

**“A STUDY TO ASSESS THE EFFECTIVENESS OF  
PLANNED TEACHING REGARDING HOME CARE OF  
PICC-LINE CATHETER ON KNOWLEDGE AND  
PRACTICES AMONG THE MOTHERS OF CHILDREN  
RECEIVING CHEMOTHERAPY FROM SELECTED  
ONCOLOGY HOSPITALS OF SANGLIMIRAJ AND  
KUPWAD CORPORATION AREA”**

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**ABSTRACT**

“A study to assess the effectiveness of planned teaching regarding home care of PICC-line catheter on knowledge and practices among the mothers of children receiving chemotherapy from selected oncology hospitals of sangli miraj and kupwad corporation area”.

**Objectives:**

1. To assess the existing knowledge and practices regarding home care of PICC-line catheter among mothers.
2. To assess the knowledge and practices after planned teaching regarding home care of PICC-line catheter among mothers.
3. To compare the pre test and post test knowledge and practice score regarding home care of PICC-line catheter among mothers.

**Material and methods:**

In present study the research approach was quantitative and the research design was one group pre test-post test used in the study 70 samples were selected by purposive sampling method. Structured knowledge questionnaire of 25 items and checklist was administered to check the practices. r value for both the tools was greater than 0.7, hence tool was considered as reliable. The conceptual framework based on J W Kennys open system model. In result It was found that in pre-test 62.86% mothers had poor knowledge regarding home care of PICC-line catheter, where 24.29% had average knowledge and remaining 12.86% had good knowledge. At the time of post-test, all 100% mothers had good knowledge score regarding home care of PICC-line catheter, thus it is seen that planned teaching was effective to increase the level of knowledge. And the p value is less than 0.05, which shows that there is significant difference between pre and post-test knowledge score. For practice the mean score of pre test was 3.44 and the post-test mean practice score was 16.35 after demonstration and the p value for practice score was 0.00 hence, the demonstration was effective to improve practice skills.

**CONCLUSION-**

As per research it is seen that the mothers were having poor knowledge and incorrect practices. In study the PTP was effective in increasing the knowledge of mothers and demonstration present was effective to improve in the practice skills regarding home care of PICC –line catheters. so there is need to deliver the knowledge and improve the practices of mothers as they are taking care of children at home so in hospital there is need to arrange the continue educational programme for mothers before discharge of children.

**KEYWORDS :** Peripherally Inserted Central Catheters.

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**INTRODUCTION**

Peripherally Inserted Central Catheter (PICC) are commonly used in clinical settings and in daily practices. many publications suggest that PICC lines are widely used in cancerous patient. But although, several complications also may arise like bloodstream infections which are related to insertion of PICC.<sup>5</sup> PICC's are used for monitoring central venous pressure, administration of fluids, medications, chemotherapy and Parenteral nutrition for prolonged period. But there are number of complications which are related to the use of PICC which includes redness at insertion site, discomfort, restrictions in daily activities, difficulties in flushing due to blockage of catheter, phlebitis, thrombosis, breakage in device. there are severe complications also develop such as life-threatening blood stream infections if proper hygiene is not maintained, deep vein thrombosis if proper flushing techniques is not used, sepsis is major cause of mortality and morbidity rate in cancer patients with PICC's.<sup>5</sup> PICC's are effective venous channel for chemotherapy in patients and it has longer indwelling time which improves quality of life in patient. It has been found that complications may arise in indwelling time the incidence rate is 30-40%. Incidence rate is high in first month of indwelling time period but decreases after 5<sup>th</sup> week. Incidences and complications are high when patients get discharged from hospitals with PICC's complications include infections, phlebitis, tube blockage, broken catheter, displacement of catheter, catheter fall, fever, pain at site of catheter. <sup>1</sup> In one study it has been shown that the complications regarding PICC's such as Occlusion (3.0%), Displacement (1.0%), Infection (1.4%), Phlebitis (0.6%), Leakage, (2.0%), Breaks (0.6).<sup>6</sup> The patients require constant care to prevent life threatening complications. The major risk of these devices is infection, occlusion of catheter. Primary care gives the person who stays most of the times with patient. He\she must take care of patient, provide necessary care for the prevention of complications. To prevent theses complications, there is need for daily flushing, routine care, routine sterile dressing changes, restrictions on physical activities such as contact sports and rough play for PICC line patients.<sup>7</sup> Hence, Researcher thought to check the mother's knowledge and demonstration of care of PICC line and home care to prevent infection and complications as mothers are a primary care giver to their child with PICC. The knowledge is important to improve daily practices regarding dressing and care of PICC line so to promote skills and practices there is need to improve the skills of mothers.<sup>7</sup>

