A Study to Assess the Effectiveness of Structured Teaching Programme on Level of Knowledge Regarding Menstrual Blood Stem Cell Banking Among Staff Nurses Working At Selected Hospitals of Valsad District

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ABSTRACT

Introduction: Menstrual blood stem cell banking allows women to store their menstrual blood under suitable conditions and preserve it for future use. **Aim:** This study aims to assess the effectiveness of a structured teaching program on the level of knowledge among staff nurses working at selected hospitals of the Valsad district. **Methodology:** Quantitative approach with a pre-experimental research design by one-group pre-test and post-test was used. A total of 100 staff nurses were selected for data collection. Self-structured questionnaires were used to assess level of knowledge and association with socio-demographic variables. After conducting a pre-test, a structured teaching program on menstrual blood stem cell banking was administered to the participants and post-test was conducted after a relapse of seven days. **Results:** Overall level of knowledge in Pre-test shows that 9% had average knowledge and 91% had poor knowledge and none had good knowledge. In Post-test, None of the Staff Nurse is had poor knowledge, 61% of had average knowledge and 39% had good knowledge regarding Menstrual blood stem cell banking. This present study shows the Mean of Pre-test was 6.36 and significantly improved to 17.42 in Post-test with the mean difference of 11.06. The standard deviation of Pre-test was 3.76 and Post-test was 2.4. The computed value of t= 25.04 which is greater than the table value of t= 1.645 at the level of p≤ 0.05. There was a significant association between the pre-test knowledge score of staff nurses and selected socio-demographic variables, including educational status and previous knowledge about menstrual blood stem cell banking by chi- square method. **Conclusion:** The study concluded that the structured teaching program is effective in improving the level of knowledge of staff nurses regarding menstrual blood stem cell banking.

Keywords: Effectiveness, Structure teaching programme, Level of knowledge, Menstrual blood stem cell banking, Staff Nurses, Hospitals

INTRODUCTION:

"Menstruation: A Sanitary Waste Turns Into a Miracle"

Menstruation is a miracle for every woman. It has the power to reproduce a life. It may be a painful experience for many women. Menstruation is often called menses, periods, or the menstrual cycle. Every month, the female body prepares for birth; if fertilization does not occur, menstruation begins for a new cycle. During menstruation, the endometrium layer, the inner layer of the uterus, is shed off with the blood and tissues throughout, from the cervix to the vagina. This menstrual blood has specialized stem cells called menstrual blood stem cells. Clinical trials using menstrual blood stem cells are a more effective means of determining pathological treatment as a cell therapy for various illnesses. Menstrual blood stem cells have strong immune-protective properties. According to recent research, stem cell technology holds great promise for the future of medicine. The connective tissue cells found in menstrual blood have a 100-fold higher success rate in developing heart cells than the 0.2–0.3% of stem cells derived from human bone marrow. Menstrual blood banks serve as a kind of insurance policy, protecting women and their families from unforeseen tragedies. The menstrual blood stem cell banking process has a high level of patient safety and is a painless, natural, silent, and safe process. It is noteworthy that the collection, processing, and preservation of menstrual blood stem cells can be achieved in a cost-effective, painless, and non-invasive manner. It is essential to increase awareness and knowledge among all medical professionals about menstrual blood-derived mesenchymal stem cells (MenSCs) and menstrual blood stem cell banking. Few studies have been done to evaluate the knowledge gap and staff nurses' attitudes about mesenchymal stem cells, despite the fact that menstrual blood is an easy, painless, accessible, affordable, and simple source of stem cells. Given that staff nurses serve as the conduit between medical facilities and the community, this has gained greater significance among them.

PROBLEM STATEMENT

"A study to assess the effectiveness of structured teaching programme on level of knowledge regarding menstrual blood stem cell banking among staff nurses working at selected hospitals of valsad district."

OBJECTIVES

- Assess the pre-test and post-test level of knowledge regarding menstrual blood stem cell banking among staff nurses working at selected hospitals of Valsad District.
- Assess the effectiveness of structured teaching programme on the level of knowledge regarding menstrual blood stem cell banking.
- Find association between Pre-test level of knowledge regarding menstrual blood stem cell banking among the staff nurses in selected hospitals of Valsad district with selected socio- demographic variables.

