

An Experimental Study: Knowledge and Skill of Primipara Post-Natal Mothers Regarding Diaper Care for Neonates

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Abstract:- Diaper dermatitis is one of the most common skin disorder in infancy. The purpose of the study is to provide health awareness regarding diaper care for neonates among primipara mothers. A true experimental study was done to assess the effectiveness of STP on knowledge and skill of 100 primipara mothers regarding diaper care for neonate. A semi-structured questionnaire was prepared for data collection and observation checklist was administered. Propability sampling technique was used to select the sample. The overall post- test knowledge score of experimental and control group was 39.3% & the overall skill score of experimental and control group was 58.65%.

I. INTRODUCTION

➤ *Statement of The Problem*

“A study to assess the effectiveness of teaching-learning programme on knowledge and skill of primipara post-natal mothers regarding diaper care for neonates admitted in post-natal unit at S.C. Hospital, Hassan, Karnataka.”

➤ *Objectives of The Study*

- 1 To identify the knowledge of the primipara post-natal mothers of the experimental and control group regarding diaper care during the pre-test.
- 2 To assess the knowledge and skill of the primipara post-natal mothers of the experimental group regarding diaper care after the administration of teaching- learning programme and demonstration.
- 3 To determine the knowledge and skill of primipara post-natal mothers of the experimental group and control group regarding diaper care after the post-test.
- 4 To correlate the knowledge scores and skill scores of the experimental and control group of the primipara post-natal mothers regarding diaper care after teaching-learning programme and demonstration.
- 5 To associate the knowledge and skill of the primipara post-natal mothers of experimental and control group regarding diaper care with selected socio-demographic data.

II. METHODOLOGY

Methodology of research organizes all the components of study in a way that is most likely to lead to valid answers to the problems to have been posed.

➤ *Research approach:*

The research approach adopted for this study is an evaluative approach. Evaluative approach helps to explain the effects of the independent variables on the dependent variables; this approach is considered most suitable for the study.

➤ *Research design:*

The research design refers to the researchers overall plan for obtaining answers to the research questions and for testing the research hypotheses. The research design spells out the strategies that the researcher adopts to develop information that is accurate, objective and interpretable.

The experimental design which includes manipulation, control and randomization (M.C.R) was used for assessing the level of knowledge among primipara post-natal mothers regarding diaper care for neonates.

✓ *Schematic Presentation Of Research Design:-*

Group	Pre-test	Intervention	Post-test
E	O1	X	O2
C	O1	----	O2

Key words:-

E	Experimental group
C	Control group
O1	Pre-test knowledge.
X	teaching-learning programme
O2	Post-test knowledge

✓ *Variables:-*

Independent variable – Teaching-learning Programme.

Dependent variable - Knowledge and skill of primipara post-natal mothers regarding diaper care for neonates.

➤ *Population:*

The investigator had selected the subjects of primipara post-natal mother with normal delivery and are admitted in the same unit. Population is defined as the entire aggregation of cases that meets designed set of criteria.

The target population of the present study includes the primipara post-natal mothers admitted in post -natal ward at S.CHospital, Hassan.

➤ *Sample and sample size:*

Sample- Sample is a subset of a population selected to participate in a research study. It is a position of the population which represents the entire population (Polit & Hungler 1999) 41.

Sample size- 100 primipara post-natal mothers were selected for the study and were equally distributed 50 mothers in the experimental group and 50 mothers in the control group.

➤ *Sampling technique:*

In the present study the investigator had utilized probability-sampling technique in which simple random sampling technique was used for the selection of the subjects by lottery method.

➤ *Selection and development of tool:*

The investigator had prepared the questionnaire and teaching-learning programme to identify the knowledge of the primipara post-natal mothers regarding diaper care for neonates.

✓ *Steps In The Construction Of The Tool:-*

The following steps were carried out in the preparation of the tool

- Related literature was reviewed in the preparation of the tool.
- Guidance and consultation of the subject guide and nursing experts were taken for construction of the tool.
- Consultation with statistician was done for data analysis.

✓ *Description Of The Instrument:-*

The tools consist of questionnaires and observation check -list. It consists of two parts.

➤ **Part – I:** It consists of socio-demographic profile of the subjects.

➤ **Part – II:** It consists two sections, section – A and section – B.

➤ **Section A:** Consists of multiple choice questions about primipara post-natal mothers knowledge regarding diaper care for neonates.

➤ **Section B:** Consists of observation check - list to assess the skill of primipara post-natal mothers knowledge regarding diaper care for neonates.

III. RESULTS

SL.NO	SOCIO-DEMOGRAPHIC VARIABLE		Group				Significance
			Experimental		Control		
			n	%	n	%	
1	Age	15 -20 yrs	19	38.0%	19	38.0%	$\chi^2=0.16$ P=0.92 Not significant
		21 -25 yrs	27	54.0%	28	56.0%	
		26 -30 yrs	4	8.0%	3	6.0%	
2	Sex of baby	Male	31	62.0%	33	66.0%	$\chi^2=0.17$ P=0.68 Not significant
		Female	19	38.0%	17	34.0%	
3	Residence	Urban	18	36.0%	12	24.0%	$\chi^2=1.71$ P=0.19 Not significant
		Rural	32	64.0%	38	76.0%	
4	Marital status	Married	50	100.0%	50	100.0%	$\chi^2=0.00$ P=1.00 Not significant
		Unmarried	0	0.0%	0	0.0%	
5	Mother's Education	Primary school	26	52.0%	36	72.0%	$\chi^2=5.80$ P=0.12 Not significant
		Middle school	18	36.0%	8	16.0%	
		School drop out	4	8.0%	3	6.0%	
		Never attended a school	2	4.0%	3	6.0%	
6	Type of employment	Private sector	22	44.0%	25	50.0%	$\chi^2=1.70$ P=0.63 Not significant
		Self employed	5	10.0%	2	4.0%	
		Agriculture	21	42.0%	20	40.0%	
		Housewife	2	4.0%	3	6.0%	
7	Family income	Rs.1000 -5000	34	68.0%	39	78.0%	$\chi^2=1.27$ P=0.26 Not significant
		Rs.5001 -10000	16	32.0%	11	22.0%	
8	Known language	Kannada	50	100.0%	50	100.0%	$\chi^2=0.00$ P=1.00 Not significant
		Other language	0	0.0%	0	0.0%	
9	Religion	Hindu	40	80.0%	41	82.0%	$\chi^2=0.10$ P=0.95 Not significant
		Muslim	6	12.0%	5	10.0%	
		Christian	4	8.0%	4	8.0%	
10	Type of family	Nuclear family	21	42.0%	18	36.0%	$\chi^2=0.38$ P=0.54 Not significant
		Joint family	29	58.0%	32	64.0%	
11	Previous exposure	Knowledge	32	64.0%	30	60.0%	$\chi^2=0.17$ P=0.68 Not significant
		Experience	18	36.0%	20	40.0%	

Table 1:- Socio- Demographic Profile

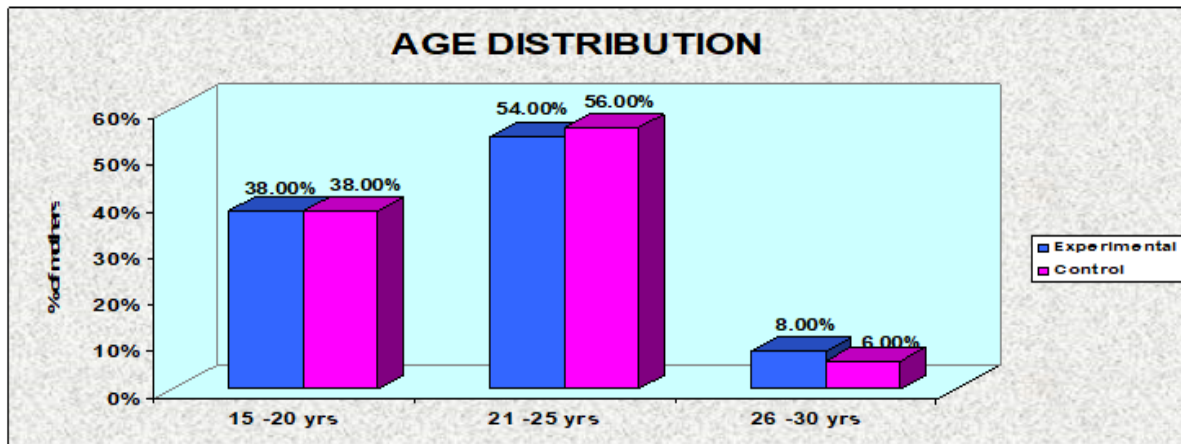


Fig 1:- Multiple bar diagram showing the age distribution of primipara post-natal mothers.

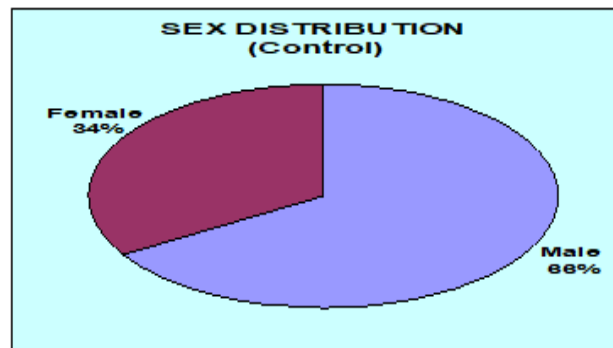
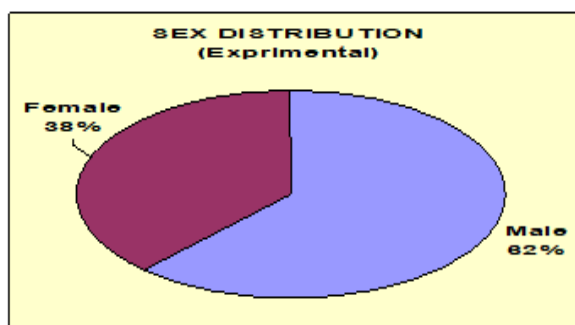


Fig 2:- Pie diagram showing the sex distribution of primipara post-natal mothers.

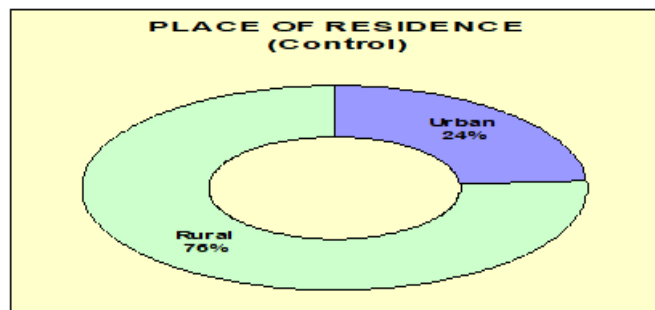
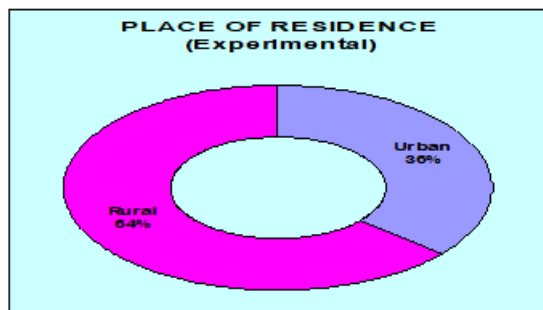


Fig 3:- Doughnut diagram showing the place of residence of primipara post-natal mothers.