## **MATERIALS AND METHODS**

The study undertaken quantitative research approach and sampling technique was Purposive sampling technique. Research design was used pre-experimental one group pre-test and post-test design. samples were mothers of children with PICC catheters from selected oncology hospitals of sangli ,miraj and kupwad corporation area. the sample size was 70.in the present study, independent variable is planned teaching and dependent are knowledge, and practices. where as research variables are age of mother, educational qualification, previous information regarding home care of PICC, source of information. sample selection criteria was inclusion criteria-mothers who-

- attend day care center with children who are receiving chemotherapy for 2<sup>nd</sup> cycle.
- can read and write marathi, hindi and english.
- are willing to participate

exclusion criteria-

- mothers who attend day care center with children who are receiving chemotherapy for 1<sup>st</sup> cycle.

Research proposal with data collection tool was presented in front of the ethical committee. in consent it was promised that there will be no discomfort or risk to the participants and the received information will be kept confidential. The participation will be voluntary. Participants can skip the study in any period. The prior permission from concerned authority was taken and informed written consent from each participant was taken. the data were collected from 12\1\2021 to 2\2\2021.Tool consist of 3 sections , section 1- Demographic variables such as age in years, educational qualification, previous information, source of information, section 2- structured knowledge Questionnaire, section 3- Observational checklist.

## **RESULTS AND DISCUSSION**

**DEMOGRAPHIC VARIABLES**

**Table No.1**

**Frequency & percentage distribution of demographic variables**

**n=70**

Sr. No.	Variable	Groups	Frequency	Percentage
<b>1</b>	Age (in years)	21-30	33	47.14
		31-40	37	52.86
		41-50	0	0.00
		51 & above	0	0.00
<b>2</b>	Educational Qualification	Primary	5	7.14
		Secondary	17	24.29
		Graduate & above	48	68.57
<b>3</b>	Previous information	Yes	70	100.00
		No	0	0.00
<b>4</b>	Source Information of	Doctor	16	22.86
		Nurse	51	72.86
		Internet	3	4.29
		Other	0	0.00

Table no.1 demographic variables shows that, Maximum samples belong to age group of 31-40 which is 52.86 % and minimum samples belongs to age group of 21-30. For Educational qualification 68.57 % of mothers have completed with graduation which is maximum, 24.29% mothers were completed with secondary education and 7.14% mothers were completed with primary education. 100% mothers have received previous information regarding PICC-line catheter, Source of information were nurses from hospital which is 72.86% and 22.86% mothers were received from doctors and remaining 4.39% mothers were received from internet.

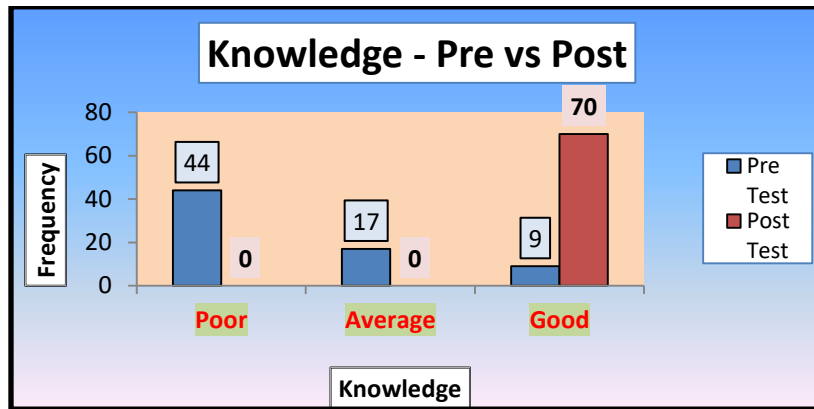
**SECTION II -FREQUENCY AND PERCENTAGE DISTRIBUTION OF LEVEL OF KNOWLEDGE AMONG MOTHERS**