OPERATIONAL DEFINITIONS

- **Assess:** In this study, assess refers to a way to evaluate the level of knowledge regarding menstrual blood stem cell banking among Staff Nurses with the help of questionnaire.
- **Effectiveness:** In this study, effectiveness refers to significant increase the level of knowledge score after the Structured teaching programme. The level of knowledge is categorized by inadequate, moderately adequate and adequate knowledge.

- **Structure teaching programme:** In this study, structured teaching programme refers to systematically organized material prepared by investigator by using lecture cum discussion method to provide information and aim to improve the level of knowledge regarding menstrual blood stem cell banking.
- **Knowledge:** In this study, it refers to the correct response of Staff nurses about information regarding menstrual blood stem cell banking in terms of scores through questionnaire.
- **Menstrual blood stem cell Banking:** In this study, it refers to the level of knowledge on process of collection, processing and freezing for preservation and storage of menstrual blood stem cell banking.
- **Staff Nurses :** In this study, it refers to a nurse who are engage with patient care as professionally trained registered nurses and midwives who are working in selected hospitals.

HYPOTHESIS

- H1: There is a significant difference between the pretest and post-test level of knowledge regarding menstrual blood stem cell banking among staff nurses working at selected hospitals of Valsad District at 0.05 level of significance.
- H2: There is a significant association between the pretest level of knowledge among the staff nurses regarding menstrual blood stem cell banking and selected socio-demographic variables at 0.05 level of significance.

DELIMITATIONS

- This study is limited to those who are willing to participate in this study.
- This study is limited to the staff nurses of the Private hospitals of Valsad District.
- This study is limited to the staff nurses who are available during data collection.
- This study is limited to 100 subjects (Staff Nurses).
- This study is limited to 4 weeks of data collection.
- This study is limited to assess the level of knowledge.

RESEARCH METHODOLOGY
RESEARCH APPROACH: Quantitative research approach
RESEARCH DESIGN: Pre-experimental : 'One group Pre-test Post-test design'

VARIABLES
Independent Variable: Structured teaching programme on Menstrual blood stem cell banking.
Dependent Variable: level of knowledge regarding menstrual blood stem cell banking among Staff Nurses
Socio Demographic Variable: Age, Sex, Residential area, Educational status, Working experience and Previous knowledge about Menstrual blood stem cell banking.
RESEARCH SETTING: Selected Private hospitals of the Valsad District.
POPULATION: Staff Nurses working at Private hospitals of Valsad District.
SAMPLE: 100 Staff Nurses
SAMPLING TECHNIQUE: Non- Probability Convenience sampling technique

DESCRIPTION OF TOOL

1. SECTION A: SOCIO DEMOGRAPHIC DATA

It consist of selected socio demographic variables like Age, Sex, Residential area, Educational status, Working experience and Previous knowledge about Menstrual blood stem cell banking.

2. SECTION B: STRUCTURED KNOWLEDGE QUESTIONNAIRE

It consists of 24 structured questionnaire related to knowledge about Menstrual blood stem cell banking by using multiple choice questions.

SCORING KEY

SCORE	LEVEL OF KNOWLEDGE
>75 %	Good knowledge
50- 75%	Average knowledge
< 50 %	Poor knowledge

RESULTS:

SECTION I : DESCRIPTION OF SOCIO DEMOGRAPHIC VARIABLES OF STAFF NURSES

				N= 100
SR. NO.	**SOCIO DEMOGRAPHIC VARIABLES**	**CATEGORY**	**FREQUENCY**	**PERCENTAGE**
1	Age	A. 21- 30 Years	76	76%
		B. 31- 40 Years	12	12%
		C. 41- 50 Years	5	5%
		D. 51- 60 Years	4	4%
2	Sex	A. Male	4	4%
		B. Female	96	96%
3	Residential area	A. Urban	39	39%
		B. Rural	61	61%
4	Educational status	A. ANM	18	18%
		B. GNM	55	55%
		C. Basic B.Sc Nursing	25	25%
		D. Masters in Nursing	1	1%
		E. Ph. D in Nursing	0	0%
		F. Others	1	1%
5	Working experience	A. Less than 1 Year	27	27%
		B. 1-5 Years	47	47%
		C. 6- 10 Years	11	11%
		D. 11- 15 Years	10	10%
		E. > 15 Years	5	5%

6	Have you heard about Menstrual blood stem cell banking	A. Yes	29	29%
		B. No	71	71%
	If Yes, Specify	A. Mass Media	4	4%
		B. Health care professionals	18	18%
		C. Continuing education	7	7%
		D. Others	0	0%
		E. No knowledge	71	71%

