



A Study to Assess the Effectiveness of Planned Teaching Program Regarding Stem Cell Preservation among Antenatal Mothers in Rural and Urban Area of Bhopal City Madhya Pradesh

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Abstract: *Mother and baby share a perfect bond from the period of conception and it is she who nurtures and gives the best of everything to her child. And with the advancement of the technologies she is not just bound to care for her baby at the present but she can now gift her baby with a gift of health, through stem cell and cord blood banking this is effort of science for construction of technology for tomorrow. To assess the pre existing knowledge of antenatal mother regarding stem cell preservation. To find out the effectiveness of Planned Teaching Programme regarding antenatal mother regarding stem cell preservation by comparing pretest and posttest knowledge score. To find out the associations between the pretest knowledge score with selected demographic variables.*

Keywords:- Stem Cell Preservation, Antenatal, Mothers.

Method

A study was conducted to planned teaching program assess the knowledge of antenatal mothers regarding stem cell preservation. Data were collected from 60 antenatal mothers in urban and rural area, Bhopal by using self-structured questionnaire method. The study was found that 65% antenatal mothers belong to the age group of 20-25 years, 91.7% of the antenatal mother were diploma holder, 53.3% of the antenatal mother are belong to nuclear family, 46.7% of the antenatal mother's family income are to 5000-10,000,. 63% of the antenatal mother are through Health Professional, 75% of the antenatal mother are 45 belongs to prim gravida. 25% of the antenatal mother are 45 belongs to are multipara mothers.

Result

The planned teaching program was adopted for the study. Data were collected from 60 antenatal mothers in urban and rural area, Bhopal by using self-structured questionnaire method. Present study has been undertaken to assess the knowledge regarding stem cell preservation among antenatal mothers selected urban and rural area, Bhopal. found that 65% antenatal mothers belong to the age group of 20-25 years, 91.7% of the antenatal mother were diploma holder, 53.3% of the antenatal mother are belong to nuclear family, 46.7%



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Conclusion

The majority of the antenatal mothers having average knowledge regarding stem cell preservation among antenatal mothers selected urban and rural area, Bhopal. To conclude, the researcher would like to mention that the present study helped to assess the knowledge level stem cell preservation among antenatal mothers selected urban and rural area, Bhopal.

Introduction

Mother and baby share a perfect bond from the period of conception and it is she who nurtures and gives the best of everything to her child. And with the advancement of the technologies she is not just bound to care for her baby at the present but she can now gift her baby with a gift of health, through stem cell and cord blood banking. Stem cell is a breakthrough in the medical science and it is the most advanced technology available now to repair the body's deteriorating systems. Stem cells have a potential to develop themselves into different types of cells in the body. Research and therapeutic processes use stem cells to explore the possibilities of growing new organs and tissues to replace those that are damaged or diseased. Stem cells are derived from the cord of the placenta soon after the birth of the baby. These cord blood are rich in cells known as stem cells. Stem cells are the cells with the remarkable potential to develop into many different cell types, during early life and growth, and they give rise to the specialized cells. In addition, in many tissues they serve as a sort of internal repair system and replenish other cells as long as the person survives. The term stem cell was first proposed by a Russian histologist Alexander in 1908 at congress of hematologic society and soon after which the first successful cord blood Stem cell and cord blood banking can be banked in two types of banks such as public cord blood bank and private cord blood bank as per the willingness of the donors. The difference between these two types of banks are, as the name suggests the public bank accept the donations from anyone and they discard the donation that fail to meet various quality control standards and use of national registers to find recipients for their sample. Private Banks accept the donations from only their donor and provide their samples to their donor, the obstacle faced by the private banks are that they are costly. The blood can be collected by two methods they are bag and syringe method. They are bag and syringe method. The health care provider is responsible to draw the blood for processing. The cord blood drawing is a simple and painless procedure that is done soon after the birth of the baby that is within 10-15mts. After considering all the aseptic technique, the health care personnel do the cord blood collection and after cleaning the cord with antiseptic solution, the health care provider draws the cord blood from.