**Table No.2**

**Frequency and percentage distribution of level of knowledge among mothers**

**n=70**

Knowledge	Groups		Pre-Test		Post-Test	
			Frequency	Percentage	Frequency	Percentage
Poor	0-8	44	62.86	0	0.00	
Average	9-16.	17	24.29	0	0.00	
Good	17-25	9	12.86	70	100.00	



**Figure no.2 Frequency and percentage distribution of level of knowledge among mothers**

For the assessment purpose the total score of knowledge was divided into three groups like poor (0-8 score), average (9-16 score) and good (17-25 score). At the time of pre-test, 62.86% mothers had poor knowledge regarding home care of PICC-line catheter, 24.29% average and remaining 12.86% had good knowledge.

At the time of post-test, all 100% mothers had good knowledge score regarding home care of PICC-line catheter, thus it is seen that planned teaching was effective.

**SECTION III-FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRE AND POST PRACTICE SCORES**

**Table no.3**  
frequency and percentage distribution of pre and post practice scores  
n=70

S R N O	PROCEDURE	PRE-PRACTICE				POST -PRACTICE			
		Correct		Incorrect		Correct		Incorrect	
		<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1	Supine position is given to child on bed	70	100.00	0	0.00	70	100.00	0	0.00
2	All required articles for dressing kept ready	11	15.71	59	84.28	59	84.28	11	15.71

3	Performed hand washing before dressing by using 6 steps	43	61.42	27	38.57	69	97.98	1	1.42
4	Wore sterile gloves	7	10.00	63	90.00	69	97.98	1	1.42
5	10 ml sterile syringe is opened	1	1.42	69	98.57	70	100.00	0	0.00
6	10 ml normal saline taken into syringe to flush catheter	10	14.2	60	85.71	70	100.00	0	0.00
7	PICC-line cleaned with alcohol containing spirit swab	0	0.00	70	100.00	61	86.14	9	12.85
8	Rubbed the stopper using alcohol swab for 10 seconds	0	0.00	70	100.00	31	44.28	39	55.71
9	Removed the stopper	20	28.57	67	95.71	70	100.00	0	0.00

Table no. 3 shows that in pre-test 100.00% of mothers gave supine position to the child on bed and in post-

SR NO	PROCEDURE	PRE-PRACTICE				POST -PRACTICE			
		Correct		Incorrect		Correct		Incorrect	
		f	%	f	%	f	%	f	%
10	Catheter is flushed with 10 ml normal saline	20	28.57	50	71.42	63	89.46	7	10.0
11	Catheter is closed with stopper	20	28.57	50	71.42	70	100.00	0	0.00
12	Removed transparent dressing	0	0.00	70	100.00	70	100.00	0	0.00
13	Cleaned surrounding area with alcohol containing spirit swab in circular motion from inner to outer surface	0	0.00	70	100.00	44	62.85	26	37.14
14	Applied new transparent dressing	20	28.57	50	71.42	70	100.00	0	0.00
15	Removed gloves	7	10.0	63	90.0	42	60.0	28	40.0
16	Hand washing is done	10	14.2	60	85.71	42	60.0	28	40.0
17	Wrote date and time on sticker	0	0.00	70	100.00	69	98.57	1	1.42
18	Sticker is applied on transparent dressing	0	0.00	70	100.00	69	98.57	1	1.42
19	Replaced the articles	0	0.00	70	100.00	37	52.85	33	47.14

test 100.00% of mothers have given position to child on bed.

In pre-test 15.71% mothers have collected all required articles and 84.28% of mothers did not collect all required articles for dressing and not kept ready where in post-test 84.28% mothers collected all required articles for dressing remaining 15.71% mothers have not collected all required articles.