AGE OF STAFF NURSES
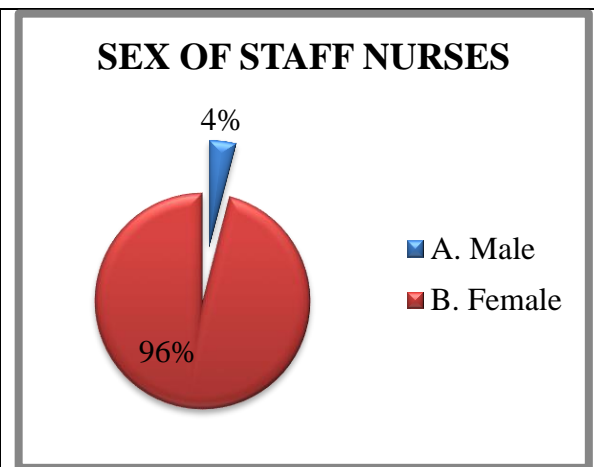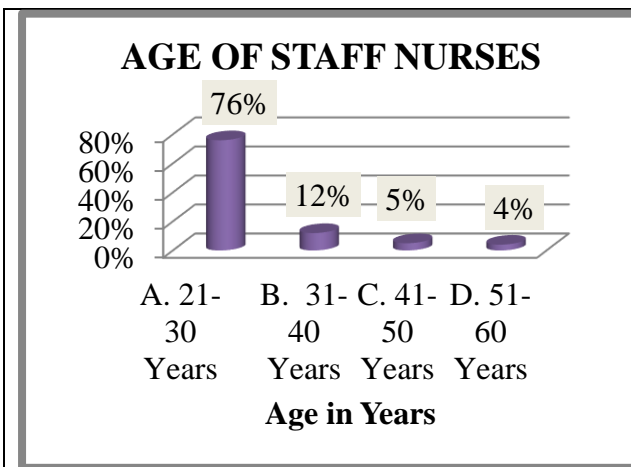
GRAPH: 1: DISTRIBUTION OF SUBJECTS ACCORDING TO AGE IN YEARS

SEX OF STAFF NURSES

GRAPH: 2: DISTRIBUTION OF SUBJECTS ACCORDING TO SEX

RESIDENTIAL AREA OF STAFF NURSES
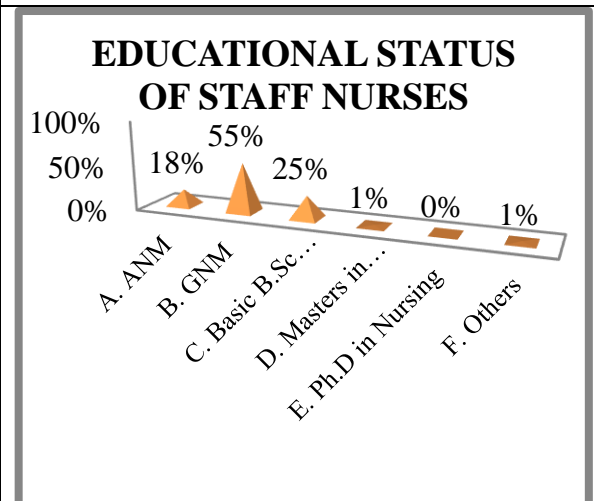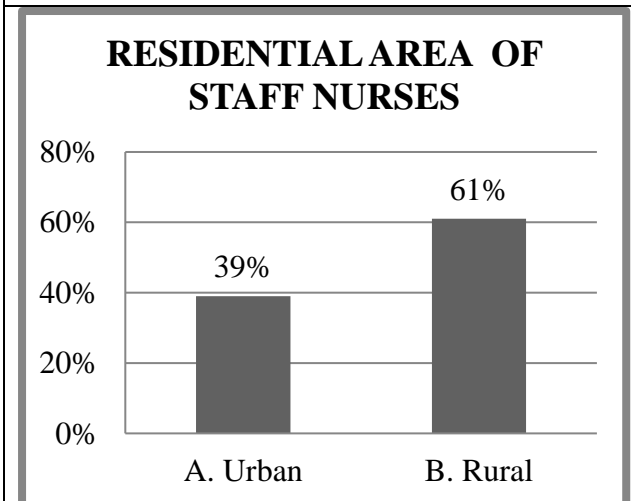
GRAPH: 3: DISTRIBUTION OF SUBJECTS ACCORDING TO RESIDENTIAL AREA

