stem cells from dental tissues are used to treat many diseases?
- Do you think that the tooth if lost can be regenerated using stem cells?
- Do you know umbilical cord can also be source of stem cell collection?
- Would you like to donate umbilical cord during delivery?
- Do you know the nearby place where you have the stem cells banking facility available?
- Do you think the procedure of collecting stem cells is invasive?
- Would you like to have more information on stem cell banking?

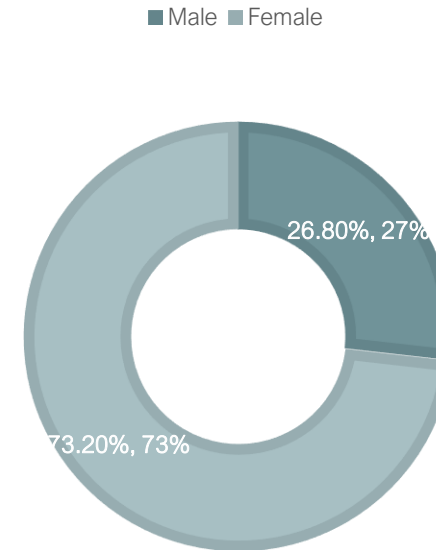
DATA FINDINGS AND INTERPRETATION

■ Graph 1- Age:



INFERENCE: This bar graph shows that about 67.3% respondent in survey belongs to age group of 18-36 and 28.6% respondent belongs to age group 36-54 and rest belongs to below 18 and above 54.

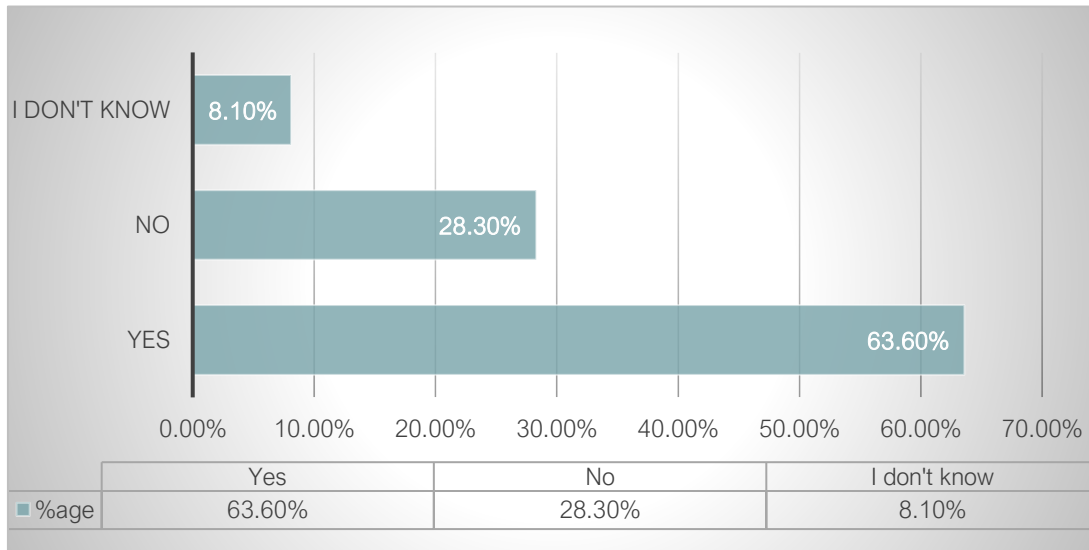
■ Graph 2 : Gender



- **INFERENCE:** This pie chart depicts that from total respondents, 73% were female and 27% were male which are selected to response on the interview of stem cell banking.

