

A Study to Assess the Effectiveness of Structured Teaching Programme V/s Self Instructional Module on Knowledge Regarding Stem Cell Therapy among Nursing Students at Selected College of Nursing, Lucknow

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ABSTRACT

Title - Effectiveness of Structured Teaching Programme and Self Instructional Module on knowledge regarding stem cell therapy among B.Sc. (N) 4th Year students at selected nursing colleges, Lucknow. **Objectives:** Assess the level of knowledge regarding Stem Cell Therapy among nursing students in both groups. Assess the effectiveness of Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students in both groups. Compare the Post test level of knowledge between Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students. Associate between pre-test knowledge regarding stem cell therapy among nursing students with selected demographic variables. **Hypothesis:** H1- There is a significant difference between pre test and post test knowledge regarding stem cell therapy among nursing students in both groups. H2- There is a significant difference between STP and SIM on knowledge regarding stem cell therapy among nursing students. H3- There is a significant association between pre test knowledge with selected demographic variables in both groups. **Conceptual framework:** J.W. KENNEY'S OPEN SYSTEM MODEL was used for this study. **Research design:** A pre-experimental, two groups pre test and post test research design was used. 30 samples from each groups, were selected by convenience sampling technique. The data was collected using structured knowledge questionnaire followed by structured teaching programme and Self Instructional Module. **Findings:** Results revealed for STP that mean post test score of knowledge (17.43) was significantly greater than mean pre test score (11.6) with p value <0.05.

Results revealed for Self Instructional Module that mean post test score of knowledge (14.93) was significantly greater than mean pre test score (10.7) with p value <0.05. Therefore, it indicates that there was a significant improvement in knowledge of B.Sc. (N) 4th Year students, after giving Structured Teaching Programme and Self Instructional Module on knowledge regarding Stem Cell Therapy. **Conclusion:** The findings revealed that there was a significant improvement in knowledge of nursing students in post- test after giving structured teaching programme. It also showed that there was an association with level of knowledge and selected demographic variables like type of family.

KEYWORDS: Effect, Structured Teaching Program, Self Instructional Module, Stem Cell Therapy

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BACKGROUND OF THE STUDY

Stem cells are called progenitor cells, or precursor cells, because they are capable of developing into various WBCs, red blood cells (RBCs), or platelets. Although the majority of stem cells are located in the bone marrow, some stem cells circulate in the blood. Hematopoietic is characterized by a rapid, continuous turnover of blood cells.

There are 3 types of Bone Marrow Transplantation based on the source of donor tissue 1. Allogeneic (from an unrelated donor, 2. Autologous, (from self), 3. Syngeneic (from and identical twins allogeneic bone marrow transplantation) . To achieve cure with acute leukemia, bone marrow transplantation is the most common current recommended treatment. Allogeneic BMT present a treatment option for clients younger than 60 or 70 Years of age, depending on the clients' performance status, who have a suitable HLA-matched donor.

NEED OF THE STUDY

Day by day new diseases are arising in the world. Stem cell therapy is useful for treating almost all diseases. But the knowledge regarding this treatment is low even in those who are in medical profession. So I selected this topic for making an awareness regarding this treatment among staff nurses. Stem cell treatments are a type of intervention strategy that introduces new cells into damaged tissue in order to treat disease or injury. Many medical researchers believe that stem cell treatments have the potential to change the face of human disease and alleviate suffering. The ability of stem cells to self-renew and give rise to subsequent generations with variable degrees of differentiation capacities, offers significant potential for generation of tissues that can potentially replace diseased and damaged areas in the body, with minimal risk of rejection and side effects.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of Structured Teaching Programme V/s Self Instructional Module on knowledge regarding Stem Cell Therapy among nursing students at selected college of nursing, Lucknow.

AIM

The aim of the study will be to determine the effectiveness of Structured Teaching Programme and Self Instructional Module on knowledge regarding stem cell therapy among the two groups, and to compare the effectiveness of the two pre-organized instructional module on knowledge regarding stem cell therapy among the both groups.

OBJECTIVES

- Assess the level of knowledge regarding Stem Cell Therapy among nursing students in both groups.
- Assess the effectiveness of Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students in both groups.
- Compare the Post test level of knowledge between Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students.
- Associate the level of knowledge regarding Stem Cell Therapy among nursing students with selected demographic variables.