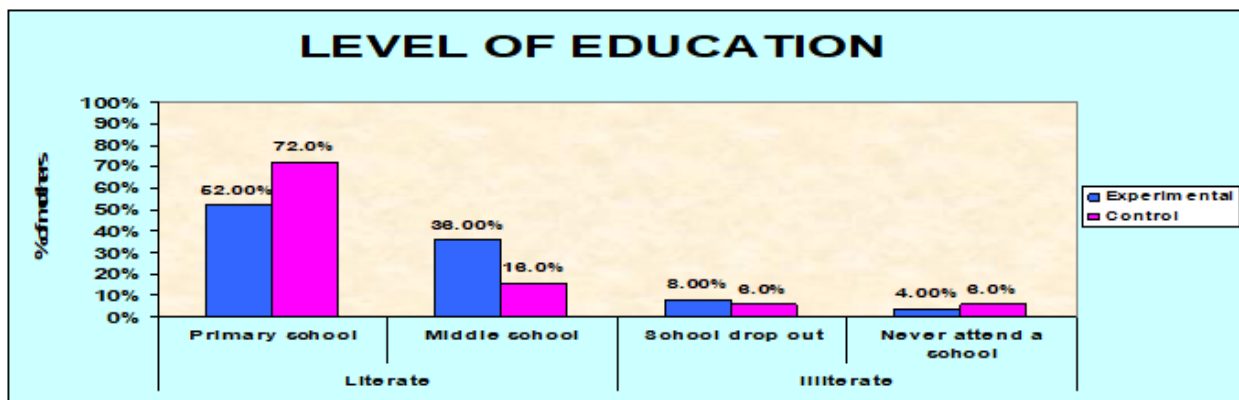


Fig 4:- Multiple bar diagram showing the education level of primipara post-natal mothers.

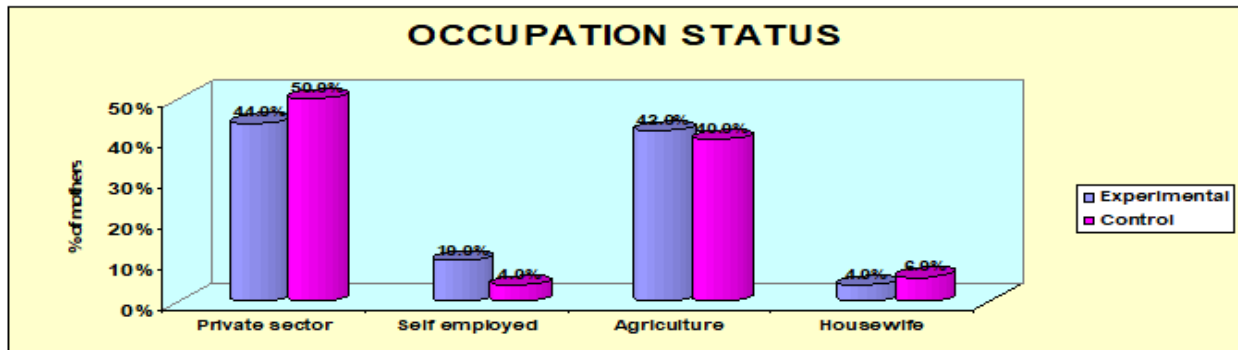


Fig 5:- Multiple bar diagram showing the occupational status of primipara post-natal mothers.

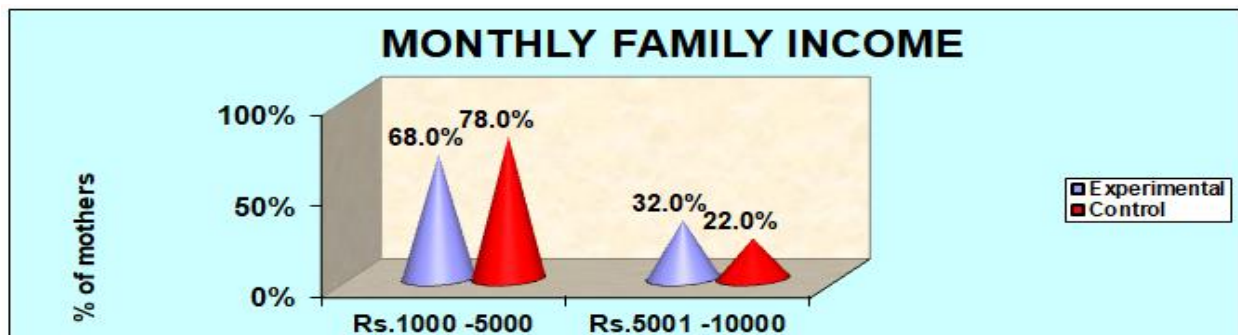


Fig 6:- Conical diagram showing the monthly income of primipara post-natal mothers.

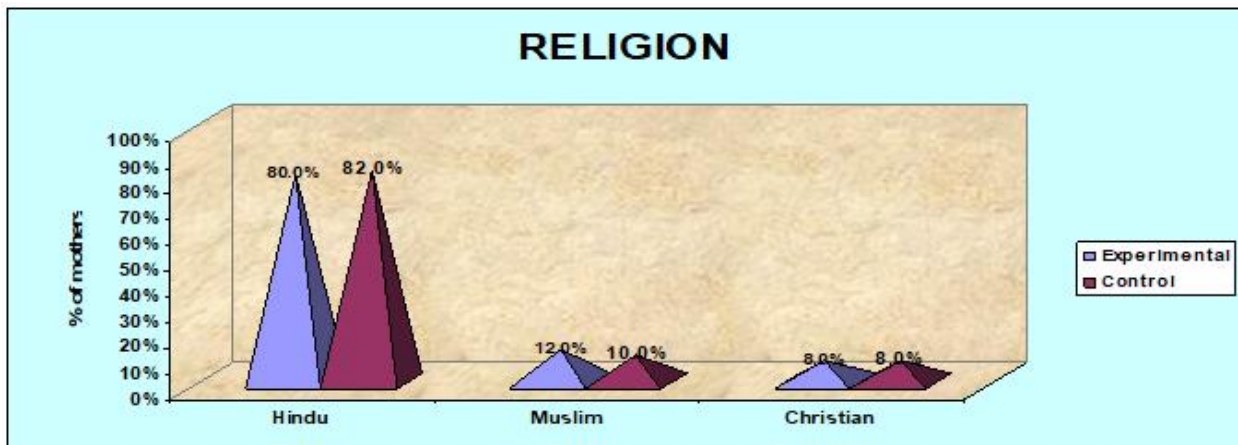


Fig 7:- Pyramidal diagram showing the religion of primipara post-natal mothers.

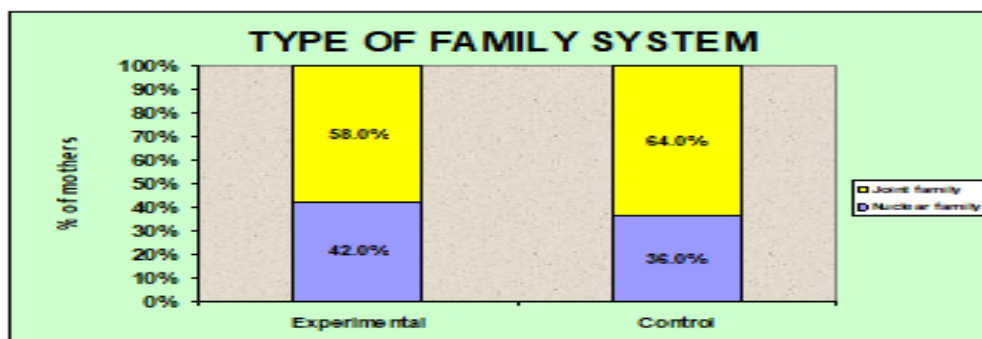


Fig 8:- Simple bar diagram showing the type of family system of primipara post-natal mothers.

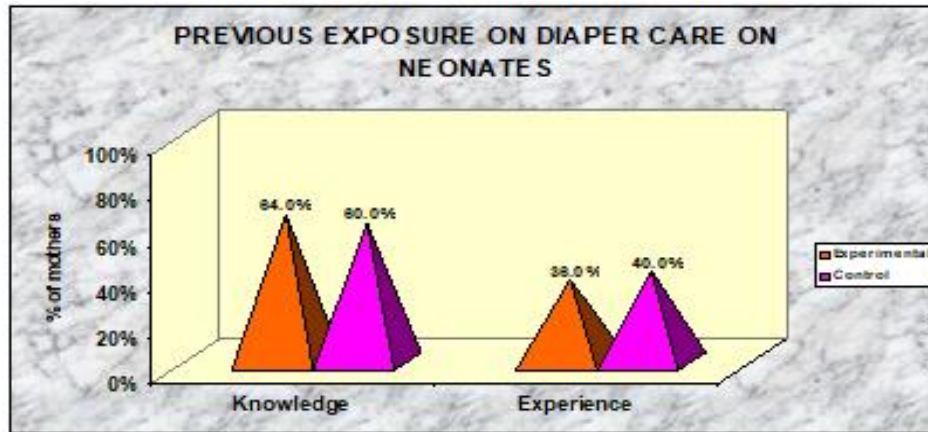


Fig 9:- Pyramidal diagram showing the previous exposure on diaper care on neonates of primipara post-natal mothers.

The table No. 1 shows the socio-demographic data of the experimental and control group primipara post-natal mothers who participated in the study titled as “A study to assess the effectiveness of teaching-learning programme on knowledge and skill of primipara post-natal mothers regarding diaper care for neonates admitted in postnatal unit at S.C. Hospital, Hassan, Karnataka.”.

The statistical analysis shows that there is no statistically significance difference between experimental and control group. It means that both the groups are similar. It was calculated by using pearson’s chi-square/Yates corrected chi-square test.

The demographic table gives the following results.

A. In relation to age of the mother’s data reveals that out of 100 mothers

38% were in the age group of 15-20 years, 54 % of the mother’s were in the age of 21-25 years, and 8% of the mother’s were age group of 26-30 years of the experimental group.

➤ *In The Control Group*

Remaining 38% of the mothers were in the age group 15-20 years,56% in the age group of 21-25 years and 6% of the mothers were in the age group of 26-30 years.

B. In relation to sex of the baby’s data reveals that out of 100 mothers

62% of the baby’s were male, 38% of the baby’s were female of the experimental group.