EDUCATIONAL STATUS OF STAFF NURSES

GRAPH: 4: DISTRIBUTION OF SUBJECTS ACCORDING TO THE EDUCATIONAL STATUS
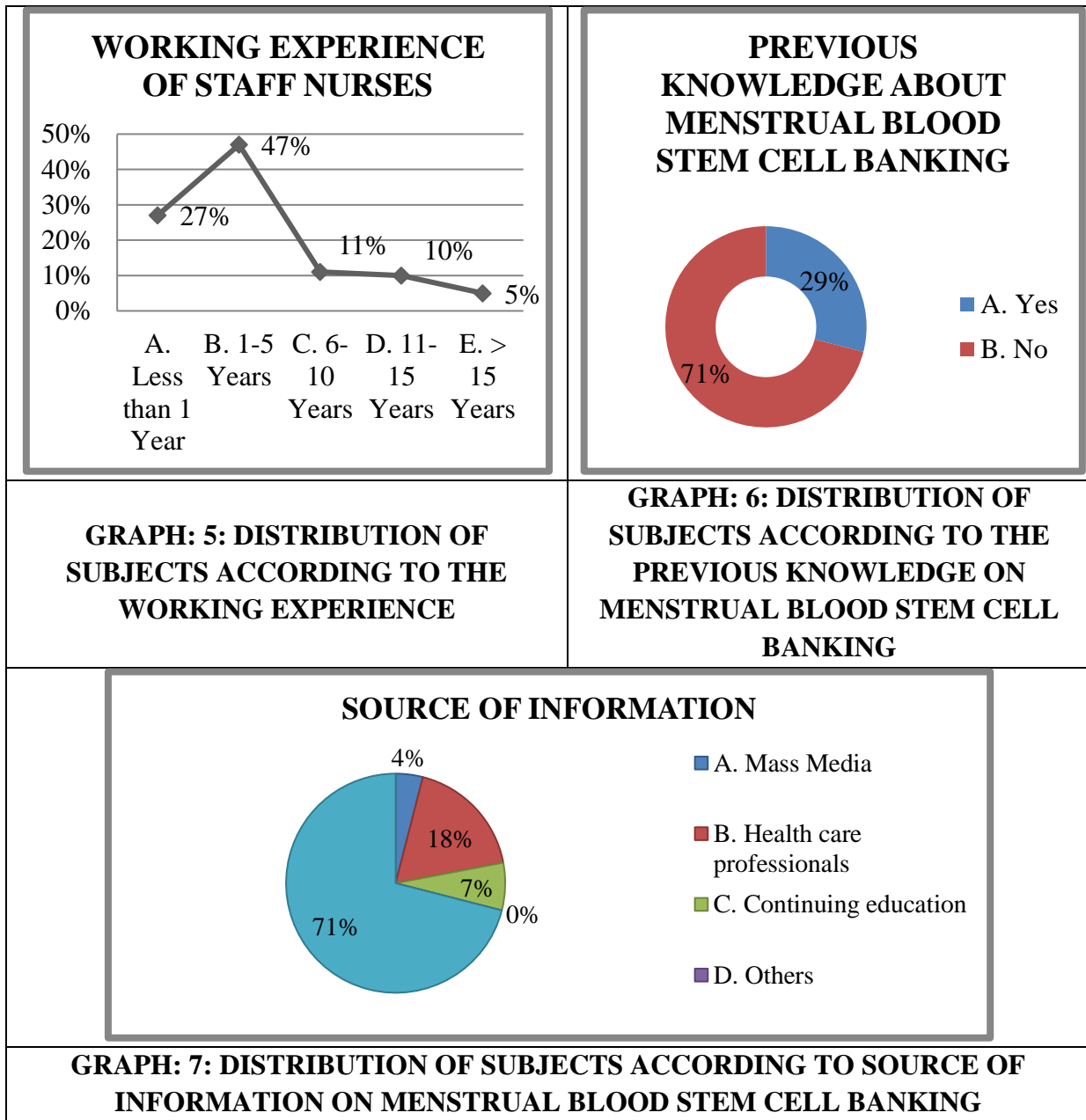
GRAPH: 5: DISTRIBUTION OF SUBJECTS ACCORDING TO THE WORKING EXPERIENCE