Need for the Study

Stem cell from umbilical cord is said to treat about 80 diseases, and have been used in more than 20,000 transplants worldwide. In India approximately 42,434 births occurs daily, which results in discarding 42,434 umbilical cords a day. So, the storage of stem cells derived from umbilical cord can prove to be best possible insurance against life threatening diseases. Since the first human cord blood transplant, cord blood banks have been established worldwide for the collection and cryopreservation of cord blood. Laboratory results



show that compared with human leukocyte antigen matched unrelated bone marrow transplant, cord blood have many advantages including prompt availability of the transplant and decrease of graft vs. host disease and better long term immune recovery resulting in a similar long term survival. According to WHO since 2002, tens of thousands patients from all over the world have safely used MFII cell therapy to treat many degenerative diseases such as ALS (amyotrophic lateral sclerosis), Alzheimer's disease, cardiovascular disease, stroke, osteoarthritis, muscular degeneration, cerebral palsy etc. studies have proved that siblings have up to 75% chances of compatibility and the cord blood can also be proved to be a match for parents and grandparents up to 50%. India's first public cord blood bank is Jeevan blood bank and research in Chennai. Cord blood collection is usually performed by a trained cord blood bank personnel or delivery unit midwives or obstetricians. Before the cord blood is stored for later use, it undergoes viral testing including tests for HIV and hepatitis B,C and tissue typing to determine human leukocyte antigen type, nucleated cell type, cell viability, blood group antigen, ABO and GPRH system, molecule cluster(CD34), bacterial and fungal growth. They are then cryopressed as it is the only feasible method for long term storage of cord blood hematopoietic stem cells. A cryo protectant is added to the cord blood to allow the cells to survive the cryogenic process. After the unit is slowly cooled to -90°C it can then be added to liquid nitrogen tank which will keep the cord blood unit frozen at -196°C . The slow freezing process is an important feature to keep the cells alive during the freezing process.

Stem cells offers exciting promise for future therapies, but all this will only be possible through intensive research work in this field moreover in India stem cell made an explosive entry and the companies like life cell are widely available for this cause, but the main hindrance for stem cell banking in India is lack of awareness among the population. For the growth of stem cell banking in India the people need to be made aware of its facts and about its future benefits. They must be encouraged to contribute for this cause so that the generations ahead them are saved and are promised with a healthy life. Thus in order to make it practicable the health providers and the midwives must come forward to advocate and educate the antenatal mothers for stem cell and cord blood banking.



Fig 1: Stem cell banking.



Background

Mother and baby share a perfect bond from the period of conception and it is she who nurtures and gives the best of everything to her child. And with the advancement of the technologies she is not just bound to care for her baby at the present but she can now gift her baby with a gift of health, through stem cell and cord blood banking this is effort of science for construction of technology for tomorrow. Cord blood banking is also quoted as biological insurance since it is the one of new option expecting their parents can select to have an extra assurance focusing on the health of their child. Umbilical cord blood is a readily available source of hematopoietic stem cells that treat a variety of malignant and non-malignant diseases in children and adult. Nurses as frontline health care professionals need to understand umbilical cord stem cells and their application in medicine.

According to WHO since 2002, tens of thousands patients from all over the world have safely used MFII cell therapy to treat many degenerative diseases such as ALS (amyotrophic lateral sclerosis), Alzheimer's disease, cardiovascular disease, stroke, osteoarthritis, muscular degeneration, cerebral palsy etc. studies have proved that siblings have up to 75% chances of compatibility and the cord blood can also be proved to be a match for parents and grandparents up to 50%. India's first public cord blood bank is Jeevan blood bank and research in Chennai.

Laughtin et al (2018) conducted a study in Ohio among 68 patients with leukemia or with other blood disorders. Most of the patients received transplants of umbilical cord cells from unrelated donors. About 90% of the patient grew new healthy blood cells. Only 20% of the patients developed severe immunity problems compared to 55% of the patient who developed sub problem after receiving perfectly matched bone marrow. It is thought that because the umbilical cords are immature immunological, they adapt to the patient's body than mature bone marrow.

Conrad Vincent Fernandez et al (2018) conducted a study on knowledge and attitudes of pregnant women with regard to collection, testing and Preservation of cord blood cells. Study was conducted with 650 women's attending antenatal clinics at a regional woman's hospital. A total of 443 women (68%) responded more than half of the women 70% reported poor or very poor knowledge about cord blood Preservation. Many of the respondents 68% thought that physicians should talk to pregnant women about collection of umbilical cord blood. About 89% elected public bank to store their cord blood, continual exchange of matter, energy and information in open system, there is varying back output in the form of matter, energy and information.

For survival all system must receive varying types and amounts of matter, energy and information from environment, through the process of selection this system regulates the type of amount of input received.