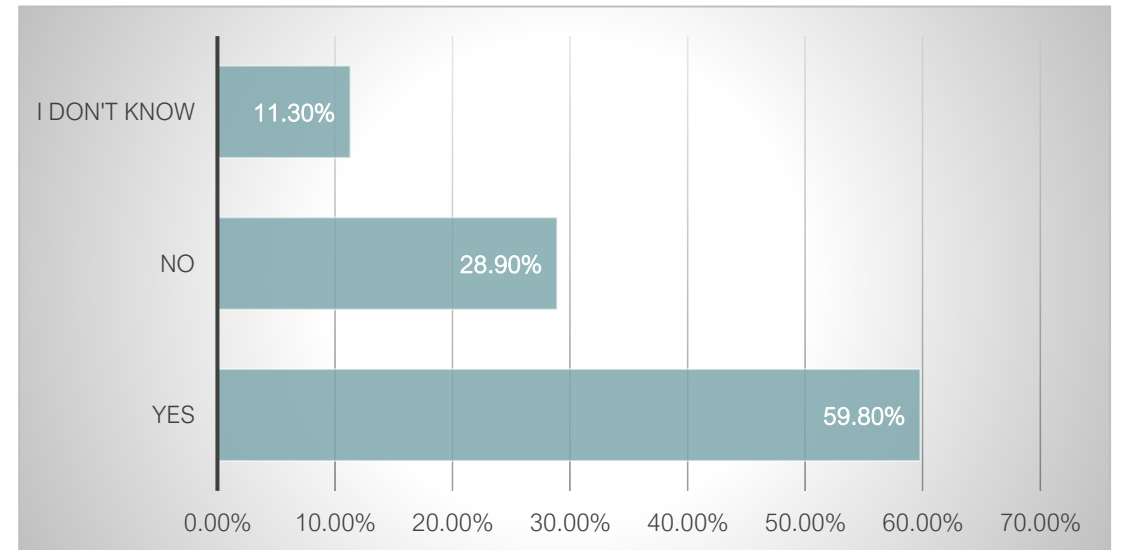
DATA FINDINGS AND INTERPRETATION

Graph 3: Have You Any Idea of What Stem Cells Are?



INFERENCE: This graph shows that 63.6% respondents know about stem cells. 28.3% do not know about stem cells and remaining 8.1% do not have any idea about cells.

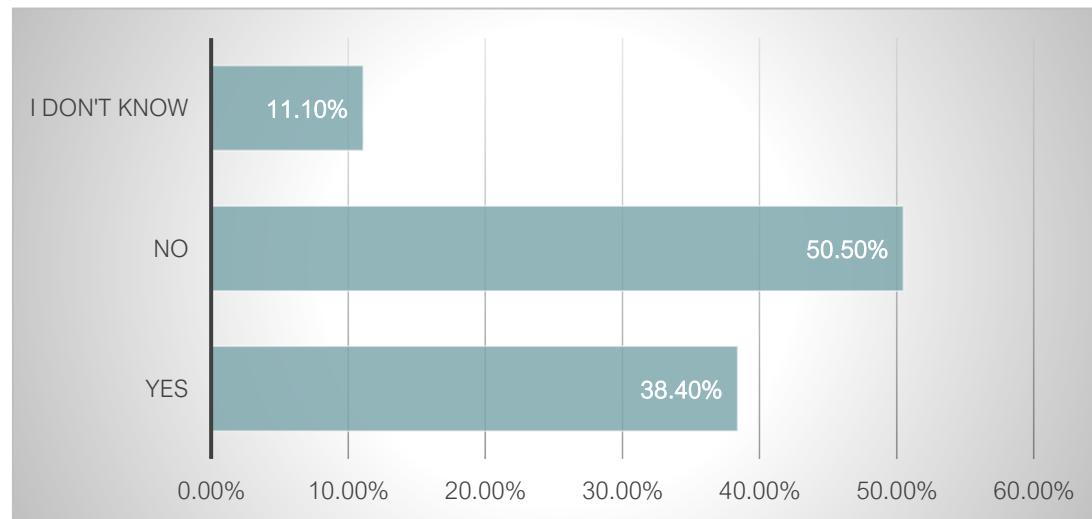
Graph 4: Are you aware that stem cells are very beneficial ?



INFERENCE: This graph shows that about 60% of people know the benefits of the stem cells and remaining people do not know the importance of stem cells.