HYPOTHESIS

- **H1:** There is a significant difference between pre test and post test knowledge regarding Stem Cell Therapy among nursing students in both groups.
- **H2:** There is a significant difference between STP and SIM on knowledge regarding Stem Cell Therapy.
- **H3:** There is a significant association between level of knowledge regarding Stem Cell Therapy with selected demographic variables in both groups.

RESEARCH METHODOLOGY

SCHEMATIC REPRESENTATION OF THE RESEARCH

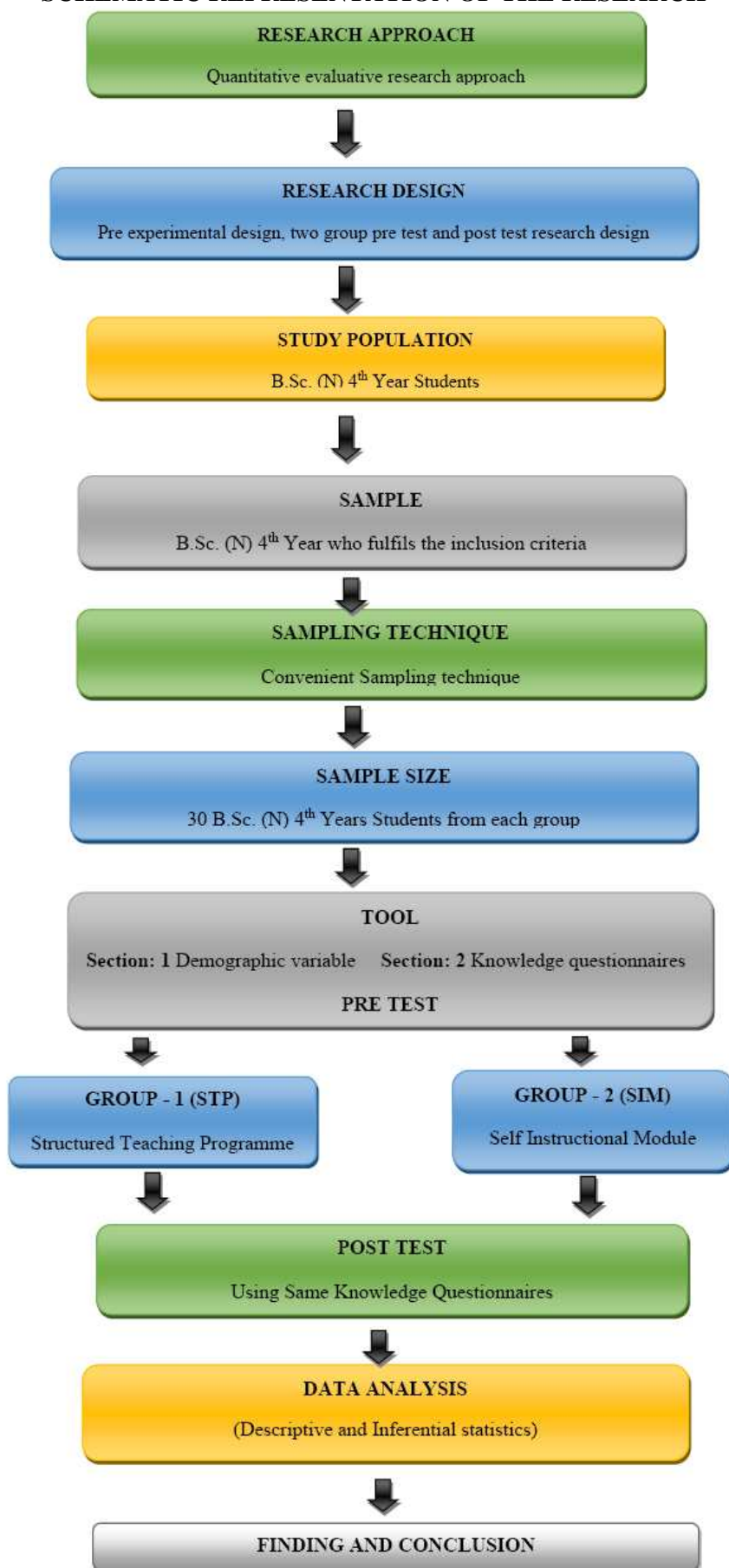


Fig No. 2: Schematic Representation Of The Research

DATA ANALYSIS AND INTERPRETATION

Analysis and interpretation of data is the most important phase of research process, which involves the computation of the certain measure along with searching for pattern of relationship that exists among data groups. Analysis and interpretation of data includes compilation, editing, coding, classification and presentation of data. Analysis is referred as methods of organizing and synthesizing the data in such a way that research questions can be answered and hypothesis can be tested.