➤ *In The Control Group*

66% of the baby’s were male, 34% of the baby’s were female of the control group.

C. In relation to the residence of the mothers the data reveals that out of 100 mothers

36% were residing in the urban area, 64% were residing in the rural area of the experimental group.

➤ *In The Control Group*

Remaining 24% of the mothers in the urban area, 76% were in the rural area.

D. In relation to the marital status of the mothers data reveals that out of 100 mothers

None of the mothers are unmarried both in the experimental and control group.

E. In relation to educational status of the mothers the data reveals that out of 100 mothers of the experimental group.

52% of the mothers had studied up to primary school. 36% of the mothers had studied up to middle school. 8% were school dropouts and 2% of the mothers never attended a school.

➤ *In The Control Group*

36% of the mothers had studied up to primary school. 8% of the mothers had studied up to middle school. 3% were school dropouts and 3% of the mothers never attended a school.

F. In relation to type of employment status of the mother’s the data reveal that out of 100 mothers of the experimental group.

44% of the mother’s were private sector, 10% of the mother’s were working in a self- employed, 42% of the mother’s were agriculture and 4% of the mother’s were housewives.

➤ *In The Control Group*

50% of the mother’s were private sector, 4% of the mother’s were working in a self- employed, 40% of the mother’s were agriculture and 6% of the mother’s were housewives.

G. In relation to family income of the mothers the data reveals that out of 100 mother’s of the experimental group.

68% of the mother’s monthly family income was Rs 1000-Rs5000 and 32% of the mother’s monthly family income was between Rs5001- Rs10000.

➤ In The Control Group

78% of the mother’s monthly family income was Rs 1000-Rs5000 and 22% of the mother’s monthly family income was between Rs5001- Rs10000.

H. In relation to the known language of the mothers of the experimental group, data reveals that out of 100 mothers

None of the mothers don’t know other language except kannada both in the experimental and control group.

I. In relation to the religion of the mothers of the experimental group, data reveals that out of 100 mothers

80% of the mothers were from Hindu religion, 8% were Christians and 12% were Muslims.

➤ In The Control Group

Remaining 82% of the mothers were Hindus,8% of the mothers were Christians and 10% were Muslims.

J. In relation to type of family of the mother’s the data reveals that of 100 mothers’ of the experimental group.

42% of the mother’s were from a nuclear family and 58% of the mother’s were from a joint family.

➤ In The Control Group

Remaining 36% of the mother’s were from a nuclear family and 64% of the mother’s were from a joint family.

K. In relation to previous exposure of the mothers regarding ‘Diaper care’. The data reveals that out of 100 mother’s of the experimental group source of information from health service were nil

64% of the mothers had received information from personnel and 36% of the mothers had received information from family members.

➤ In The Control Group

Remaining 60% of the mothers had received information from personnel and 40% of the mothers had received information from family members.

❖ Objective1: Identify the knowledge of the primipara post-natal mothers of the experimental and control group regarding diaper care during the pre-test.

SL.NO	Aspects related to diaper care	No. of questions	Min – Max score	Experimental group knowledge		Control group knowledge	
				Mean score	%	Mean score	%
1	Meaning	4	0 -4	1.14	28.5%	1.08	27.0%
2	Factors triggering diaper rash	6	0 -6	2.04	34.0%	2.34	39.5%
3	Preventive care related to diaper rash	6	0 -6	2.52	42.0%	2.26	37.7%
4	Preparation of ideal diaper	2	0 -2	.82	41.0%	.90	45.0%
5	Methods related to use and re-use of diaper	2	0 -2	.64	32.0%	.88	44.0%

Table 2:- Percentage Of Different Aspects Of Diaper Care Knowledge Before The Teaching- Learning In Experimental And Control Group

Table No. 2 shows the knowledge on each aspect of diaper care before the teaching-learning programme. The difference between the experimental and control group is meager in each aspects of diaper care before the teaching-learning programme.

Pre-test knowledge	No. of questions	Experimental group knowledge		Control group knowledge	
		Mean score	%	Mean score	%
Overall mean score	20	7.72	38.6%	7.46	37.3%

Table 3:- Overall Pre-Test Knowledge Score

Table No.3Shows the overall pre-test knowledge of both experimental and control group primipara post-natal mothers are having the same level of knowledge.The mean value of experimental group is-7.72 and the mean value of control group is-7.46.

Level of knowledge	Experimental	Control
Inadequate	48(96.0%)	47(94.0%)
Moderately Adequate	2(4.0%)	3(6.0%)
Adequate	0(0.0%)	0(0.0%)

Table 4:- Level Of Pre-Test Knowledge

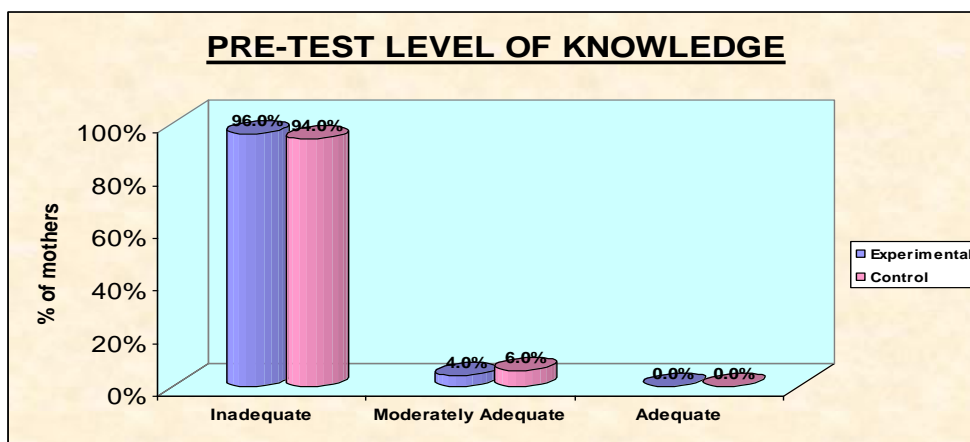


Fig 10:- Multiple bar diagram showing the pre-test level of knowledge of primipara post-natal mothers.

Table No.4.Shows the pre-test knowledge of 96% of the experimental group primipara post-natal mothers and 94% of the control group primipara post-natal mothers are having inadequate knowledge. None of the primipara post-natal mothers of the experimental and control group are having adequate knowledge.

Scoring pattern.

- <=50% = in adequate
- 51-75% = moderately adequate
- >75% = Adequate

❖ *Objective 2: Assess the knowledge and skill of the primipara post-natal mothers of the experimental group regarding diaper care after the administration of teaching- learning programme and demonstration.*

SL. NO	Aspects related to diaper care	No. of questions	Min – Max score	Experimental group knowledge		Control group knowledge	
				Mean score	%	Mean score	%
1	Meaning	4	0 -4	3.52	88.0%	.82	20.5%
2	Factors triggering diaper rash	6	0 -6	4.94	82.3%	2.40	40.0%
3	Preventive care related to diaper rash	6	0 -6	4.98	83.0%	2.82	47.0%
4	Preparation of ideal diaper	2	0 -2	1.22	61.0%	.84	42.0%
5	Methods related to the use and re-use of diaper	2	0 -2	1.30	65.0%	.98	49.0%

Table 5:- Percentage Of Different Aspects Of Diaper Care Knowledge After The Teaching-Learning Programme In Experimental And Control Group

Table No. 5Shows knowledge on each aspect of diaper care after teaching-learning programme. After teaching-learning programme the primipara post-natal mothers of the experimental group has performed well when compared to the primipara post-natal mothers of the control group. The primipara post-natal mothers of the experimental group have gained knowledge with a high score in the 1st.

3 aspects of diaper care. The first three aspects related to diaper care were:-

1. Meaning- mean score is 3.5 to will percentage of 88.0%
2. Factors triggering diaper rash- Mean score =4.9, Percentage=82.3%
3. Preventive care related to diaper rash - Mean score=4.98, Percentage=83.0%

Post-test	No. of questions	Experimental group knowledge		Control group knowledge	
		Mean score	%	Mean score	%
Overall mean score	20	16.14	80.7%	7.86	39.3%

Table 6:- Overall Post-Test Knowledge Score

Table No. 6 shows the overall post-test knowledge mean score which the primipara post-natal mothers of the experimental group scored a mean value of 16.14 (80.7%) but the primipara post-natal mothers of the control group have scored a mean value of 7.86 (39.3%) only. Thus the primipara post-natal mothers of the experimental group have scored high due to the 41.49% effectiveness of the teaching-learning programme.

Level of knowledge	Experiment	Control
Inadequate	0(0.0%)	46(92.0%)
Moderately Adequate	14(28.0%)	4(8.0%)
Adequate	36(72.0%)	0(0.0%)

Table 7:- Level Of Post-Test Knowledge

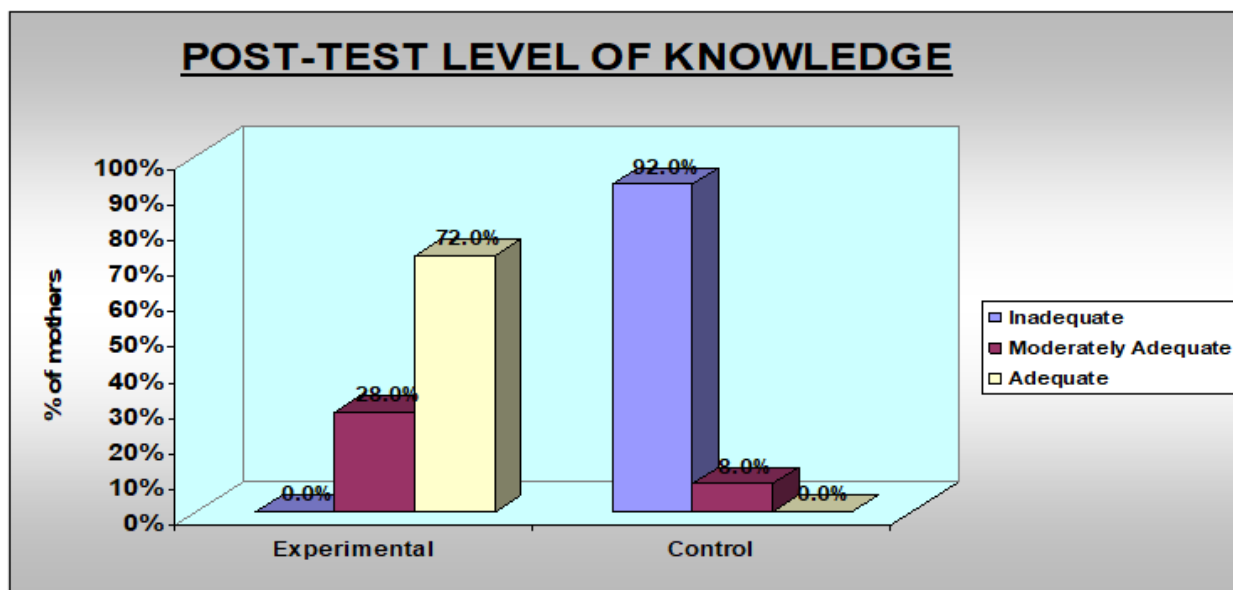


Fig 11:- Multiple bar diagram showing the post-test level of knowledge of primipara post-natal mothers.