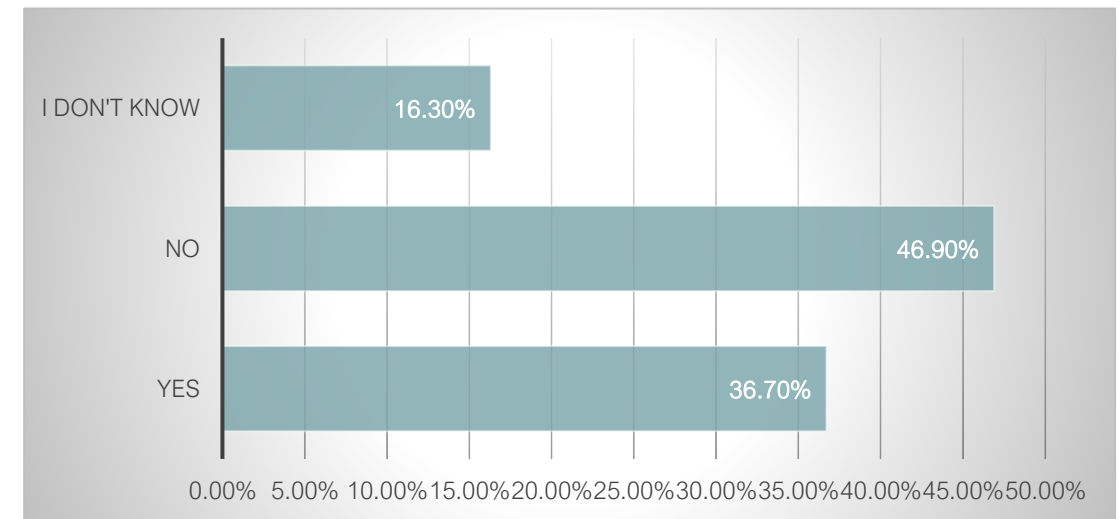
DATA FINDINGS AND INTERPRETATION

Graph 5- Have you heard of dental stem cells?



INFERENCE: Respondents were asked about the dental stem cells; this graph depicts that above half of respondent have not hear about the stem cells present in teeth. Only 38.4% people respond it to yes.

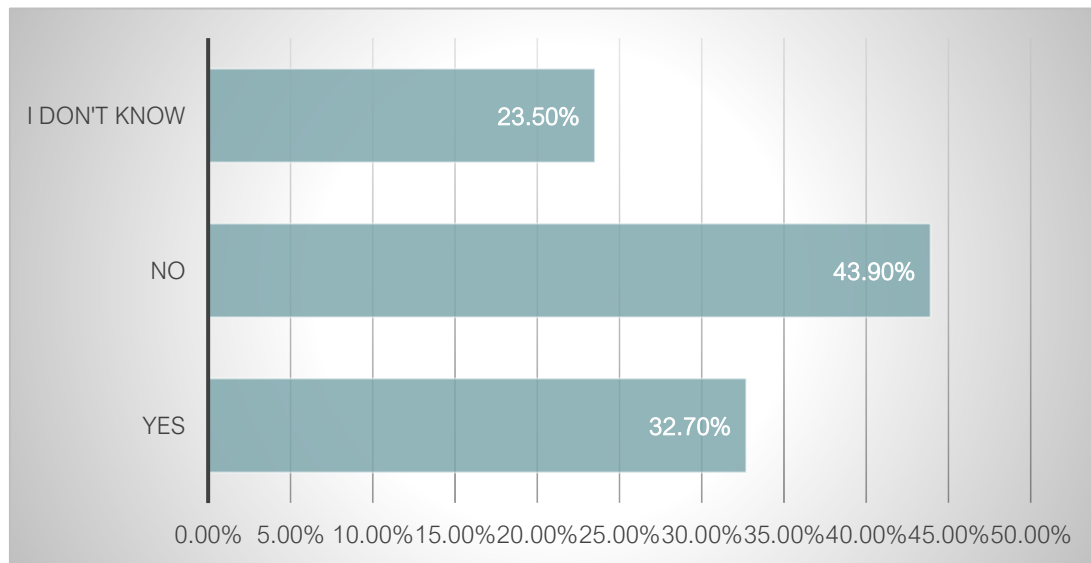
Graph 6- Do you know that stem cells from dental tissues are used to treat many diseases?



INFERENCE: This picture shows that only about 37% people have idea that stem cells from dental tissues have ability to treat many diseases and remaining participants do not have any idea.