In pre-test 61.42% mothers performed the hand washing before dressing by using 6 steps and 38.57% mothers have not done hand washing with 6 steps, in post-test 97.98% mothers have done hand washing with 6 steps and 1.42% mothers not done hand washing.

In pre-test 90% mothers did not wear gloves and remaining 10.0% mothers have wore gloves but in post-test 97.98% mothers wore gloves and 1.42% mothers failed to wear gloves.

In pre-test 98.57% mothers have not opened 10 ml sterile syringe and 1.42% mothers opened syringe and in post-test 100% of samples have opened the sterile syringe cover.

In pre-test 85.71% mothers have not taken 10 ml normal saline into sterile syringe to flush the catheter and 14.2% mothers taken 10 ml saline to flush catheter but in post-test 100.00% mothers have taken 10 ml normal saline into syringe to flush the catheter.

In pre-test 100% mothers have not done PICC-line cleaning with alcohol containing spirit swab in post-test 86.14% mothers have cleaned the PICC-line with alcohol containing spirit swab and other 12.85% mothers have not cleaned.

In pre-test 100% mothers did not rub the stopper using alcohol swab for 10 seconds but in post-test 44.28% mothers have rubbed the stopper by using alcohol swab for correct 10 seconds and remaining 55.71% mothers have not cleaned the stopper for 10 seconds.

In pre-test 95.71 % mothers have not removed the stopper where only 28.57% mothers have removed stopper, in post-test 100.00% mothers have removed the stopper.

In pre-test 71.42% mothers not flushed catheter with 10 ml normal saline because they were not confident to flush catheter only 28.57% mothers flushed the normal saline properly and in post-test 89.46% mothers flushed catheter with 10 ml normal saline and 10.0% not flushed catheter with 10 ml normal saline they have flushed only 3-5 ml saline .

In pre-test 71.42% of mothers did not close the catheter with stopper properly and 28.57% mothers have closed stopper and in post-test 100.00% mothers have closed the stopper.

In pre-test 100.00% mothers were not removed the transparent dressing but in post-test 100% of mothers removed transparent dressing.

In pre-test 100.00% mothers have not cleaned surrounding area with alcohol containing spirit swab in circular motion from inner to outer surface but in post-test 62.85% mothers did the cleaning of surrounding area with alcohol containing spirit swab in circular motion from inner to outer surface and remaining 37.14% mothers have not done in the circular motion.,

In pre-test 71.42% mothers have not applied the new transparent dressing but only 28.57% mothers and in post-test 100.00% mothers have applied new transparent dressing.

In pre-test 90.0 % mothers were not removed gloves and 10.0% mothers not removed gloves and in post-test 60.0% mothers have removed the gloves and remaining 40.0% mothers not removed gloves with correct method.

In pre-test 85.71% mothers did not done hand washing with 6 steps and remaining 14.2% mothers have done hand washing with 6 steps, in post-test 60.0% mothers have done hand washing with 6 steps and remaining 40.0% have done hand washing.

In pre-test 100.0% mothers did not write date and time on sticker where in post-test 98.57% mothers have wrote date and time on sticker and remaining 1.42% mothers did not write on sticker.

In pre-test 100.00 % mothers not applied sticker on transparent dressing and in post-test 98.57% mothers have applied sticker on transparent dressing and remaining 1.42% mothers not applied sticker on transparent dressing.