Table No. 7 shows level of post-test knowledge of the primipara post-natal mothers of the experimental group, none of them are having inadequate knowledge and in the control group none of the primipara post-natal mothers are having adequate knowledge after the teaching-learning programme on diaper care.

Post-test	No. of questions	Experimental group skill		Control group skill	
		Mean score	%	Mean score	%
Overall mean score	17	14.74	86.7%	9.96	58.6%

Table 8:- Overall Post-Test Skill Score

Table No. 8 shows overall post-test skill score of the primipara post-natal mothers of the experimental group, who have scored a mean value of 14.74 (86.7%) but primipara post-natal mothers of the control group scored a mean value of 9.96 (58.6%) only.

Level of Skill	Experiment	Control
Inadequate	0(0.0%)	26(52.0%)
Moderately Adequate	4(8.0%)	20(40.0%)
Adequate	46(92.0%)	4(8.0%)

Table 9:- Level Of Post-Test Skill Score

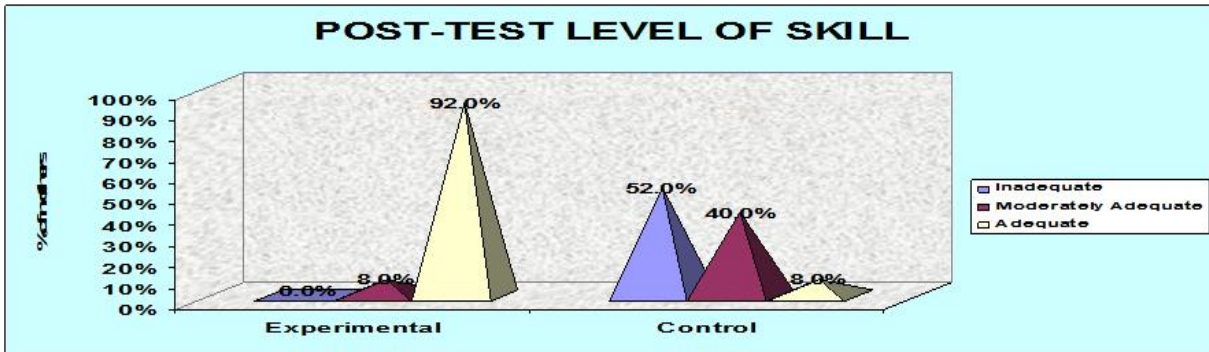


Fig 12:- Pyramidal diagram showing the post-test level of skill of the primipara post-natal mothers.

Table No. 9.Shows the post-test level of skill of the primipara post-natal mothers of the experimental group who have got 92% of adequate skill but the primipara post-natal mothers of the control group have got only 8% of adequate skill in diaper care.

❖ *Objective 3: Determine the knowledge and skill of primipara post-natal mothers of the experimental group and control group regarding diaper care after the post-test.*

SL.NO.	Knowledge	Experimental group Skill Observation score		Control group skill observation score		Two sample binomial proportion test
		No.of mothers	%	No. of mothers	%	
1	The meaning diaper refers to	43	86.0%	11	22.0%	Z=6.42 P=0.001 significant
2	A neonatal period is between	49	98.0%	10	20.0%	Z=9.32 P=0.001 significant
3	The ointment applied for diaper rash in neonates is	40	80.0%	6	12.0%	Z=6.81 P=0.001 Significant
4	Diaper rashes causes.	44	88.0%	14	28.0%	Z=6.08 P=0.001 significant
5	Diaper rash if neglected can cause	45	90.0%	26	52.0%	Z=4.18 P=0.001 significant
6	The skin colour in a new born is	38	76.0%	12	24.0%	Z=5.20 P=0.001 Significant
7	Diaper rash occurs in a newborn due to	43	86.0%	26	52.0%	Z=3.67 P=0.001 Significant
8	Clinical manifestation of Diaper rash is	42	84.0%	12	24.0%	Z=6.01 P=0.001 significant
9	Diaper rash in neonates can be prevented by keeping the	34	68.0%	13	26.0%	Z=4.21 P=0.001
10	The skin texture in a newborn is	45	90.0%	31	62.0%	Z=3.27 P=0.001 significant

11	Disposable diaper is made up of	39	78.0%	21	42.0%	Z=3.67 P=0.001 significant
12	Ideal size of diaper for neonates is	46	92.0%	23	46.0%	Z=4.97 P=0.001 Significant
13	Factors responsible for frequent diaper rashes in neonates is	41	82.0%	22	44.0%	Z=3.93 P=0.001 Significant
14	The important area involved in Diaper rash is except	47	94.0%	26	52.0%	Z=4.72 P=0.001 Significant
15	The Organism responsible for Diaper rash in neonates is	46	92.0%	29	58.0%	Z=3.92 P=0.001 Significant
16	The first step to prevent Diaper rash in neonates is by	30	60.0%	20	40.0%	Z=2.00 P=0.05 Significant
17	The dry method used for diaper rash care is	29	58.0%	15	30.0%	Z=2.82 P=0.01 Significant
18	The solution used to rinse the diaper is	32	64.0%	27	54.0%	Z=1.01 P=0.31 Not significant
19	The duration for occurrence of diaper rash is	30	60.0%	20	40.0%	Z=2.00 P=0.05 Significant
20	Diaper can be re-used by	35	70.0%	29	58.0%	Z=1.24 P=0.21 Not significant

Table 10:- Each Question-Wise Percentage Of Diaper Care Knowledge After The Teaching-Learning Programme In The Experimental And Control Group.

Table No. 10. Shows each question-wise percentage of diaper care knowledge after the teaching-learning programme in experimental and control group, in which the primipara post-natal mothers of the experimental group has performed well. The difference between the responses of by the primipara post-natal mothers of the experimental group is with the large percentage. When compare to the primipara post-natal mothers of the control group. It is statistically significant. It was tested by using two sample binomial proportion tests.

SL.NO	Knowledge	Experimental group knowledge		Control group knowledge		Student independent t-test
		Mean	SD	Mean	SD	
1	Meaning	3.52	.65	.82	.66	t=20.6 P=0.001 significant
2	Factors triggering diaper rash	4.94	.79	2.40	.99	t=14.2 P=0.001 significant
3	Preventive care related to diaper	4.98	.77	2.82	1.00	t=12.1 P=0.001 significant
4	Preparation of ideal diaper	1.22	.79	.84	.58	t=2.7 P=0.01 significant
5	Methods used for use and reuse of diaper	1.30	.71	.98	.68	t=2.29 P=0.02 significant

Table 11:- Comparison Of Post-Test Knowledge

Table No. 11 Shows that comparison of post-test knowledge of the primipara post-natal mothers of the experimental group and control group. In each aspect of knowledge the primipara post-natal mothers of the experimental group have scored with a large difference than the primipara post-natal mothers of the control group. It was a statistically significant difference. It was calculated by using student independent t-test.

Knowledge	Experimental group knowledge		Control group knowledge		Student independent t-test
	Mean	SD	Mean	SD	
Overall Knowledge score	16.14	1.53	7.86	1.21	t=30.1 P=0.001 significant

Table No. 12: Comparison Of Post-Test Overall Knowledge Score

Knowledge	Pre-test knowledge		Post-test knowledge		Student's paired t-test
	Mean	SD	Mean	SD	
Experimental group	7.22	1.282	16.14	1.53	t=31.4 P=0.001 significant
Control group	7.46	1.432	7.86	1.21	t=1.68 P=0.10 not significant

Table No. 13: Comparison Of Pre-Test And Post-Test Overall Knowledge Score

Table No. 12.Shows the Comparison of pre and post-test knowledge score of the primipara post-natal mothers of the experimental group is significant with a mean value 16.14 and standard deviation(SD) when compared to the primipara post-natal mothers of the control group which is not significant. The pre and post-test knowledge score was analyzed by using student's paired 't'-test

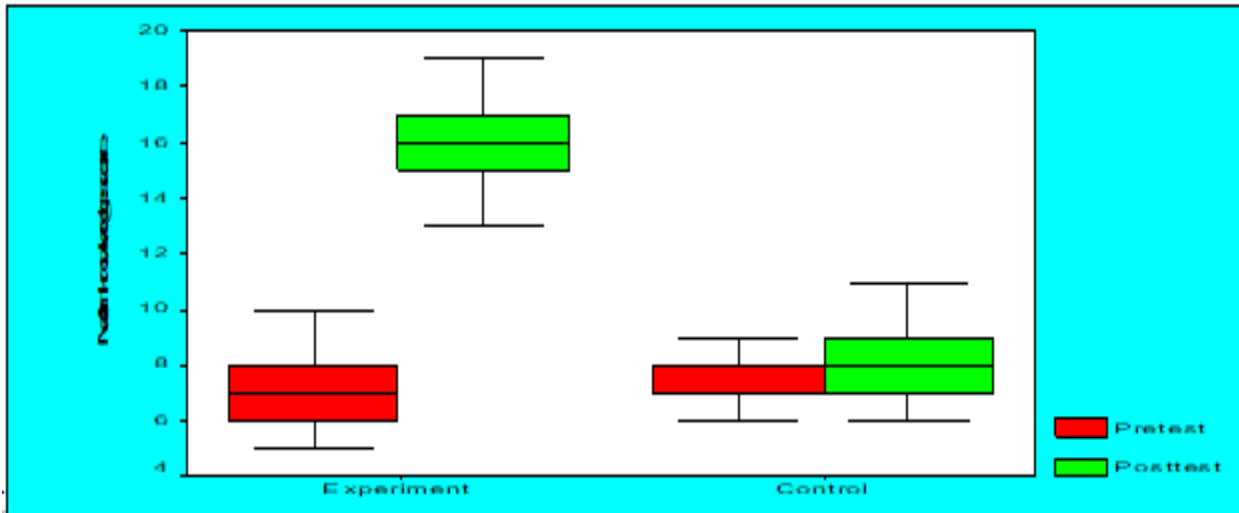


Fig 13:- Box plot compares the pre-test and post-test knowledge score of primipara post-natal mothers on diaper care of neonates.

