

Research Article

“A Study to Assess the Knowledge Regarding Stem Cell Therapy and Its Benefits among B.Sc. Nursing 3rd Year Students”

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ABSTRACT

BACKGROUND: Stem cells are undifferentiated cells with the remarkable ability to regenerate and develop into various cell types, offering potential for treating over 75 life threatening diseases. Stem cell therapy, particularly through umbilical cord blood, is a promising approach for conditions like diabetes, heart disease, and spinal cord injuries. In India, stem cell transplantation has been slower to progress, with around 500 procedures performed to date, but its potential, especially in treating conditions like thalassemia and chronic myeloid leukemia, is growing.

Objective: To assess the knowledge of B.Sc. Nursing 3rd year students regarding stem cell therapy and its benefits. To find out an association between level of knowledge score with selected sociodemographic variables among B.Sc. Nursing 3rd year students.

Methods: - The research approach adopted for the study was quantitative, descriptive survey design was used for this study. By Non probability convenience sampling technique 83 B.Sc. Nursing students were selected from D.Y. Patil College of Nursing at Kolhapur. 33 Structured knowledge questionnaires were used to assess the knowledge regarding stem cell therapy and its benefits.

Result: -The study finding of the knowledge related stem cell therapy and its benefits among B.Sc. Nursing 3rd years students was (49%) Good, (35%) Average, and (16%) Poor knowledge. Chi-square values indicate a significant association between the knowledge scores of B.Sc. Nursing 3rd years students with gender (5.991 at 0.05 levels) and Source of information (9.488 at 0.05 levels), But there is no significant association between the knowledge scores of among B.Sc. Nursing 3rd years students and other demographic variables such as Age in years, Religion.

Interpretation and Conclusion: -The study concludes that the level of knowledge regarding stem cell therapy and its benefits among B.Sc. Nursing 3rd-year students at D. Y. Patil College of Nursing, Kolhapur, is moderate, with 49% of participants demonstrating good knowledge. There is a need to enhance the understanding of stem cell therapy by incorporating updated curriculum and conducting workshops to provide students with a deeper insight into this field.

Keywords: Assess, Knowledge, Stem Cell, Therapy, Benefits, Students, B.Sc. Nursing.

INTRODUCTION

Health is the important aspects of life which needs to be maintained at any time in person's life at any cost. Stem cells are young, primitive and undifferentiated cells with remarkable potential to renew differentiate and develop in

the body. Stem cells have ability to regenerate & stored in the different tissues. Umbilical cord is direct connection between mother & fetus, which is always show that emotional bonding between mother & fetus. Research on stem cell therapy has shown that advanced stem cell

therapy could be used to treat more than 75 life threatening diseases. Currently research in the use of stem cells to treat more than 85 diseases such as diabetes, heart attack, stroke, spinal cord injuries etc, is being undertaken. There has been a completely new wave of research trials involving umbilical stem research that has swept through the nation ¹

Stem cell's transplant is a surviving procedure that can increase life expectancy of end-stage or chronically ill patient. The first transplant of stem cells was conducted in the year 1968 in the United States and since then, there has been tremendous development in this technology related to scientific research and technological advances in the medical field. Even though many applications of stem cells are under investigation, such as research has raised high hopes and promises along with warnings and ethical and religious questions in different societies.²

Assessing the knowledge of nursing students about stem cell therapies also aligns with the broader goal of ensuring that future healthcare professionals are prepared for the ethical challenges that stem cell research and therapy present. Stem cell therapy, although promising, raises complex ethical questions regarding patient consent, regulation, and its application. As the field progresses, healthcare professionals must be equipped with a solid ethical framework to navigate these challenges. By exploring the knowledge of B.Sc. Nursing students towards stem cell research and its ethical concerns, this study will provide a comprehensive view of their readiness to engage with this complex area of healthcare.³