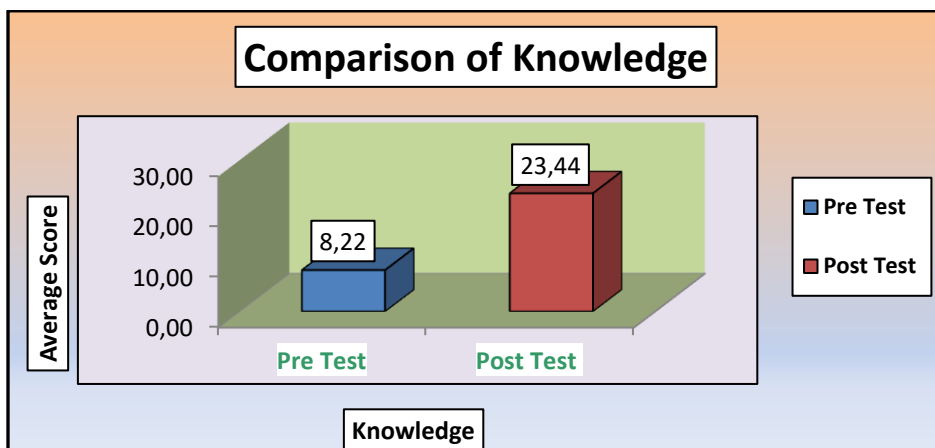
In pre-test 100.00% mothers were not replaced the articles and in post-test 52.85% mothers have replaced the articles after procedure and remaining 47.14% mothers did not replace the articles.

**SECTION IV- COMPARISON OF THE PRE AND POST-TEST KNOWLEDGE AMONG MOTHERS OF CHILDREN RECEIVING CHEMOTHERAPY**

**Table No.4:**

**Comparison of the pre and post-test Knowledge among mothers of children receiving chemotherapy n=70**

Test	N	Mean	S.D.	t value	P value
Pre-Test	70	8.22	5.17	23.38	0.000
Post Test	70	23.44	0.73		



**Figure 3: Comparison of the pre and post-test Knowledge among mothers of children receiving chemotherapy.**

The comparisons of the pre-test and post-test means of the knowledge were assessed by the paired t test. The pre-test mean score was 8.22 with standard deviation of 5.17. The post-test mean score was 23.44 with standard deviation of 0.73. The test statistics value of the paired t test was 23.38 with p value 0.00. The p value is less than 0.05, which shows that there is significant difference between pre and post-test knowledge scores.

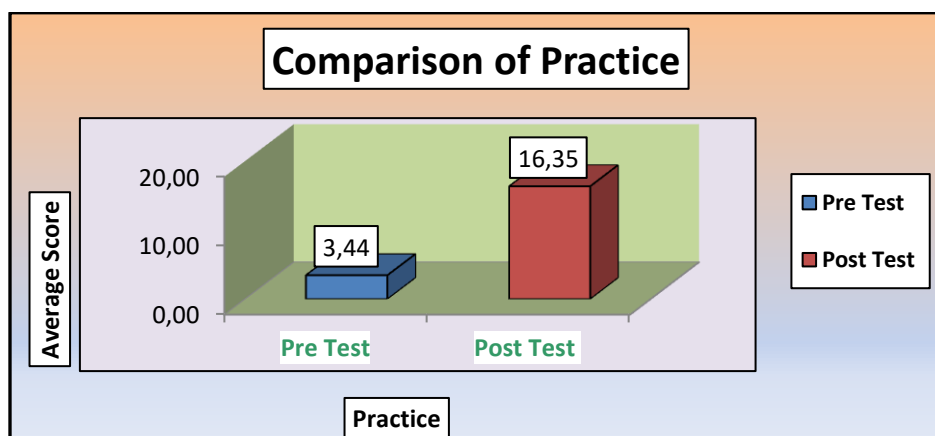
**SECTION V-COMPARISON OF THE PRE AND POST-TEST PRACTICE SCORES AMONG MOTHERS OF CHILDREN RECEIVING CHEMOTHERAPY**

**Table No.5:**

**Comparison of the pre and post-test Practice scores among mothers of children receiving chemotherapy.**

n=70

Test	N	Mean	S.D.	t value	P value
Pre-Test	70	3.44	1.79	53.93	0.000
Post Test	70	16.35	1.42		



**Figure 4: Comparison of the mean pre and post-test Practices**

The comparisons of the pre-test and post-test means of the practices were assessed by the paired t test. The pre-test mean score was 3.44 with standard deviation of 1.79. The post-test mean score was 16.35 with standard deviation of 1.42. The test statistics value of the paired t test was 53.93 with p value 0.000. The p



value less than 0.05, which shows that there is significant difference in the pre and post-test practice score after planned teaching.