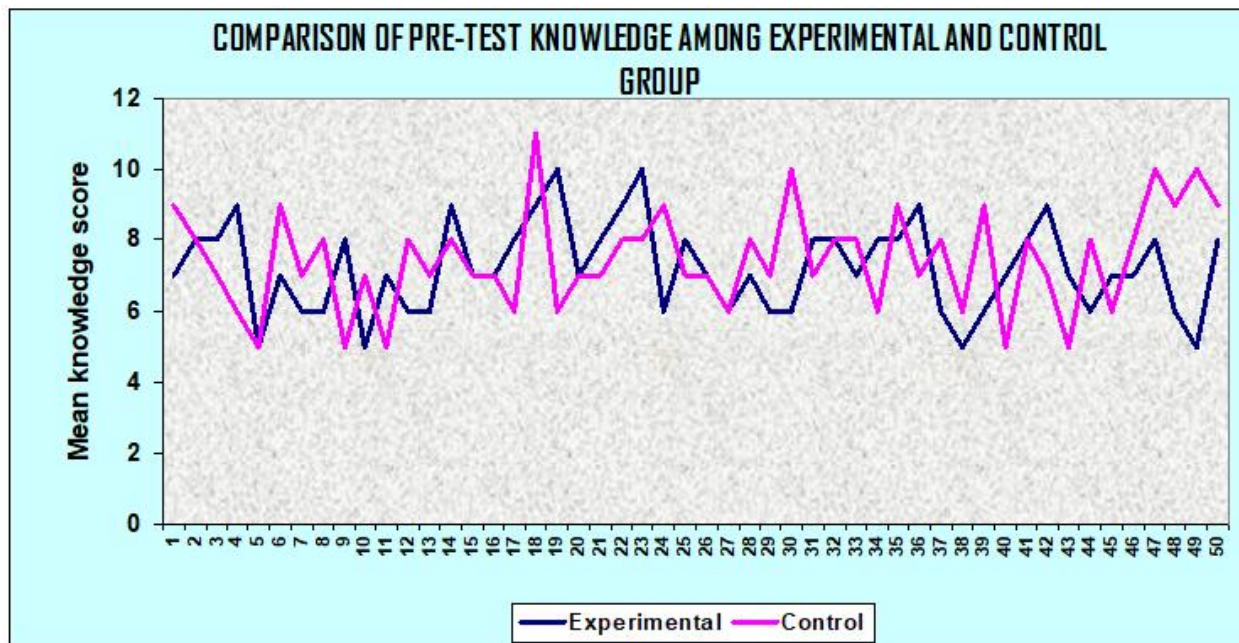


Fig 14:- Line diagram showing the each mother's knowledge score on diaper care comparison in the experimental group.

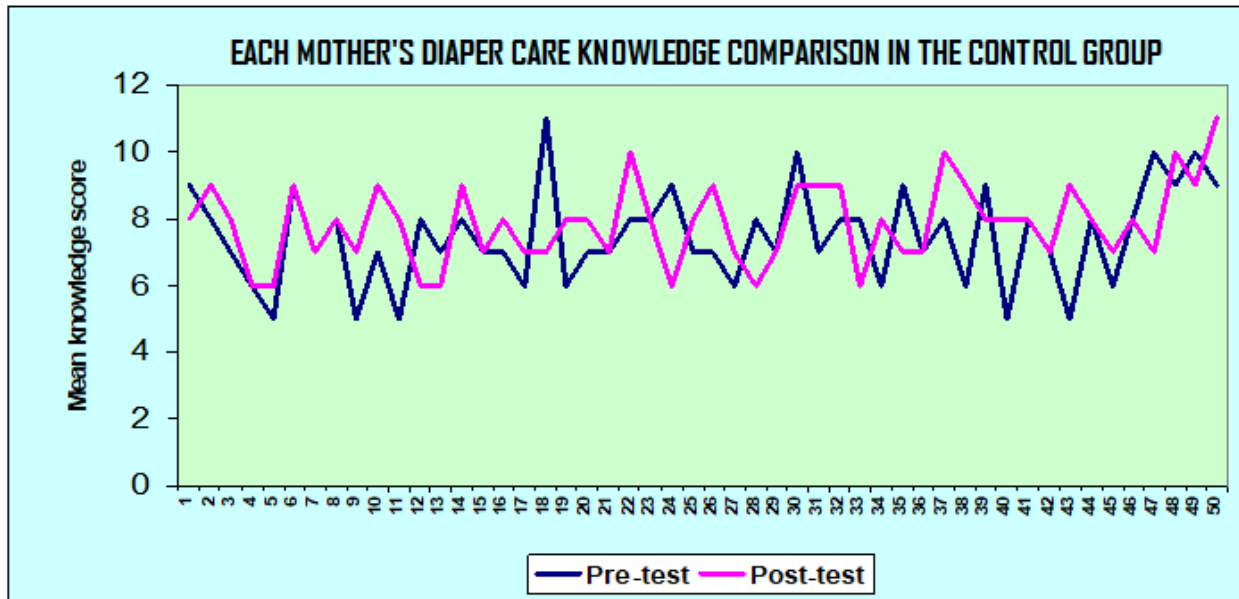


Fig 15:- Line diagram showing each mother’s diaper care knowledge comparison in the control group.

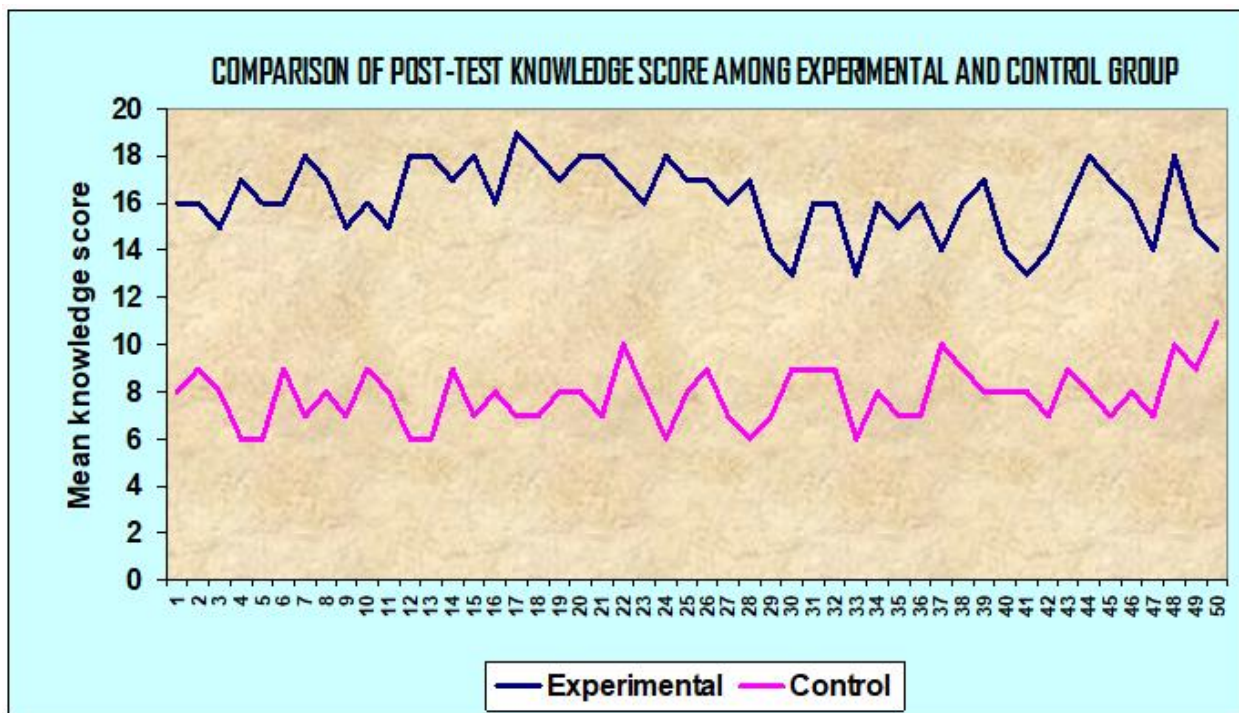


Fig 16:- Line diagram showing the comparison of post-test knowledge score among experimental and control group.

Level of knowledge	Experimental (post-test)	Control(post- test)	Chi -square test
Inadequate	0(0.0%)	46(92.0%)	$\chi^2=87.6$ P=0.001 significant
Moderately Adequate	14(28.0%)	4(8.0%)	
Adequate	36(72.0%)	0(0.0%)	

Table 14:- Comparison Of Post-Test Level Of Knowledge

Table No. 16. Shows the comparison of post-test level of knowledge in which none of the primipara post-natal mothers of the experimental group have 0.0% inadequate knowledge after the demonstration of teaching-learning programme on diaper care for neonates. But in the control group none of the primipara post-natal mothers are having 0.0% adequate knowledge. The primipara

post-natal mothers of the experimental group have 28.0% moderately adequate knowledge and 72.0% adequate knowledge. The primipara post-natal mothers of the control group have 8.0% moderately adequate knowledge and 92.0% inadequate knowledge. The statistical significance was tested by using Pearson's chi-square test.

Table 15:- Each Question-Wise Percentage Of Diaper Care Skill After The Teaching-Learning Programme In Experimental And

SL.NO	Skill	Experimental group Skill Observation score		Control group skill observation score		Two sample binomial proportion test
		No. of mothers	%	No. of mothers	%	
1	The mother should be alert	41	82.0%	36	72.0%	Z=1.19 P=0.23 Not significant
2	Mother washes the hands before the procedure	39	78.0%	27	54.0%	Z=2.53 P=0.01 significant
3	The mother should check the buttock area	44	88.0%	32	64.0%	Z=2.81 P=0.005 significant
4	Quick dryness of wet surface	40	80.0%	27	54.0%	Z=2.76 P=0.006 significant
5	Remove the soiled diaper and put it in a small receiver	42	84.0%	31	62.0%	Z=2.48 P=0.01 significant
6	Check and assemble all the articles at the bed side of the child	46	92.0%	37	74.0%	Z=2.39 P=0.02 significant
7	Check the skin colour of the neonate	43	86.0%	31	62.0%	Z=2.73 P=0.006 significant
8	Clean and dry the buttocks	38	76.0%	21	42.0%	Z=3.45 P=0.001 significant
9	Check the diaper rash of diaper dermatitis	44	88.0%	28	56.0%	Z=3.56 P=0.001 significant
10	Put mackintosh under the buttocks	45	90.0%	28	56.0%	Z=3.83 P=0.001 significant
11	Diaper application	50	100.0%	50	100.0%	Z=0.00 P=1.00 Not significant
12	Wash with detergents	48	96.0%	22	44.0%	Z=5.67 P=0.001 significant
13	Soiled or wet diaper rinse in the antiseptic lotion	46	92.0%	26	52.0%	Z=4.45 P=0.001 significant
14	Put it into the sun light to dry	46	92.0%	25	50.0%	Z=4.63 P=0.001 significant
15	Re-assembling of articles/mother	47	94.0%	29	58.0%	Z=4.21 P=0.001 significant
16	Check re-check and follow-up care / mother	42	84.0%	27	54.0%	Z=3.24 P=0.001 significant
17	Record in the nurses notes and report to the staff nurse in-charge / mother	36	72.0%	21	42.0%	Z=3.03 P=0.002 significant

Control Group

Table No. 15. Shows each question-wise percentage of diaper care skill after the teaching-learning programme in the experimental and control group. The primipara post-natal mothers of the experimental group related to the skill observation score is largely significant when compared to the skill observation score of the primipara post-natal mothers of the control group. Each question-wise knowledge score was analyzed by using two sample proportion test.

skill	Experimental group knowledge		Control group knowledge		Student independent t-test
	Mean	SD	Mean	SD	
Overall skill score	14.74	1.79	9.96	2.35	t=11.4 P=0.001 significance

Table 16:- Comparison of Post-Test Overall Skill Score

Table No.16,Shows the comparison of the post-test overall skill score of the primipara post-natal mothers of the experimental group is significant with mean value 9.96 and standard deviation (SD) 2.35. than the mothers of the control group. It was analyzed by using student independent 't'-test.