NEED FOR STUDY

Umbilical cord blood is the blood that remains in the umbilical cord and placenta post-delivery. At or near term, there is a maternal-fetal transfer of cells to boost the immune systems of both the mother and baby in preparation for labor. This makes cord blood at the time of delivery a rich source of stem cells and other cells of the immune system. Cord blood banking is the process of collecting the cord blood and extracting and cryogenically freezing its stem

cells and other cells of the immune system for potential future medical use. Cord blood taken from a baby's umbilical cord is always a perfect match for the baby. In addition, immediate family members are more likely to also be a match for the banked cord blood. Siblings have a 25 % chance of being a perfect match and a 50% chance of being a partial match. Parents, who each provide half the markers, used in matching, have a 100% chance of being a partial match. Even aunts, uncles, grandparents and other extended family members have a higher probability of being a match and could possibly benefit from the banked cord blood.⁴ Stem cells are already in use to cure ailments like acute leukemia, chronic leukemia, myelodysplastic syndromes, stem cell disorders, myeloproliferative disorders, lymphoproliferative disorders, phagocyte disorders, inherited disorders like osteoporosis, B-Thalassemia, inherited metabolic disorders, inherited erythrocyte abnormalities like Beta Thalassemia and Sickle cell disease, and other malignancies like multiple myeloma, plasma cell leukemia, renal cell carcinoma and retinoblastoma.⁴

The results of research studies indicated that nurses were having a low level for knowledge score and warrant a need to promote stem cell knowledge to create awareness and update information among those nurses. Educational modules will empower and equip them with the required knowledge about stems cell, thus, enhancing their attitude toward improving a holistic.

MATERIALS AND METHODS

A descriptive survey design was used for this study Quantitative approach study was undertaken. study was conducted in D. Y. Patil College of Nursing, Kolhapur. The sample were selected for study includes 83 students of B.Sc Nursing 3rd studying in D. Y. Patil College of Nursing, by using non-probability, convenient sampling technique. The data was collected by using sociodemographic data and questionnaires 33 knowledge questions were used for the study. Result analyzed by using descriptive and inferential statistics.

RESULT

Table 1: Distribution of Frequency and Percentage of subjects according to demographic variables.

n= 83

Demographic Variable	f(%)
1) Gender	
a) Male	43(52%)
b) Female	40(48%)
2) Age in years	
a)20-21 years	68(82%)
b)22-23 years	9(11%)
c)24-25 years	4(5%)
d) Above 26 years	2(2%)
3) Religion	
a) Hindu	50(60%)
b) Muslim	4(5%)
c) Christian	28(34%)
d) Others	1(1%)
4) Source of information	
a) Internet	41(49%)
b) books	28(34%)
c) Magazine/ newspaper	14(17%)
d) Any other(if any specify)	0(0%)

Table 2: distribution of the Knowledge Scores of subjects on stem cell therapy and its benefits.

n= 83

Level of Knowledge	f(%)
Good	41(49%)
Average	29(35%)
Poor	13(13%)

Figure: Figure of the Knowledge Scores of subjects on stem cell therapy and its benefits.