In the present study these concepts can be explained as follows:

- **Input:** consists of information, material or energy that enters the system. It refers to the antenatal mother in rural or urban area, Bhopal with certain characteristics.
- **Process:** after the input is absorbed by the system, it is processed in a way useful to the system. The



input that enters in the system is modified or transformed within the system in such a way as to get a desired output. The process is different types of operational procedures of the programme. They include assessment of the existing knowledge of the antenatal mother. The assessment of knowledge is important and in this study it can be assessed by knowledge questionnaires.

➤ Output: from a system of energy, matter, information gives out by the system as a result of its process. It refers to the evaluation of performance of antenatal mother who are exposed to planned teaching programme so as to find out their practice on antenatal mother.

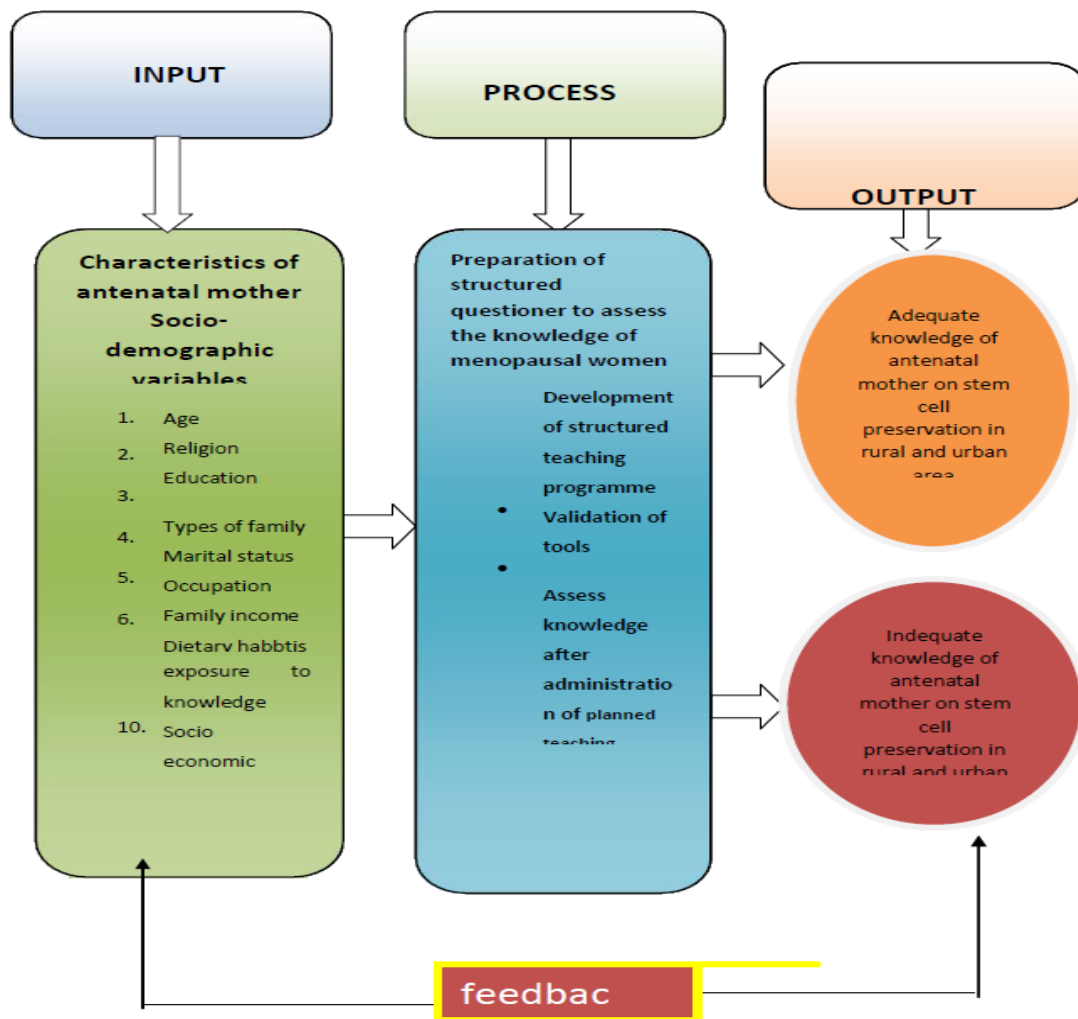


Fig 2: Conceptual framework based on general system model.