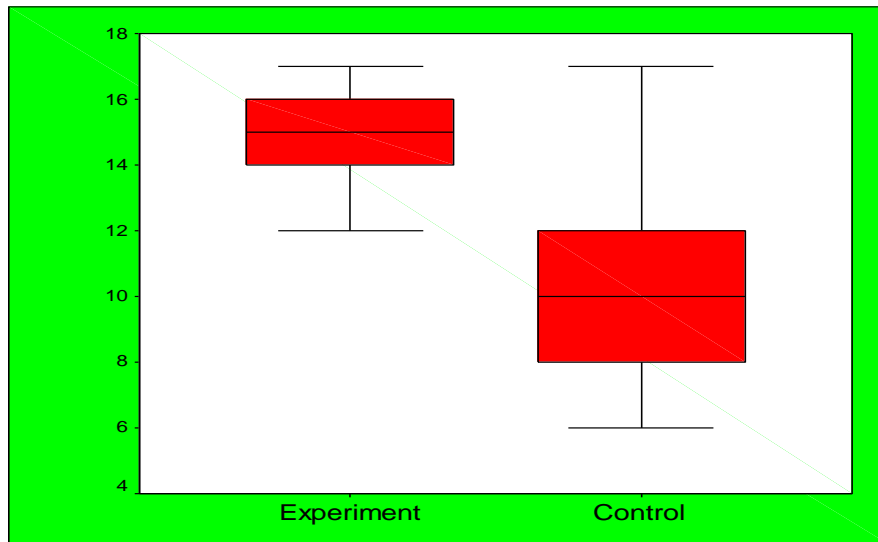


Fig 17:- Box plot compares the pre-test and post-test skill score of primipara post-natal mothers on diaper care of neonates.

Variable	Group	Pre-test	Post-test	Post-test-pre-test	Difference between experimental and control
Knowledge	Experimental	38.6%	80.7%	42.1%	39.9%
	Control	37.3%	39.3%	2.0%	
Skill	Experimental	-	86.7%		28.1%
	Control	-	58.6%		

Table 17:- Effectiveness of Teaching- Learning Programme

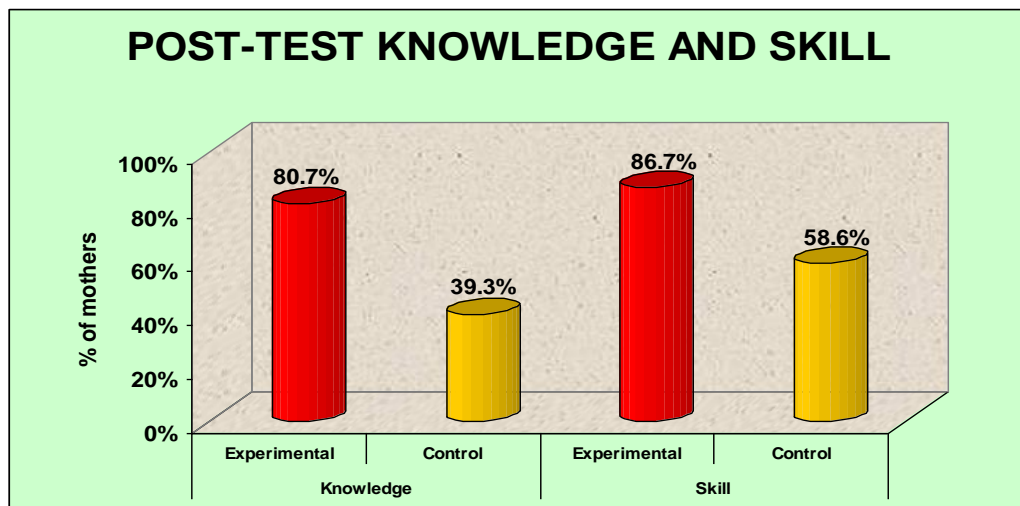


Fig 18:- Bar diagram showing the post-test knowledge and skill.

Table No. 17,Shows the effectiveness of the teaching- learning programme for the primipara post-natal mothers of the experimental group have gained 39.9% of more knowledge than the primipara post-natal mothers of the control group. Considering the skill of the primipara post-natal mothers of the experimental group have gained 28.1% of more skill than primipara post-natal mothers of the control group.

Level of Skill	Experimental	Control	Chi- square test
Inadequate	0(0.0%)	26(52.0%)	$\chi^2=71.9$ P=0.001 significant
Moderately Adequate	4(8.0%)	20(40.0%)	
Adequate	46(92.0%)	4(8.0%)	

Table No. 18 : Comparison Of Post-Test Level Of Skill Score

Table No.18.Shows the comparison of post-test level of skill score. 92% of the primipara post-natal mothers of the experimental group have got adequate skill. But only 8% of the primipara post-natal mothers of the control group have got adequate skill. The statistical significance was tested by using pearson’s chi-square test.

Objective 4: Correlate the knowledge scores and skill scores of the experimental and control group of the primipara post-natal mothers regarding diaper care after teaching-learning programme and demonstration.

Group	Post-test	Karl Pearson’s correlation co-efficient	Interpretation
Experimental group	Correlation between knowledge and skill	$r = 0.76$ P=0.001	Substantial Positive Significant Correlation It means skill score increases when they gained knowledge score
Control group	Correlation between knowledge and skill	$r = 0.18$ P=0.33	Poor Positive Not significant Correlation It means there is poor correlation between knowledge and skill score

Table 19:- Correlation Between After Teaching-Learning Programme Knowledge And Skilled Score

Interpretation for r-value

Pearson’s correlation coefficient is denoted by “r”

“r” always lies between -1 to +1

0.0 – 0.2 poor correlation

0.2 - 0.4 fair correlation

0.4 - 0.6 moderate correlation

0.6 – 0.8 substantial correlation

0.8 - 1.0 strong correlation

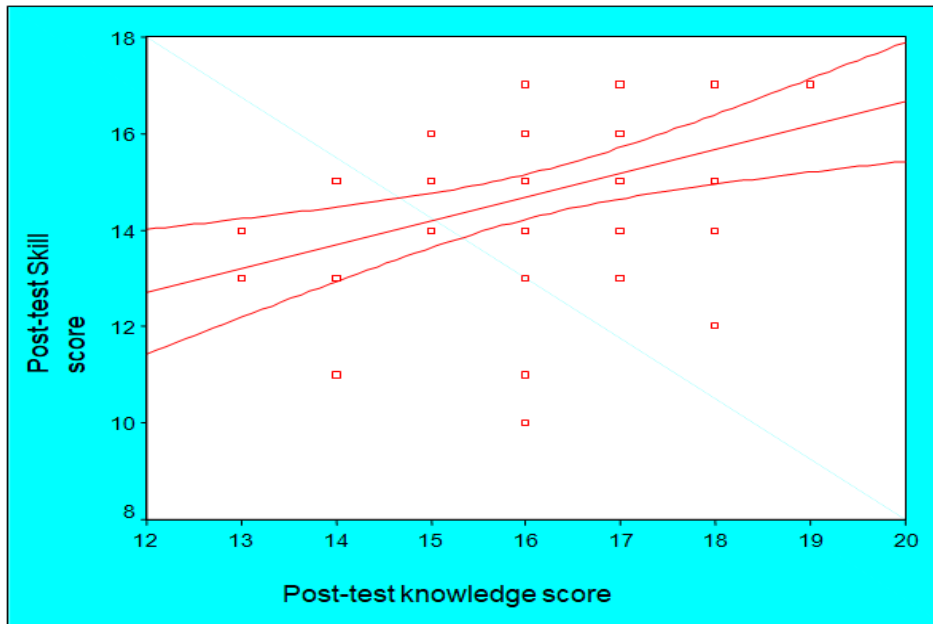


Fig 19:- Scatter Plot with regression estimate shows the correlation of post-test knowledge and skill score of the Experimental group post-natal mothers on diaper care for neonates.

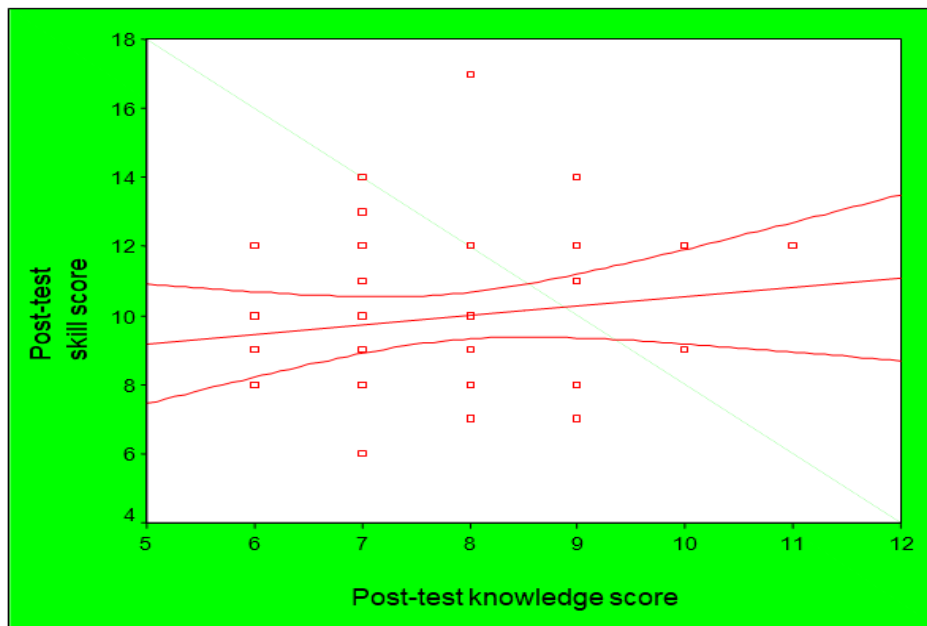


Fig 20:- Scatter Plot with regression estimate shows the correlation of post-test knowledge and skill score of the control group post-natal mothers on diaper care for neonates.