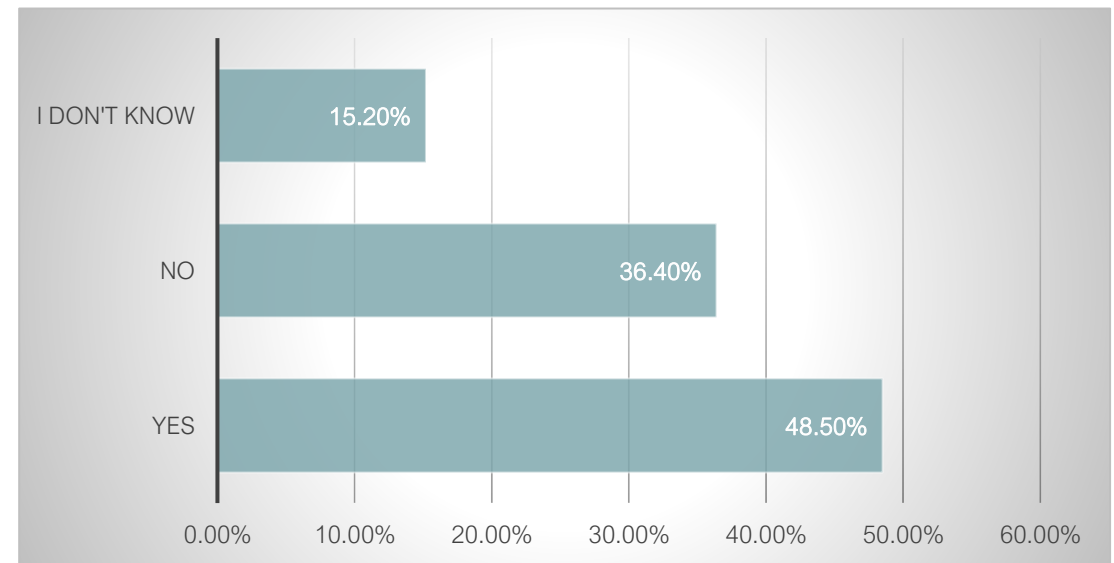
DATA FINDINGS AND INTERPRETATION

Graph 7- Do you think that the tooth if lost can be regenerated using stem cells?



INFERENCE: Dental stem cells have ability to regenerate the tooth again. Only 32.7% know this that dental stem has this capacity of regeneration. Remaining respondent do not have any idea about this.

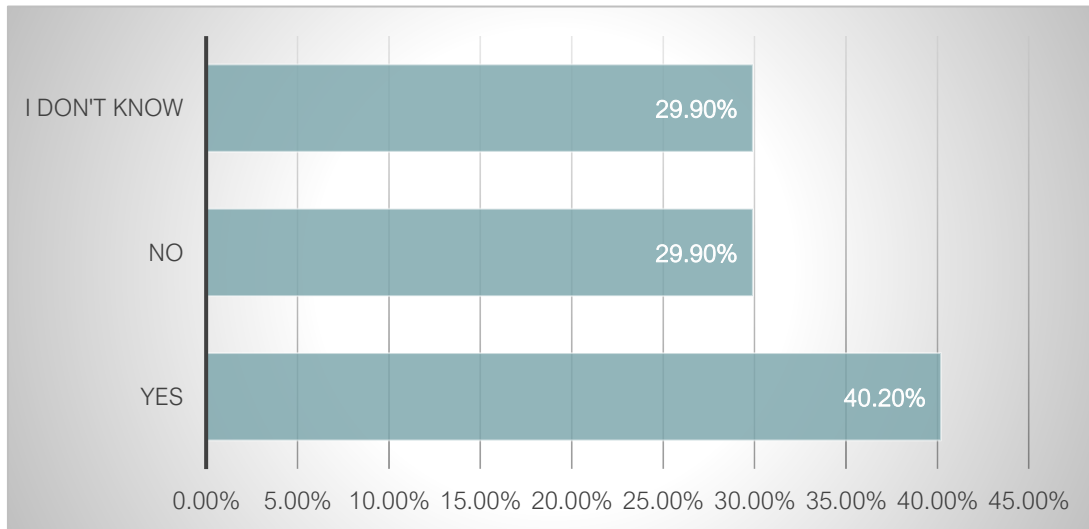
Graph 8- Do you know umbilical cord can also be source of stem cell collection?



INFERENCE: This figure shows that 48.5% of respondent know that the umbilical cord is the source of stem cells collection.