GRAPH: 6: DISTRIBUTION OF SUBJECTS ACCORDING TO THE PREVIOUS KNOWLEDGE ON MENSTRUAL BLOOD STEM CELL BANKING

GRAPH: 7: DISTRIBUTION OF SUBJECTS ACCORDING TO SOURCE OF INFORMATION ON MENSTRUAL BLOOD STEM CELL BANKING

SECTION II : COMPARISON OF PRE-TEST AND POST-TEST OVERALL PERCENTAGE DISTRIBUTION OF LEVEL OF KNOWLEDGE AMONG STAFF NURSES REGARDING MENSTRUAL BLOOD STEM CELL BANKING

N= 100

LEVEL OF KNOWLEDGE		PRE TEST	POST TEST
GOOD	**>75%**	00%	39%
AVERAGE	**50- 75 %**	09%	61%
POOR	**< 50%**	91%	00%
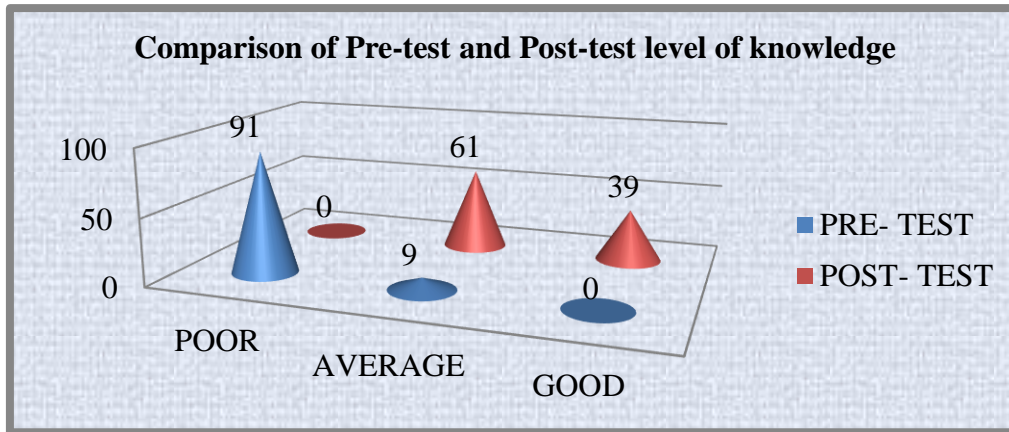
GRAPH: 8: DISTRIBUTION OF SUBJECTS BY COMPARISON BETWEEN PRE- TEST AND POST- TEST LEVEL ON KNOWLEDGE

SECTION III : EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON LEVEL OF KNOWLEDGE REGARDING MENSTRUAL BLOOD STEM CELL BANKING AMONG STAFF NURSES

Observation (Knowledge)	Mean	SD	Mean Difference	Calculated value of paired 't'	Table value of 't'	Df n-1	N= 100 Inference
Pre test	6.36	3.76	11.06	25.04	1.645	99	S*
Post test	17.42	2.4					

Note: S* = statistically significant t >1.645 at 0.05 level.

SECTION IV : ASSOCIATION BETWEEN PRE-TEST LEVEL OF KNOWLEDGE REGARDING THE MENSTRUAL BLOOD STEM CELL BANKING AMONG STAFF NURSES WITH THE SELECTED SOCIO- DEMOGRAPHIC VARIABLES

N= 100

SOCIO DEMOGRAPHIC VARIABLES	CATEGORY	TOTAL SCORE			DF= n-1	CHI-SQUARE	INFER ENCE
		<M	M	>M			
Age	A. 21- 30 Years	32	12	35	6 (12.6)	8.31	NS*
	B. 31- 40 Years	4	2	6			
	C. 41- 50 Years	0	0	5			
	D. 51- 60 Years	0	1	3			
Sex	A. Male	1	0	3	2 (5.9)	1.33	NS*
	B. Female	35	15	46			
Residential area	A. Urban	17	3	19	2 (5.9)	3.30	NS*
	B. Rural	19	12	30			
Educational status	A. ANM	6	2	10	10 (18.3)	26.64	S*
	B. GNM	23	7	25			
	C. Basic B. Sc	7	6	12			