❖ *Objective 5: Associate the knowledge and skill of the primipara post-natal mothers of experimental and control group regarding diaper care with selected socio-demographic data.*

SL. NO	Socio- demographic variables		Post-test knowledge				Significance
			Moderate		Adequate		
			Count	%	Count	%	
1	Age	15 -20 yrs	4	28.6%	15	41.7%	$\chi^2=1.45$ P=0.48 Not significance
		21 -25 yrs	8	57.1%	19	52.8%	
		26 -30 yrs	2	14.3%	2	5.6%	
2	sex_of_baby	Male	11	78.6%	20	55.6%	$\chi^2=2.26$ P=0.13 Not significance
		Female	3	21.4%	16	44.4%	
3	Residence	Urban	5	35.7%	13	36.1%	$\chi^2=0.01$ P=0.98 Not significance
		Rural	9	64.3%	23	63.9%	
4	Mother's Education	Primary school	8	57.1%	18	50.0%	$\chi^2=14.12$ P=0.001 significance
		Middle school	1	7.1%	17	47.2%	
		School drop out	3	21.4%	1	2.8%	
		Never attended a school	4	28.5%	0	0.0%	
5	Type of employment	Private sector	8	57.1%	14	38.9%	$\chi^2=2.23$ P=0.52 Not significance
		Self employed	1	7.1%	4	11.1%	
		Agriculture	4	28.6%	17	47.2%	
		Housewife	1	7.1%	1	2.8%	
6	Family income	Rs.1000 -5000	11	78.6%	23	63.9%	$\chi^2=0.99$ P=0.31 Not significance
		Rs.5001 -10000	3	21.4%	13	36.1%	
7	Religion	Hindu	11	78.6%	29	80.6%	$\chi^2=0.11$ P=0.95 Not significance
		Muslim	2	14.3%	4	11.1%	
		Christian	1	7.1%	3	8.3%	
8	Type of family	Nuclear family	9	64.3%	12	33.3%	$\chi^2=3.96$ P=0.05 significance
		Joint family	5	35.7%	24	66.7%	
9	Previous knowledge	Knowledge	9	64.3%	23	63.9%	$\chi^2=0.01$ P=0.98 Not significance
		Experience	5	35.7%	13	36.1%	

Table 20:- Association Between Post-Test Knowledge And Their Socio-Demographic Variables (Experimental Group)

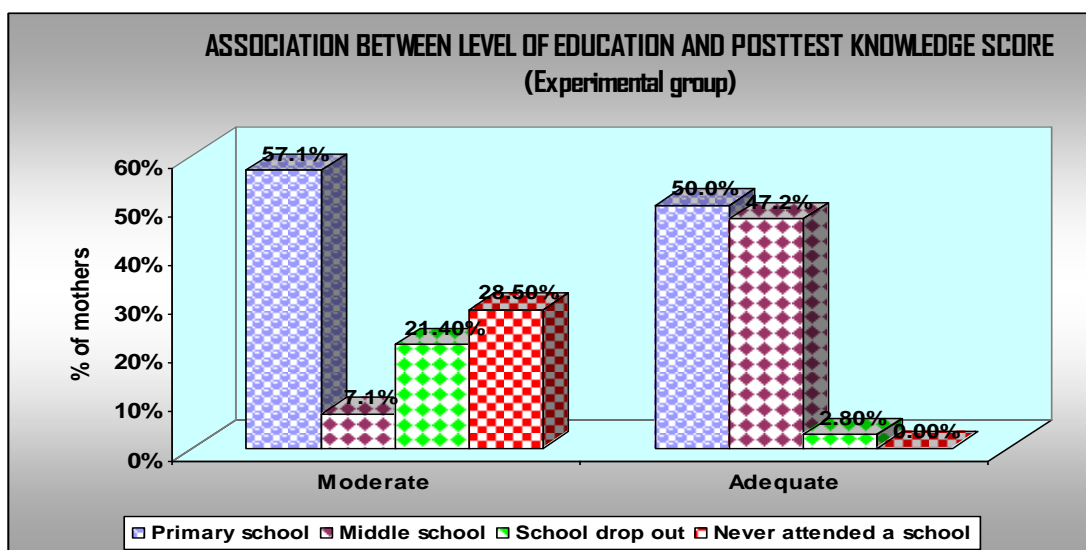


Fig 21:- Multiple bar diagram showing the association between level of education and post-test knowledge score.(Experimental group)

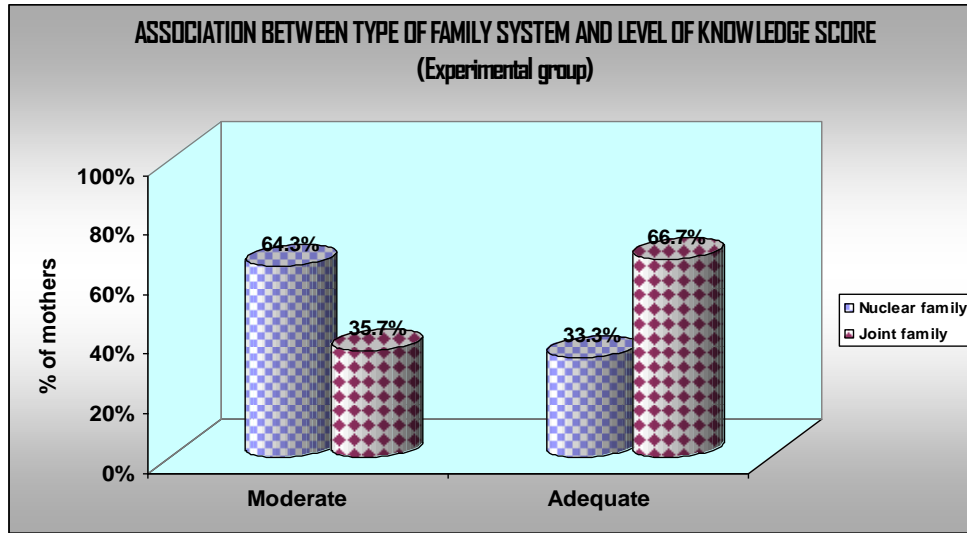


Fig 22:- Multiple bar diagram showing the association between type of family system and knowledge score.(Experimental group)

Table no 20 shows the association between the post-test knowledge and socio-demographic variables of the primipara post-natal mothers of the experimental group.

- 1) Education and type of family of the primipara post-natal mothers closely associated with their post-test knowledge.
- 2) Literate primipara post-natal mothers have scored more adequate knowledge than the illiterate primipara post-natal mothers.
- 3) The primipara post-natal mothers of the joint family have scored adequate knowledge than the mothers of the nuclear family system.

The statistical significant difference was calculated by using Pearson’s chi-square test/Yates corrected chi-square test

SL. NO	Socio--demographic variables		Post-test knowledge				Significance
			Inadequate		Moderate		
			Count	%	Count	%	
1	Age	15 -20 yrs	16	34.8%	3	75.0%	$\chi^2=2.57$ P=0.28 Not significant
		21 -25 yrs	27	58.7%	1	25.0%	
		26 -30 yrs	3	6.5%	0	0.0%	
2	Sex of baby	Male	31	67.4%	2	50.0%	$\chi^2=0.49$ P=0.48 Not significant
		Female	15	32.6%	2	50.0%	
3	Residence	Urban	12	26.1%	0	0.0%	$\chi^2=1.37$ P=0.24 Not significant
		Rural	34	73.9%	4	100.0%	
4	Mother's Education	Primary school	32	69.6%	4	100.0%	$\chi^2=1.67$ P=0.64 Not significant
		Middle school	8	17.4%	0	0.0%	
		School drop out	3	6.5%	0	0.0%	
		Never attend a school	3	6.5%	0	0.0%	
5	Type of employment	Private sector	23	50.0%	2	50.0%	$\chi^2=0.54$ P=0.91 Not significant
		Self employed	2	4.3%	0	0.0%	
		Agriculture	18	39.1%	2	50.0%	
		Housewife	3	6.5%	0	0.0%	
6	Family income	Rs.1000 -5000	36	78.3%	3	75.0%	$\chi^2=0.02$ P=0.88 Not significant
		Rs.5001 -10000	10	21.7%	1	25.0%	
7	Religion	Hindu	37	80.4%	4	100.0%	$\chi^2=0.95$ P=0.62 Not significance

		Muslim	5	10.9%	0	0.0%	
		Christian	4	8.7%	0	0.0%	
8	Type of family	Nuclear family	15	32.6%	3	75.0%	$\chi^2=2.87$ P=0.09 Not Significance
		Joint family	31	67.4%	1	25.0%	
9	Previous knowledge	Knowledge	27	58.7%	3	75.0%	$\chi^2=0.41$ P=0.52 Not significance
		Experience	19	41.3%	1	25.0%	

Table 21:- Association Between Post-Test Knowledge And Their Socio-Demographic Variables (Control Group)

Table No. 21. Shows the association between the post-test knowledge and the socio-demographic variables of the primipara post-natal mothers of the control group.

The post-test knowledge score was associated with the socio-demographic variables, but none of the socio-demographic variables had an association with the post-test knowledge score.

Statistical significance difference was calculated by using Pearson’s chi-square test/Yates corrected chi-square test.

SL. NO	Socio- demographic variables		Post-test skill				Significance
			Moderate		Adequate		
			Count	%	Count	%	
1	Age	15 -20 yrs	3	75.0%	16	34.7%	$\chi^2=14.5$ P=0.001 Significant
		21 -25 yrs	1	25.0%	26	56.5%	
		26 -30 yrs	0	0.0%	4	8.7%	
2	Sex of baby	Male	3	75.0%	28	60.9%	$\chi^2=0.31$ P=0.58 Not significant
		Female	1	25.0%	18	39.1%	
3	Residence	Urban	2	50.0%	16	34.8%	$\chi^2=0.37$ P=0.54 Not significant
		Rural	2	50.0%	30	65.2%	
4	Mother's Education	Primary school	2	50.0%	24	52.2%	$\chi^2=37.1$ P=0.001 Significant
		Middle school	1	25.0%	17	37.0%	
		School drop out	0	0.0%	4	8.7%	
		Never attend a school	1	25.0%	1	2.2%	
5	Type of employment	Private sector	3	75.0%	19	41.3%	$\chi^2=1.86$ P=0.60 Not significant
		Self employed	0	0.0%	5	10.9%	
		Agriculture	1	25.0%	20	43.5%	
		Housewife	0	0.0%	2	4.3%	
6	Family income	Rs.1000 -5000	3	75.0%	31	67.4%	$\chi^2=0.10$ P=0.75 Not significant
		Rs.5001 -10000	1	25.0%	15	32.6%	
7	Religion	Hindu	3	75.0%	37	80.4%	$\chi^2=0.94$ P=0.62 Not significant
		Muslim	1	25.0%	5	10.9%	
		Christian	0	0.0%	4	8.7%	
8	Type of family	Nuclear family	1	25.0%	20	43.5%	$\chi^2=0.52$ P=0.47 Not Significant
		Joint family	3	75.0%	26	56.5%	
9	Previous knowledge	Knowledge	2	50.0%	30	65.2%	$\chi^2=0.37$ P=0.54 Not significant
		Experience	2	50.0%	16	34.8%	