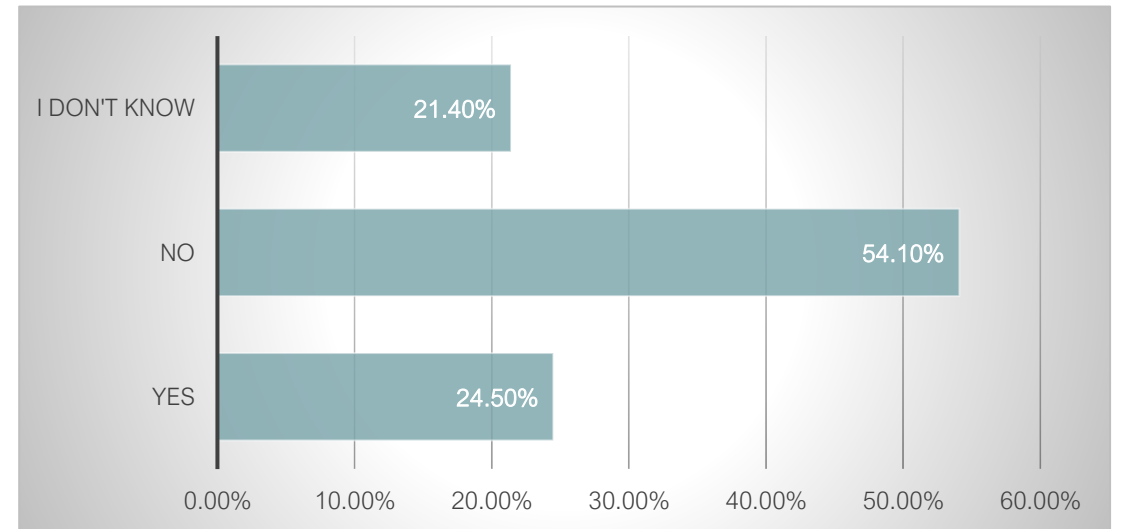
DATA FINDINGS AND INTERPRETATION

Graph 9- Would you like to donate umbilical cord during delivery?



INFERENCE: This graph depicts that only 40.2% of respondents would like to donate their umbilical cord cells at time of delivery. About 30% respondents would not like to donate and remaining do not know about this.

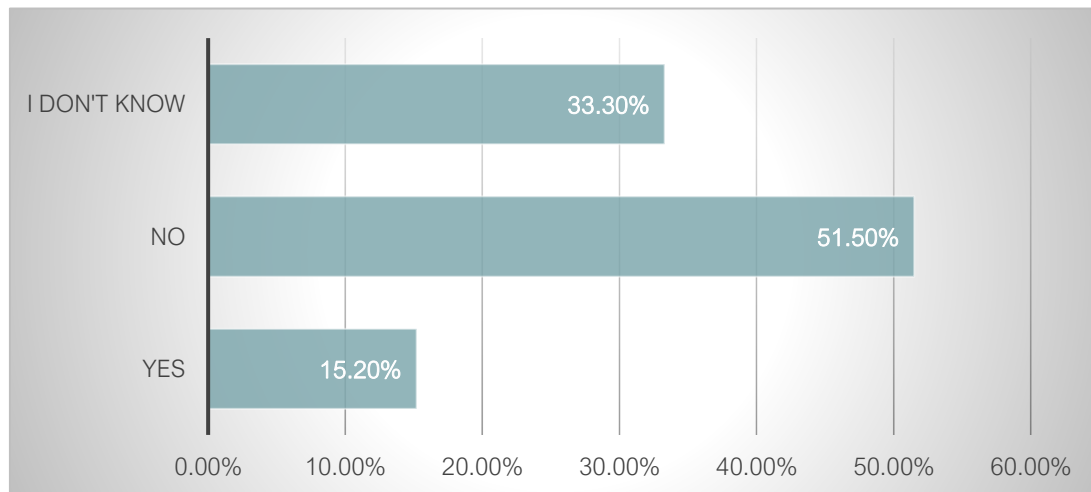
Graph 10- Do you know the nearby place where you have the stem cells banking facility available?



INFERENCE: This figure shows that only 24.5% participants know about stem cell banking facility and others do not know about this.