➤ The analyzed data was organized to the objectives and presented under the following major headings:

➤ **SECTION 1:** Sample analysis

➤ **SECTION 2:** Objective wise analysis

SECTION 1

➤ **PART 1 - Table 1:** Distribution of samples according to their socio demographic variables

SECTION 2

➤ **PART 1**

Table 2 (a) Assessment of frequency, percentage of pre test and post test level of knowledge score of nursing students in group 1 (STP).

Table 2 (b) Assessment of frequency, percentage of pre test and post test level of knowledge score of nursing students in group 2 (SIM).

➤ **PART 2**

Table 3 (a) Classification wise Mean, SD and Mean percentage of Pre test and Post test knowledge in group- 1 (STP).

Table 3 (b) Classification wise Mean, SD and Mean percentage of Pre test and Post test knowledge in group- 2 (SIM).

➤ **PART 3**

Table 4 (a) Effect of pre-test and post-test knowledge score among nursing students regarding stem cell therapy in group- 1 (STP).

Table 4 (b) Effect of pre-test and post-test knowledge score among nursing students regarding stem cell therapy in group- (SIM).

➤ **PART 4**

Table 5: Compare the Post test level of knowledge between Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students.

➤ **PART 5**

Table – 6 (a) Associate the level of knowledge regarding stem cell therapy among nursing students with selected demographic variables in group -1 (STP).

Table – 6 (b) Associate the level of knowledge regarding stem cell therapy among nursing students with selected demographic variables in group (SIM).

SECTION- 1

SAMPLE ANALYSIS PART -1

Distribution of Samples according to their socio demographic variables

This section describes frequency and percentage distribution of samples according to their demographic variables and is depicted in **Part 1**

TABLE 1: Distribution of sample according to gender, age, marital status, type of family, previous information and is anyone in your family has preserved stem cells.

n= 30

S. No.	Demographic Variables	Category	Frequency and Percentage of Group-1 (STP)		Frequency and Percentage of Group-2 (SIM)	
			Frequency(n)	Percentage(%)	Frequency(n)	Percentage(%)
1.	Age in Years	a. 21-23 Years	23	76.67	26	86.66
		b. 24-26 Years	4	13.33	3	10
		c. Above 26 Years	3	10	1	3.33
2.	Gender	a. Male	2	6.67	12	40
		b. Female	28	93.33	18	60

3.	Marital status	a. Married	1	3.3	2	6.67
		b. Un-married	29	96.7	28	93.33
4.	Type of family	a. Nuclear	19	63.3	16	53.3
		b. Joint	11	36.7	14	46.7
5.	Previous information	a. Yes	12	40	17	56.7
		b. No	18	60	13	43.3
6.	Is anyone in your family has preserved Stem Cells	a. Yes	0	0	0	0
		b. No	30	100	30	100

Table 1 reveals the frequency and percentage distribution of social demographic variables.

SECTION- 2 MAIN ANALYSIS

OBJECTIVE 1: Assess the level of knowledge regarding stem cell therapy among nursing students in both groups.

PART- 1

TABLE 2 (a) Assessment of frequency, percentage of pre test and post test level of knowledge score of nursing students in group 1 (STP).

n=30

Level of Knowledge	Score	Pre Test		Post Test	
		Frequency	Percentage	Frequency	Percentage
Inadequate	0-9	9	30%	0	0%
Moderate	10-17	17	56.7%	13	43.34%
Adequate	18-25	4	13.33%	17	56.66%

Minimum score= 00

Maximum score= 25

PART 2

TABLE 3 (a) Classification wise Mean, SD and Mean percentage of Pre test and Post test knowledge group- 1 (STP).