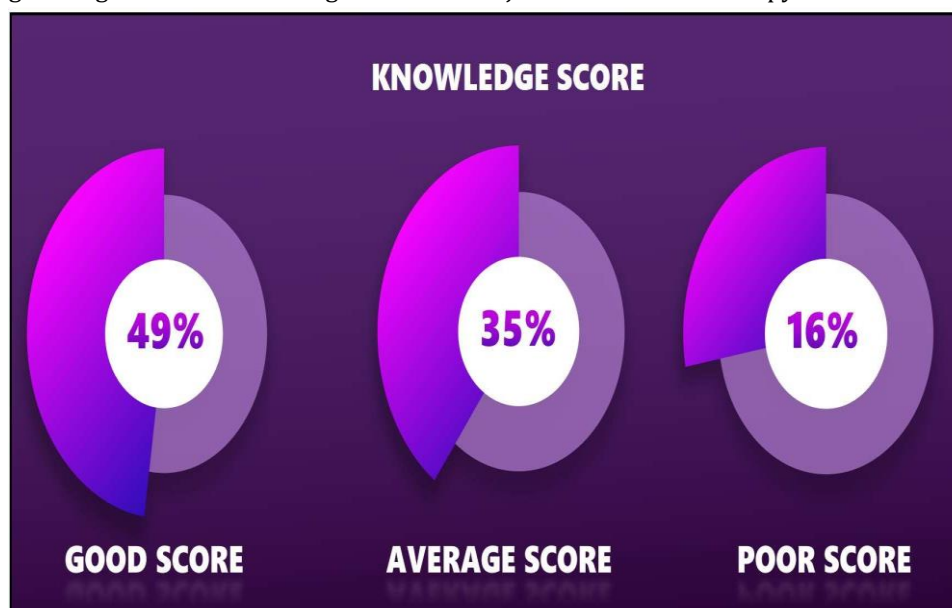


Fig.2: DISTRIBUTION OF SUBJECTS ACCORDING TO THEIR KNOWLEDGE SCORE

Data in Table 2 and Figure 2 show that the majority (49%) rated their knowledge as good, 35% rated it as average, and 16% rated it as poor. knowledge related to stem cell therapy and its benefits among B.Sc. nursing 3rd year B.Sc. Nursing student

The data presented in Table 3 shows that the obtained Chi-square values indicate a significant association between the knowledge scores of stem cell therapy and its benefits among B.Sc.Nursing3rdyear students with Gender (12.04 at 0.05 levels) and Sources of information(15.87 at0.05level), But there is no significant association between the knowledge scores of among B.Sc. nursing 3rd year students other demographic variables such as Age and Religion.

However, the above finding reveals that there was association between the knowledge scores of among B. Sc. Nursing 3rdyear students.

DISCUSSION

Frequency and Percentage distribution of sample according to demographic characteristics.

Findings revealed that, the majority of respondents on gender, with (52%) male respondents and (48%) female respondents. This indicates a fairly balanced representation of both genders in the sample.

A study with similar finding was conducted to assess the knowledge and attitude on stem cell research and therapy among faculty members and students in the medical field at Shaqra University. The present study aimed to evaluate the level of knowledge and attitudes toward stem cell research and therapy among this group. A questionnaire-based cross-sectional study was conducted from November 2023 to February 2024, with 217 participants, including 50.23% males and 49.77% females, and 34% faculty members. The study concludes that there is a low to moderate level of knowledge about stem cells and their clinical applications, but a positive attitude toward supporting stem cell research and related initiatives. It highlights the need for greater awareness about stem cells and their potential uses in research and therapy.¹⁴

Regarding age, the majority of participants (82%) were between 20-21 years old, which suggests a younger demographic. Smaller percentages were observed in the 22-23years group (11%), the 24-25years group (5%), and the above 26years group (2%), indicating a lower representation from older age groups. In terms of religion, the majority of respondents were Hindu (60%), followed by Christian (34%), Muslim (5%), and others (1%). As for the source of information, most participants (53%) reported obtaining information from the internet. In addition, 39% of respondents cited books as their source of information, while 8% relied on magazines or newspapers. No participants mentioned any other sources of information,

Assessment of the Knowledge related to stem cell therapy and its benefits among B.Sc. Nursing 3rd year students.

The knowledge regarding stem cell therapy and its benefits among B.Sc. Nursing students was assessed 33 structured knowledge questionnaires.

Finding Knowledge score related to stem cell therapy and its benefits among B.Sc. Nursing 3rd year students.

The majority (49%) of students rated their knowledge as good, (35%) rated it as average, and (16%) rated it as poor. knowledge related to stem cell therapy and its benefits among B.Sc. nursing 3rd year students.

A study with similar finding was conducted to assess the level of knowledge, perception, and attitude of medical students regarding stem cell research (SCR) and its application, to gain better insight into the future of stem cell therapy in Pakistan. The data was collected using a self-administered questionnaire with 28 well-structured questions. The study results reveal that 60.2% of the students had good knowledge, while 39.8% had poor knowledge of stem cells. The study concludes that students' attitudes towards SCR are significantly influenced by their knowledge of stem cell research. Therefore, the study suggests that seminars and workshops should be conducted, and the topic should be added to the medical

syllabus to enhance knowledge and promote further research in stem cell therapy.¹³

Association between the knowledge score with the selected demographic variables regarding knowledge related to stem cell therapy and its benefits among B.Sc. Nursing 3rd year students.

The data presented in Table 3 shows that the obtained Chi-square values indicate a significant association between the knowledge scores of stem cell therapy and its benefits among B.Sc. Nursing 3rd year students with Gender (12.04 at 0.05 levels) and Source of information (15.87 at 0.05level), But there is no significant association between the knowledge scores of among B.Sc. nursing 3rd year students other demographic variables such as Age and Religion.