### **CONCLUSION**

Analysis and interpretation were done on 70 mothers of selected oncology hospitals of Sangli, Miraj and Kupwad corporation area, where frequency and percentage distribution were done for demographic variables. Effectiveness of planned teaching was done by comparing mean of pre-test and post-test knowledge scores and Item analysis for practice score which showed that planned teaching was effective, and it resulted that p value was less than 0.005 and hence it is concluded that there is significant difference in pre and post-test knowledge and practice scores.

### **1. Discussion regarding demographic variables-**

In demographic variable, Maximum samples belong to age group of 31-40 which is 52.86% and minimum samples belong to age group of 21-30 which is 47.14%. For Educational qualification 68.57% of mothers have completed with graduation which is maximum, 24.29% mothers were completed with secondary education and 7.14% mothers were completed with primary education. 100% mothers have received previous information regarding PICC-line catheter, Source of information were nurses from hospital which is 72.86% and 22.86% mothers were received from doctors and remaining 4.39% mothers were received from internet.

### **2. Discussion regarding Level of knowledge-**

For the assessment purpose the total score of knowledge was divided into three groups, poor (0-8 score), average (9-16 score) and good (17-25 score). From pre-test score it is observed that maximum mothers were not having knowledge regarding home care of PICC-line catheter, and they were confused and had lots of doubts which needs to be clarified correctly. At the time of pre-test 62.86% mothers had poor knowledge score regarding home care of PICC-line catheter, and 24.29% mothers had average knowledge score and remaining 12.86% had good knowledge score. At the time of post-test, all 100% mothers had good knowledge score regarding home care of PICC-line catheter as after planned to teach their doubts were cleared and new information is received by them thus, from post test score it is seen that planned teaching was effective in improving the knowledge of mothers in post-test.

### **3. Discussion regarding Practices-**

In pre-test 100.00% of mothers gave supine position to the child on bed and in post-test 100.00% of mothers have given position to child on bed

In pre-test 15.71% mothers collected all required articles and 84.28% of mothers did not collect all required articles for dressing and not kept ready where in post-test 84.28% mothers collected all required articles for dressing remaining all 15.71% mothers have not collected all required articles because some mothers failed to take spirit swab and 10 ml sterile syringe.

In pre-test 61.42% mothers performed the hand washing before dressing by using 6 steps and 38.57% mothers have not done hand washing with 6 steps but in post-test 97.98% mothers have done hand washing with 6 steps and remaining 1.42% mother did hand washing but not followed all 6 steps of the hand washing steps hence it is considered as incorrect practice.

In pre-test 90% mothers did not wear gloves where 10.0% mothers have worn gloves, but in post-test 97.98% mothers wore gloves properly and 1.42% mothers failed to wear gloves correctly because they were not sure how to wear gloves correctly.

In pre-test 98.57% mothers have not opened 10 ml sterile syringe because they were not knowing how to open the cover and 1.42% mothers opened sterile syringe but in post-test 100% mothers have opened the sterile syringe cover correctly.

In pre-test 85.71% mothers have not taken 10 ml normal saline to flush the catheter because some mothers taken only 5-6 ml of normal saline to flush and only 14.2% mothers have taken 10 ml

normal saline into syringe to flush catheter but in post-test 100.00% mothers have taken 10 ml normal saline into syringe to flush the catheter.

In pre-test 100% mothers have not done PICC-line cleaning with alcohol containing spirit swab in post-test 86.14% mothers have cleaned the PICC-line with alcohol containing spirit swab and other remaining 12.85% mothers have not cleaned properly only they touched the PICC-line with alcohol containing spirit swab and some of them cleaned only with dry cotton where, so it is considered as incorrect step.

In pre-test 100% mothers did not rub the stopper using alcohol swab for 10 seconds and in post-test 44.28% mothers have rubbed the stopper using alcohol swab for correct 10 seconds and remaining 55.71% mothers have not done cleaning the stopper because some mothers have done it for more than 10 seconds and some mothers have done it for less than 10 seconds, so they were considered as incorrect step.

In pre-test 95.71 % mothers have not removed the stopper because they were not confident to remove stopper and 28.57% mothers removed stopper, in post-test 100.00% mothers have removed the stopper.