S. No.	Secetions	Min- Max Score	Pre Test Knowledge			Post Test Knowledge		
			Mean Score	Percentage	SD	Mean Score	Percentage	SD
1.	Questions related to Introduction	0-7	3.97	56%	1.6291	4.36	62%	1.129
2.	Questions related to Type	0-5	2.1	42%	1.269	3.36	67%	1.0662
3.	Questions related to Transplantation	0-2	0.7	35%	0.6513	1.53	76%	0.6288
4.	Questions related to Stem cell collection	0-2	1	50%	0.6433	1.73	86%	0.6397
5.	Questions related to Source and Storage	0-9	3.83	42%	1.877	6.43	71%	1.1043

TABLE – 3 (b) Classification wise Mean, SD and Mean percentage of Pre test and Post test knowledge group- 2 (SIM).

S. No.	Secetions	Min- Max Score	Pre Test Knowledge			Post Test Knowledge		
			Mean Score	Percentage	SD	Mean Score	Percentage	SD
1.	Questions related to Introduction	0-7	3.17	45%	1.2058	4.2	60%	1.1265
2.	Questions related to Type	0-5	1.9	38%	0.712	2.67	53%	0.9942
3.	Questions related to Transplantation	0-2	0.77	38%	0.504	1.1	55%	0.5477
4.	Questions related to Stem cell collection	0-2	1	50%	0.6948	1.4	70%	0.4983
5.	Questions related to Source and Storage	0-9	3.87	42%	0.9371	5.57	61%	1.1943

OBJECTIVES- 2: Assess the effectiveness of Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students in both groups.

PART 3

TABLE 4 (a) Effect of pre test and post knowledge score among nursing students regarding Stem Cell Therapy in group 1 (STP)

Category	Mean	SD	Mean Difference	df	Paired "t" Value	"p" Value	Table Value at 0.05
Pretest	11.6	4.1071	- 5.83	29	-10.835	000**	2.05
Posttest	17.43	2.8245					

** Significance at $p < 0.05$ level

TABLE 4 (b) Effect of group 2 (SIM) Pre Test and Post Test knowledge score among nursing students regarding Stem Cell Therapy.

Category	Mean	SD	Mean Difference	df	Paired "t" Value	"p" Value	Table Value at 0.05
Pretest	10.7	1.80325	-4.23	29	-15.686	.000**	2.05
Posttest	14.93	2.116116					

** Significance at $p < 0.05$ level

OBJECTIVE 3: Compare the Post test level of knowledge between Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students.

PART- 4

TABLE 5 (a)

Category	Mean	SD	Mean Difference	df	Unpaired "t" Value	"p" Value
Pretest	10.7	1.80325	-4.23	29	-15.686	.000**
Posttest	14.93	2.116116				

OBJECTIVE- 4 Associate the level of knowledge regarding Stem Cell Therapy among nursing students with selected demographic variables.

PART- 5

TABLE- 6 (a) Group-1

S. No	demographic	Category	Frequency	Inadequate	Moderate	Adequate	Chi square	df	Table value	Remark
1	Age (in Years)	21-23 Year	23	8	13	2	3.5913	4	9.49	NS
		24-26 Year	4	0	3	1				
		Above 26 Year	3	1	1	1				
2	Gender	Male	2	2	0	0	5	2	5.99	NS
		Female	28	7	17	4				
3	Marital Status	Married	1	0	1	0	0.7910	2	5.99	NS
		Un-Married	29	9	16	4				
4	Type of Family	Nuclear	19	6	13	0	8.2155	2	5.99	S
		Joint	11	3	4	4				
5	Previous information	Yes	12	4	7	1	0.4588	2	5.99	NS
		No	18	5	10	3				

* = Significant at $p < 0.0$

** = Non significant at $p > 0.05$

PART- 5

TABLE- 7 (a) Group- 2

S. No	demographic	Category	Frequency	Inadequate	Moderate	Adequate	Chi square	df	Table value	Remark
1	Age (in Years)	21-23 Year	26	7	19	0	1.4046	2	5.99	NS
		24-26 Year	3	0	3	0				
		Above 26 Year	1	0	1	0				
2	Gender	Male	12	2	10	0	0.4968	1	3.84	NS
		Female	18	5	13	0				

3	Marital Status	Married	2	0	2	0	0.6521	1	3.84	NS
		Un-Married	28	7	21	0				
4	Type of Family	Nuclear	16	4	12	0	0.0532	1	3.84	NS
		Joint	14	3	11	0				
5	Previous information	Yes	17	2	15	0	2.9349	1	3.84	NS
		No	13	5	8	0				

* = Significant at $p < 0.0$

** = Non significant at $p > 0.05$

Hypothesis testing

This section deals with the testing of the hypothesis put forward by the investigator in the beginning of the study with sound support of the statistical analysis.