However, the above finding reveals that there was association between the knowledge scores of among B. Sc. Nursing 3rd year students with Gender and source of information So the hypothesis H1 was accepted

A study with similar finding was conducted to assess the effectiveness of a structured teaching program (STP) on knowledge regarding umbilical cord blood stem cell therapy among third-year B.Sc. Nursing students at a selected nursing college in Rajkot. The data were analyzed using descriptive and inferential statistical methods, and a paired t-test was applied to evaluate the effectiveness of the STP. The obtained t-value of 20.693 was highly significant at the $p < 0.001$ level. The study also found a significant association between demographic variables, such as gender and family type, and the pre-test knowledge levels regarding umbilical cord blood stem cell therapy. The study concluded that the STP was effective in enhancing the knowledge of third-year B.Sc. Nursing students on umbilical cord blood stem cell therapy.¹²

A study with similar finding was conducted to assess the Knowledge Regarding Umbilical Cord Stem Cell Therapy among Staff Nurses with the View to Develop Self-Instructional Module among staff nurses in selected hospital at Mangaluru. The results revealed that the majority of the staff nurses (90%) had poor

knowledge, while only 10% had average knowledge regarding umbilical cord stem cell therapy. The study also found a significant association between the knowledge scores and variables such as previous knowledge and source of information, at the 0.05 level of significance. The study concluded that staff nurses had inadequate knowledge regarding umbilical cord stem cell therapy and emphasized the need to educate them on the topic through in-service education programs.²⁰

CONCLUSION

The findings showed the majority of students, accounting for (49%), rated their knowledge of stem cell therapy and its benefits as good. Meanwhile, (35%) of participants viewed their understanding as average, and (16%) felt their knowledge was poor. A significant association was found between knowledge levels and demographic factors such as gender and source of information, whereas age and religion showed no correlation. The internet emerged as the primary source of information, highlighting the growing reliance on digital learning.

Implications of the Study:-

The findings of the study have implications for the nursing profession. The implications have been written under the following headings, nursing practice, nursing administration, nursing education, nursing research.

1) Nursing Practice

Nursing practice includes preventive, promotive, curative, and rehabilitative services. The present study show majority of B.Sc. Nursing 3rd year students in D. Y. Patil College of Nursing, Kolhapur, were half of the students had good knowledge, while others demonstrated average or poor understanding. The study highlighted the significance of accessible and reliable information sources in enhancing nursing students' awareness of stem cell therapy. Integrating structured educational interventions, such as workshops and curriculum updates, can help improve knowledge and prepare future nurses for advancements in healthcare.

2) Nursing Education

The findings of the study revealed that the knowledge regarding stem cell therapy and its benefits among B.Sc. Nursing 3rd-year students at D. Y. Patil College of Nursing, Kolhapur, was moderate to good. The internet emerged as the primary source of information, highlighting the importance of digital learning in nursing education. Educational interventions, such as workshops and curriculum updates, can help enhance students' understanding of stem cell therapy. These tools could also be used to assess and improve knowledge among future nursing professionals.

3) Nursing Administration

Nurses are vital source in education public on various health related issues. The informational booklet can be considered as an awareness program such as workshops and seminar. The public health nursing administration can use informational booklet to provide knowledge regarding stem cell therapy and its benefits to nursing students.

4) Nursing Research

The descriptive survey provides baseline for conducting other research studies. The study will be a motivation for budding researchers to conduct similar studies on a large scale. The study will be a reference for research scholars.

Limitations

1. No broad generalization could be made due to the small sample size and limited area of setting

RECOMMENDATIONS

1. A similar study needs to be conducted for staff nurses in hospital to improve the generalization of the findings.
2. A similar study can be conducted on a larger sample size to enhance the reliability and generalizability of the results regarding knowledge on stem cell therapy and its benefits.
3. A comparative study can be undertaken to assess the knowledge of stem cell therapy and

its benefits among nursing students in urban and rural colleges.

4. An experimental study can be conducted to evaluate the effectiveness of various educational interventions, such as workshops or digital tools, in improving nursing students' knowledge of stem cell therapy and its benefits.
5. A longitudinal study can be carried out to assess the long-term impact of educational programs on nursing students' knowledge and understanding of emerging medical therapies, like stem cell therapy

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