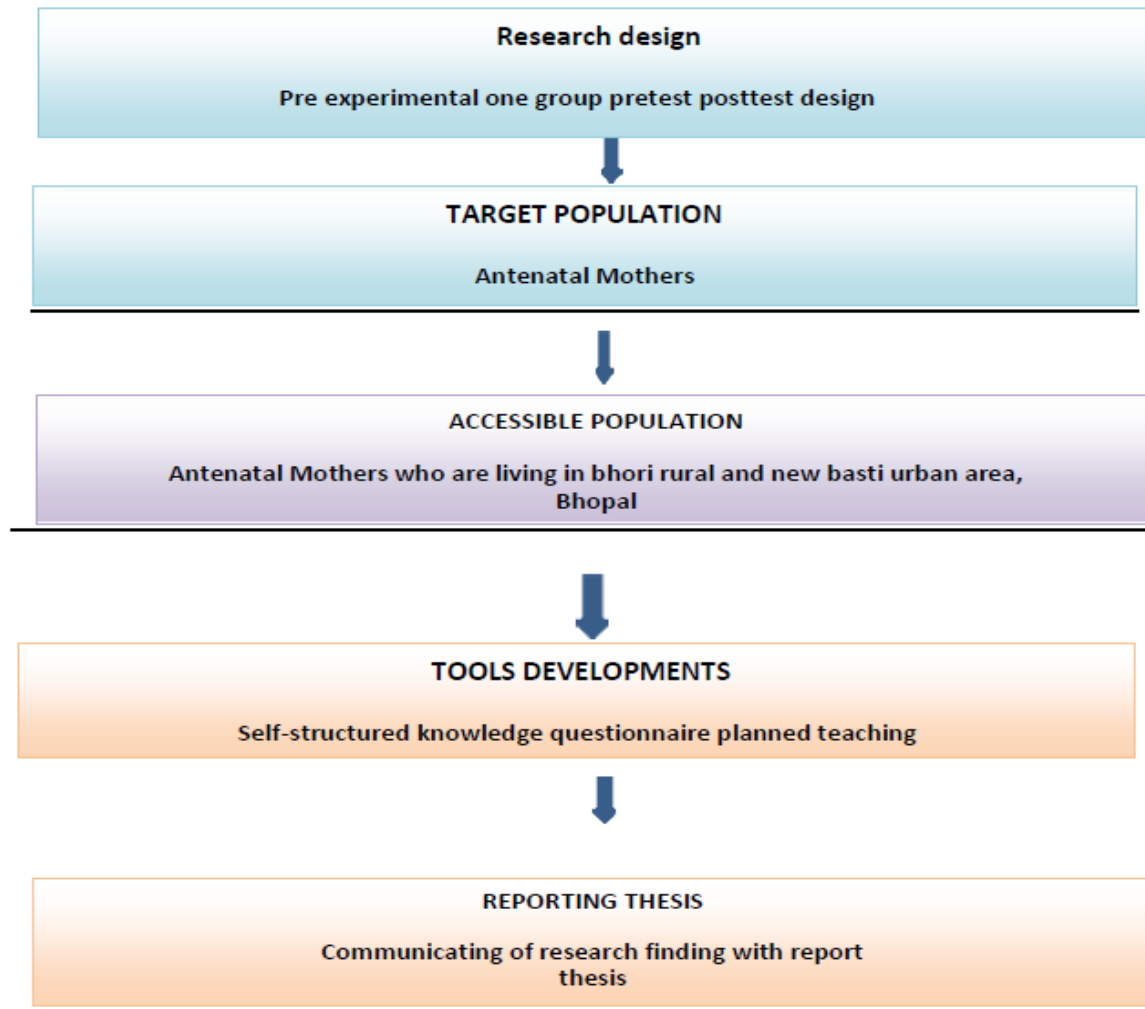


Fig 3: Schematic presentation of research design.

Results

The planned teaching program was adopted for the study. Data were collected from 60 antenatal mothers in urban and rural area, Bhopal by using self-structured questionnaire method. Present study has been undertaken to assess the knowledge regarding stem cell preservation among antenatal mothers selected urban and rural area, Bhopal. found that 65% antenatal mothers belong to the age group of 20-25 years, 91.7% of the antenatal mother were diploma holder, 53.3% of the antenatal mother are belong to nuclear family, 46.7% of the antenatal mother's family income are to 5000-10,000,. 63% of the antenatal mother are through Health



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Implications

The nurse's role may be essentially unchanged or it may entail different duties by possessing and practicing competencies making nurses better prepared to handle all types of emergencies. The investigator has drawn the following implications in the field of nursing education, nursing service, nursing administration and nursing research.

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