Hypothesis formulated for the study:

The data of the study are based on the hypothesis listed below:

H1: There is a significant difference between pre test and post test knowledge regarding stem cell therapy among nursing students at $p < 0.05$ level of significance in both groups.

➤ **Group – 1 (STP)** The study result shows that there is significant difference in mean pre- test knowledge score of 11.6 and mean post test knowledge score of 17.43 with a p value of .000. Hence, H1 is accepted.

➤ **Group -2(SIM)** The study result shows that there is significant difference in mean pre-test knowledge score of 10.7 to a mean post test knowledge score of 14.93 with a p value .000. Hence, H1 is accepted.

H2: There is a significant difference between STP and SIM on knowledge regarding stem cell therapy at $p < 0.05$ level of significance.

➤ The study finding reveals that the post test mean score of STP was (17.43) and SD (2.8245) and post test mean score (14.93) and SD of SIM was (2.1161) with the mean difference of 2.5. Therefore as the mean and SD score of level of knowledge in STP is significantly greater than the SIM and the calculated unpaired 't' value of (3.8797) which was found to be statistically significant at $p < 0.05$ level. Hence H2 is accepted.

H3: There is a significant association between the level of knowledge regarding stem cell therapy with selected demographic variables at $p < 0.05$ level of significance in both groups.

➤ **Group 1:** From test result, it is found that there is a significant association of pre test level of knowledge with type of family among the STP group at 0.05 level of significant. Hence it is concluded that H3 is accepted.

➤ **Group 2:** From test result, it is found that there is a no significant association with the pre test knowledge of nursing students about stem cell therapy with selected demographic variable at 0.05 level of significant. So the research H3 was rejected.

For the purpose of testing the effectiveness of Structured teaching programme and self instructional module in terms of gain in knowledge following null hypothesis can be formulated.

Results

For the above objectives, the results are summarized under the following section:

SECTION 1- Description of sample according to their socio demographic variables among nursing students in both groups.

The demographic variables of study population were as follows:

In relation to **Age in Years** out of the samples the percentage in **group 1:** that is 76.67% (23) of the nursing students were in the age group of 21-23 years, were in 13.33% (4) was age in 24-26 years, were in 10% (3) was age in above 26 and **group 2:** that is 86.66% (26) was age is 21-23 years, were in 10% (3) was age is 24-26 years, were in 3.33% (1) was age is above 26 years of the nursing students.

With respects to the **Gender**, among the 30 samples of nursing students in **group 1:** 93.33% (28) were female and 6.67% (2) were male and **group 2:** 60% (18) were female 40% (12) were male.

The analysis of the samples shows that, in relation to the **marital status** in **group 1:** 96.7% (29) un – married and 3.3% (1) were married and **group 2:** 93.33% (28) un – married and 6.67% (2) were married.

In context to **Type of family**, majority of sample in **group 1:** 63.3% (19) were nuclear family, and 36.7% (11) were joint family and **group 2:** 53.3% (16) were nuclear family, and 46.7% (14) were joint family.

As per **Previous information** majority of sample in **group 1:** 60% (18) were have previous information and 40% (12) don't have any previous information

and **group 2:** 56.7% (17) have previous information and 43.3% (13) have no previous information.

In context to **Is anyone in your family has preserved Stem Cells** majority of sample in **group 1:** 100% (30) not preserved Stem Cells and **group 2:** 100 % (10) not preserved Stem Cells.

SECTION 2: Assess the level of knowledge regarding stem cell therapy among nursing students in both groups.

In the present study **group 1** on assessing the pre test knowledge of the nursing students about stem cell therapy. The majority 56.67% of the nursing students were having moderate knowledge level followed by 30% were having inadequate knowledge level followed by 13.33% were having adequate knowledge regarding stem cell therapy. The mean pre test score was 11.6. After giving structured teaching programme knowledge regarding stem cell therapy, the post test knowledge score increased to 43.34 % having moderate knowledge level followed by 56.66 % were having adequate knowledge score. The mean post test score was 17.43.