In pre-test 71.42% mothers not flushed catheter with 10 ml normal saline because they were not confident to flush the catheter only 28.57% mothers flushed the normal saline properly in pre-test and in post-test 89.46% mothers flushed the catheter with 10 ml normal saline and remaining 10.0% mothers have flushed catheter with 7-8 ml of normal saline witch considered as an incorrect step.

In pre-test 71.42% of mothers did not close the catheter with stopper and 28.57% mothers have closed stopper but in post-test 100.00% mothers closed the catheter with stopper.

In pre-test 100.00% mothers were not removed the transparent dressing because when they were afraid about removing it and not confident to remove it but in post-test 100% of mothers removed transparent dressing properly and confidently.

In pre-test 100.00% mothers have not cleaned surrounding area with alcohol containing spirit swab in circular motion from inner to outer surface, but in post-test 62.85% mothers did the cleaning of surrounding area with alcohol containing spirit swab in circular motion from inner to outer surface and remaining 37.14% mothers have not done because they did in circular motion but not from inner to outer part, so it is considered as incorrect step as they only have done from inner to outer.

In pre-test 71.42% mothers have not applied the new transparent dressing because they were afraid to apply dressing, but only 28.57% mothers have applied new transparent dressing and in post-test 100.0% mothers have applied new transparent dressing.

In pre-test 90.0 % mothers were removed gloves and 10.0% mothers were not sure to remove gloves and in post-test 60.0% mothers have removed the gloves and remaining 40.0% mothers were forgot to remove it.

In pre-test 85.71% mothers were not done hand washing with 6 steps and remaining 14.25% mothers have done hand wash with 6 steps. in post-test 60.0% mothers have done hand washing with 6 steps and remaining 40.0% have done hand washing but only they have followed 4 steps.

In pre-test 100.0% mothers did not write date and time on sticker where in post-test 98.57% have mothers wrote date and time on sticker and remaining 1.42% mothers wrote only date on sticker hence it is considered as an incorrect step.

In pre-test 100.00 % mothers not applied sticker on transparent dressing and in post-test 98.57% mothers have applied sticker on transparent dressing and remaining 1.42% forgot mothers to apply sticker on transparent dressing.

In pre-test 100.00% mothers were not replaced the articles and in post-test 52.85% mothers have replaced the articles after procedure and remaining 47.14% mothers did not replace the articles properly because they were confused about how to replace it and not discarded the waste in a respective place which is incorrect practice.

#### **4. Discussion regarding Comparison of pre and post-test knowledge mean score-**

The comparisons of the pre-test and post-test means of the knowledge were assessed by the paired t test. The pre-test mean score was 8.22 with standard deviation of 5.17. The post-test mean score was 23.44 with standard deviation of 0.73. The test statistics value of the paired t test was 23.38 with p value 0.00. The p value less than 0.05 so there is difference between pre and post-test knowledge score and H1 is accepted so it concludes that planned teaching was effective in increase in the knowledge score.

#### **5. Discussion regarding Comparison of pre and post-test practices scores-**

The comparisons of the pre-test and post-test means of the practice were done by the paired t test. The pre-test mean score was 3.44 with standard deviation of 1.79. The post-test average score was 16.35 with standard deviation of 1.42. The test statistics value of the paired t test was 53.93 with p value 0.000. The p value less than 0.05, hence it shows that there is significant difference in the pre-test and post-test mean practices regarding dressing procedure thus H2 is accepted but it is observed that with one demonstration it is not possible to develop practice skills, so it is informed to nursing educators and nurses to take multiple demonstration from mothers to improve their skills.

#### **CONCLUSION**

As per research it is seen that the mothers were having poor knowledge and incorrect practices. In study the PTP was effective in increasing the knowledge of mothers and demonstration present was effective to improve in the practice skills regarding home care of PICC –line catheters. so there is need to deliver the knowledge and improve the practices of mothers as they are taking care of children at home as PICC remains for longer time period after the discharge so in hospital there is need to arrange the continue educational programme for mothers before discharge of children to prevent the infection and to promote their health.

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