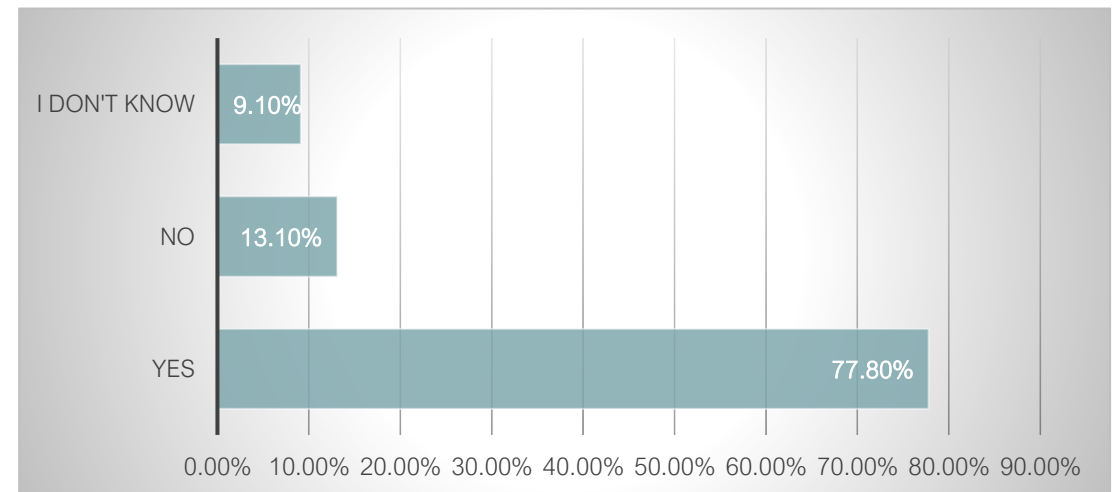
DATA FINDINGS AND INTERPRETATION

Graph 11- Do you think the procedure of collecting stem cells is invasive?



INFERENCE: This graph depicts that 15.2% respondent believe that collection of stem cells is invasive procedure and 51.5% think that it is not invasive and remaining 33.3% do not know about this procedure.

Graph 12- Would you like to have more information on stem cell banking



INFERENCE: This graph shows that about 78% of participant would love to know about stem cell banking therapy. They want more knowledge about all this and remaining are not interested to have knowledge.

DATA ANALYSIS

- Data collected was analysed to fulfil the objective of the study and analysis and interpretation was organized according to the objective of the study.
- It was found that more than half had no knowledge about the stem cell banking and its utilization, and the rest had very basic knowledge. The awareness and attitude among people were not appropriate. The above findings were supported by many studies. Study was conducted after going through of various other studies related to stem cell banking.
- Similar study conducted in the Surya Niketan society of East Delhi and concluded that 63.6% respondents were known to stem cell banking and rest were clueless about this. Out of them only 48.5% people were aware that umbilical cord is also source of stem cell collection.
- 38.4% respondent know about dental stem cell and rest had not even hear about dental stem cells.
- About 78% of participants of the study would like to have more knowledge about stem cells. They want education from doctors about stem cells collection procedure and their use in future.
- 15.2% participants believed that stem cell collection procedure is invasive procedure, and this is also reason of not opting the stem cell banking. They have misconception of invasive procedure.
- It was interpreted from the secondary data that inadequate number of people were aware about the umbilical cord banking and rest had no knowledge. People had gained knowledge from the source of internet and newspapers.
- Many studies revealed about the stem cell therapy uses and explained how they are helping in treating in the life-threatening illnesses.
- One of the recent researches done in Israel revealed that umbilical cord cells may help in the treatment of the coronavirus and prevent its infection.

RECOMMENDATIONS

- Stem cells present in the human have great properties and it will be the best weapon to fight with harmful diseases in the future. So, the research on it should be continue and utilization of the cells should be encouraged.
- Stem cells are on leading edge in the research, so the research on the adult and embryonic stem cells should be at avant-garde.
- There are many new lines which can researched from stem cells and can be learned also.
- Doctors and gynaecologist should educate the mothers about stem cell banking storage. As, in many studies it was found that people were unaware about this, they did not have knowledge about stem cells.
- Stem cell therapy should also be publicly funded as many participants in studies responded that they had knowledge, but they had not opted this because it costs very high which was not affordable by them.
- Cord blood banking should follow the guidelines of Indian academy of pediatrics and educate the parents under ethical considerations rather than misadvise them.

- The present study call attention on stem cells in countries like India so, doctors should convey utility of umbilical cord banking to the expectant parents who are still not aware about this technology. They should advise them in best way about the donation and its storage and its purposes in future. The survey done concluded that people are not much aware about UBC. Moreover, the major factor is affordability of this technique. People are willing to donate the umbilical cord cells, but cost becomes main hurdle element. It is also let out that if government take initiative to acknowledge and encourage this cause then it would be increased among people of India. Government should modulate this industry and take up projects to establish the stem cell storage banks. Publicly funded banks will be more affordable, and people will willingly understand the importance of UCB. India will show the exceptional future as people are assured well by the physicians about its benefits of terminating of various inoperable diseases.
- There is need for the strong blooming so that government hospitals can have access cord blood banks for making it available to people of country irrespective of their financial circumstances.

CONCLUSION

THANKYOU

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