In **group 2** the pre-test knowledge of the nursing students about stem cell therapy. The majority 76.66% of the nursing students were having moderate knowledge level followed by 23.33% were having inadequate knowledge regarding stem cell therapy. The mean pre test score was 10.7. After distributing Self Instructional Module knowledge regarding stem cell therapy, the post test knowledge score increased to 86.66% had moderate knowledge and having 13.33% were having adequate knowledge score. The mean post test score was 14.93.

The findings of the study was supported by Jyoti Kapoor (2016) to assess the effectiveness of planned teaching programme on knowledge regarding umbilical cord stem cell banking among nurses in selected hospital of Jammu. The sample consisted of 58 nurses. Purposive sampling technique was used. The result revealed that comparison of pre test and post test knowledge regarding umbilical cord stem cell banking showed the post test mean value (27.31) is higher than pre test mean (10.66) value. The planned teaching programme was significantly effective in improving the knowledge.

SECTION 3: Assess the effectiveness of Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students in both groups.

Group 1- The mean Pre- test knowledge score regarding Stem cell therapy was 11.6 with a standard deviation of 4.1071. After giving Structured Teaching Programme the mean score was increased to 17.43

with a standard deviation of 2.8245. The significance of Structured Teaching Programme on knowledge regarding stem cell therapy was assessed using the paired 't' test (dependent 't' test). The calculated value for knowledge regarding stem cell therapy is - 10.835 and p value is 0.000** which is highly significant at 0.05 level. As the calculated value of 't' at 29 degree of freedom was greater than the table value at 0.05.

Group 2 - The mean Pre- test knowledge score regarding Stem cell therapy was 10.7 with a standard deviation of 1.8032 after distributing Self Instructional Module the mean score was increased to 14.93 with a standard deviation of 2.1161. The significance of Self Instructional Module on knowledge regarding stem cell therapy was assessed using the paired 't' test (dependent 't' test). The calculated 't' value for knowledge regarding stem cell therapy is - 15.686 and p value is .000** which is highly significant at 0.05 level. As the calculated value of 't' at 29 degree of freedom was greater than the table value at 0.05.

The findings of the study was supported by Ms. Priya darshani G. Moon (2019), the mean post test knowledge score (18.82) is apparently higher than the mean pretest knowledge score (8.85). The dispersion of pre test scores (SD=1.605) is more than that of their post – test scores (SD=1.91) and the computed 't' value shows that there is a significant difference between pretest and posttest mean knowledge score (t=25.701) .This indicates that structured teaching programme was effective in increasing the knowledge of 3 year B.Sc. (N) students of Bombay Hospital, College of Nursing, Indore. Thus the hypothesis that there will be significant increase in mean post test knowledge score than mean pre test knowledge score is accepted.

SECTION 4: Compare the Post test level of knowledge between Structured Teaching Programme and Self Instructional Module regarding Stem Cell Therapy among nursing students.

The post test score of mean and SD of both Structured Teaching Programme and Self Instructional Module. In STP the post test mean score (17.43) and SD (2.8245) and in SIM was post test mean score (14.93) and SD (2.1161) with the mean difference of 2.5. Therefore as the mean and SD score of level of knowledge in STP is significantly greater than the SIM and the calculated unpaired 't' value of (3.8797) which was found to be statistically significant at $p < 0.05$ level.

SECTION 5 Associate the level of knowledge regarding Stem Cell Therapy among nursing students with selected demographic variables.

Group 1: In the statistical analysis of the pre test study association was calculated with the pre test level of knowledge among nursing students about stem cell therapy and selected demographic variables such as age in years, gender, marital status, previous knowledge, it was evident that there is no significant association between pre test knowledge score among nursing students about stem cell therapy and demographic variable like type of family at 0.05 level of significance. The calculated chi square value (χ^2) type of family 8.2155 and significant value is 0.0164. As the calculated p value is lesser than the significant value (0.05), χ^2 is significance. So, the fourth objective is attained and hypothesis is accepted.

Group 2: There is no significance association between pre test knowledge score with any of the selected demographic variables at $p < 0.05$ level of significance.

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