	Nursing						
	D. Masters in Nursing	0	0	1			
	E. Ph. D in Nursing	0	0	0			
	F. Others	0	0	1			
Working experience	A. Less than 1 Year	10	5	12	8 (15.5)	7.66	NS*
	B. 1-5 Years	19	7	21			
	C. 6- 10 Years	5	1	5			
	D. 11- 15 Years	2	2	6			
	E. > 15 Years	0	0	5			
Have you heard about Menstrual blood stem cell banking	A. Yes	8	9	12	2 (5.9)	8.28	S*
	B. No	28	6	37			
If Yes, Specify	A. Mass Media	1	1	2	6 (12.6)	11.09	NS*
	B. Health care professionals	5	7	6			
	C. Continuing education	2	1	4			
	D. No knowledge	28	6	37			

Note: S- Statistically significant p≤ 0.05, NS= statistically not significant

DISCUSSION

SECTION: I : DESCRIPTION OF SOCIO DEMOGRAPHIC VARIABLES OF STAFF NURSES

In this present study; Majority of the subjects 76 (76%) were between 21- 30 years of age and Majority of subjects 96 (96%) are Females; Majority of subjects 61 (61%) were residence of Rural area; Majority of subject's 55 (55%) were educational qualification as GNM; Majority of subjects 47 (47%) were have 1- 5 years of working experience; Majority of subjects 71 (71%) do not have previous knowledge about Menstrual blood stem cell banking and from that subjects 18 (18%) have previous knowledge by the health care professionals.

SECTION II: COMPARISON OF PRE-TEST AND POST-TEST OVERALL PERCENTAGE DISTRIBUTION OF LEVEL OF KNOWLEDGE OF STAFF NURSES REGARDING MENSTRUAL BLOOD STEM CELL BANKING

In this present study, Maximum of subjects are having poor knowledge in aspects of the Menstrual blood stem cell banking. Overall level of knowledge in Pre-test shows that 9% having average knowledge and 91% are having poor knowledge. In Post-test, None of the Staff Nurse is having poor knowledge, 61% of having average knowledge and 39% having good knowledge regarding Menstrual blood stem cell banking. It shows an improvement in the level of knowledge after the Structured teaching programme on Menstrual blood stem cell banking.

SECTION III: EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON MENSTRUAL BLOOD STEM CELL BANKING AMONG STAFF NURSES

This present study shows the Mean of Pre-test was 6.36 and significantly improved to 17.42 in Post-test with the mean difference of pre-test and post-test was 11.06. The standard deviation of Pre-test was 3.76 and Post-test was 2.4. The computed value of t= 25.04 which is greater than the table value of t= 1.645 at the level of $p< 0.05$.

SECTION IV : ASSOCIATION BETWEEN PRE-TEST LEVEL OF KNOWLEDGE REGARDING THE MENSTRUAL BLOOD STEM CELL BANKING AMONG STAFF NURSES WITH THE SELECTED SOCIO- DEMOGRAPHIC VARIABLES

The present study tested the significant association of selected socio- demographic variables like, Age, sex, residential area, educational qualification, working experience, previous knowledge about Menstrual blood stem cell banking. Subjects who participated in this present study that age group chi- square calculated value is 8.31 and table value is 12.6 at df is 6. Sex of the subject's chi- square is 1.33 and table value is 5.9 at df 2. The residential area's chi- square calculated value is 3.30 and table value is 5.9 at df 2. The educational status calculated chi- square is 26.64 and table value is 18.3 at df 10. The working experience chi- square is 7.66 and table value is 15.5 at df 8. The previous knowledge about Menstrual blood stem cell banking chi- square is 8.28 and table value is 5.9 at df 2 and source of information chi- square is 11.09 and table value is 12.6 at df 6. The chi- square value showing that there was an association of level of knowledge among the Staff Nurses with the educational status and previous knowledge about Menstrual blood stem cell banking.

CONCLUSION

Written permission was obtained from the Medical director/ Superintendent of the selected hospitals of Valsad District. The viability of carrying out the study was confirmed. At data collection period, the investigator established a good rapport with the Staff Nurses and took written consent from Staff Nurses before collecting the data of socio demographic variables and structured questionnaire. An organized teaching programme was implemented. Reassessment of the level of knowledge on Menstrual blood stem cell banking after 7 days of Pre- test. This study was done among the Staff Nurses the data was collected from 6th July 2023 to 31st July 2023. The study concluded that the structured teaching program is effective in improving the level of knowledge of staff nurses regarding menstrual blood stem cell banking.

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