Table 22:- Association Between Post-Test Skill And Their Socio- Demographic Variables (Experimental group)

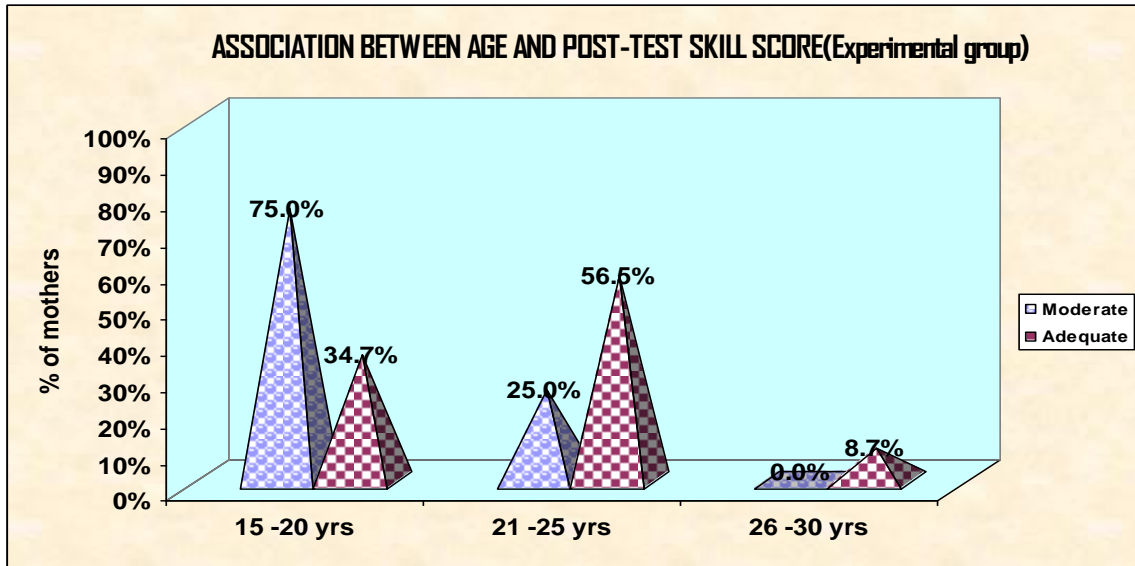


Fig 23:- Pyramidal diagram showing the association between age and post-test skill score (Experimental group).

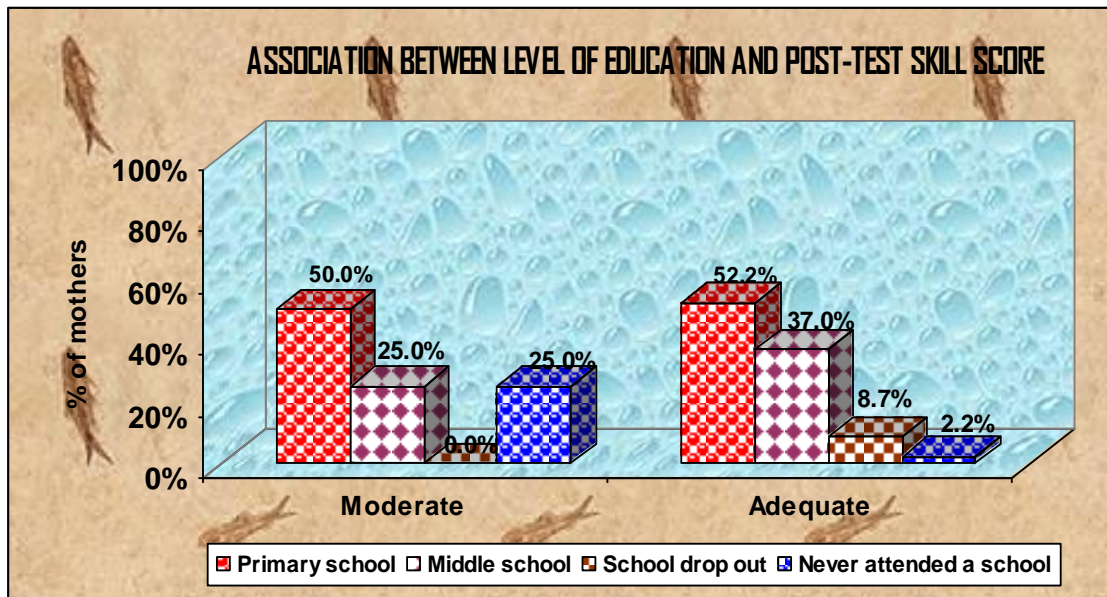


Fig 24:- Multiple bar diagram showing the association between level of education and post-test skill score.

Table No. 22 Shows the association between the post-test skill and socio-demographic variables of the primipara post-natal mothers of the experimental group.

1. Age and level of education of the primipara post-natal mothers are closely associated with their post-test skill.
2. Literate mothers have scored more adequate skill than illiterate mothers.
3. (a) More aged primipara post-natal mothers 21 to 25 years n=1 percentage is 25% have got moderate skill.
(b) n=26 percentage is 55.5% have scored more adequate skill than less aged mothers.
4. Statistical significant difference was calculated by using pearson’s chi- square test/Yates corrected chi-square test.

SL. NO	Socio-demographic variables		skill						Significance
			Inadequate		Moderate		Adequate		
			Count	%	Count	%	Count	%	
1	Age	15 -20 yrs	7	26.9%	9	45.0%	3	75.0%	$\chi^2=5.44P=0.25$ Not significant
		21 -25 yrs	18	69.2%	9	45.0%	1	25.0%	
		26 -30 yrs	1	3.8%	2	10.0%	0	0.0%	
2	Sex of baby	Male	17	65.4%	13	65.0%	3	75.0%	$\chi^2=0.16P=0.92$ Not significant
		Female	9	34.6%	7	35.0%	1	25.0%	
3	Residence	Urban	8	30.8%	4	20.0%	0	0.0%	$\chi^2=2.92P=0.35$ Not significant
		Rural	18	69.2%	16	80.0%	4	100.0%	
4	Mother's Education	Primary school	18	69.2%	14	70.0%	4	100.0%	$\chi^2=5.06P=0.54$ Not significant
		Middle school	4	15.4%	4	20.0%	0	0.0%	
		School drop out	1	3.8%	2	10.0%	0	0.0%	
		Never attended a school	3	11.5%	0	0.0%	0	0.0%	
5	Type of employment	Private sector	13	50.0%	10	50.0%	2	50.0%	$\chi^2=11.31P=0.08$ Not significant
		Self employed	1	3.8%	1	5.0%	0	0.0%	
		Agriculture	11	42.3%	9	45.0%	0	0.0%	
		House wife	1	3.8%	0	0.0%	2	50.0%	
6	Family income	Rs.1000 -5000	20	76.9%	15	75.0%	4	100.0%	$\chi^2=1.25P=0.53$ Not significant
		Rs.5001 - 10000	6	23.1%	5	25.0%	0	0.0%	

Table 23:- Association Between Post-Test Skill And Their Socio-Demographic Variables (Control Group)

Table No. 23 shows the association between post-test skill and the socio-demographic variables of the primipara post-natal mothers of the control group.

1. None of the socio-demographic variables when associated with their post-test skill score.
2. Statistical significant difference was calculated by using Pearson’s Chi-square test/Yates corrected Chi-square test.

IV. CONCLUSION

Diaper dermatitis is complicated by candidiasis which is a common problem in diaper wearing infants and children. It causes discomfort to infant’s anxiety to parents and caregivers and contributes to the load on the health care system. A large variety of napkins, both disposable and non-disposable are available. Evidence is required to assist carers and health care workers in working informant decisions when balancing the pros and cons of different napkin choices.

REFERENCES

- [1]. Morelius E, Hellstom – Westas L, ‘Is a nappy change stressful to neonates?’. Early Hum Dev. 2006 October; 82(10): page no 669-676. Equib 2006 February 28. Baer EL, Davies MW, ‘Disposable nappies for preventing napkin dermatitis in infants.’ Rane Database syst Review. 2006 July 19; 3: CD004262.
- [2]. Henry F, Thirion L, ‘How I treat..... diaper dermatitis.’? Review Med Liege. 2006 April; 61(4): Page no 212-21.
- [3]. Atherton D. Mills K, ‘What can be done to keep babies skin healthy?.’ RCM midwives. 2004 July; 7(7): Page no 288-290.
- [4]. Kamat M, Malkani R, ‘Disposable diapers: a hygienic alternative.’ Indian Journal pediatric. 2003 November; 70(11): page no 879-881.
- [5]. Visscher MO, Chatterjee R, ‘Development of diaper rash in the newborn’. PediatrDermatol. 2000 January to February; 17(1): page no 52-57.
- [6]. Alberta L, Sweeney SM, Wiss K, ‘Diaper dye dermatitis.’ Pediatrics. 2005 September; 116(3): page no 450-452.

- [7]. Shin HT. 'Diaper dermatitis that does not quit'. *Dermatolther*. 2005 March to April; 18(2): page no 124-135.
- [8]. Scheinfeld N, 'Diaper dermatitis: a review and brief survey of eruption of the diaper area.' *American Journal of clinDermatol*. 2005; 6(5): page no 273-281.
- [9]. Baharestani MM, Ratliff CR, 'Pressure ulcers in neonates and children: an NPUAP white paper'. *Adv skin wound care*. 2007 April; 20(4): Page no 208,210,212,214,216,218-220.
- [10]. Scowen P, 'Nappy rash: Let's give mothers more help'. *Prof care mother child* 2000; 10(1): page no 26-28,30.
- [11]. Odio M, Friedlander SF. 'Diaper dermatitis and advances in diaper technology'. *CurrOpin pediatric*. 2000 August; 12(4): page no 342-346.
- [12]. Scowen P, 'Nappy rash: Let's give mothers more help'. *Prof care mother child* 2000; 10(1): page no 26-28,30.
- [13]. Odio M, Friedlander SF. 'Diaper dermatitis and advances in diaper technology'. *CurrOpin pediatric*. 2000 August; 12(4): page no 342-346.
- [14]. Siegfried EC, Shan PY. 'Skin care practices in the neonatal nursery: a child survey'. *J Perinatol*. 1999 January; 19(1): page no 31-39
- [15]. Teresa Ortega M, Vergara A, 'Cryptosporidium hominis diarrhea out break and transmission linked to diaper infant use'. *Med clin (Bare)*. 2006 November 4; 127(7): page no 653-656.
- [16]. Shvartzman P, Nasri Y, 'Urine Culture collected from gel-based diapers: developing a novel experimental laboratory method.' *Journal American FamPract*. 2004 march- April; 17(2): Page no 91-95.
- [17]. Blauer T, Gerstmann D. 'A simultaneous comparison of three neonatal pain scales during common NICU procedures'. *Clin J Pain*. 1998 Mar;14(1):39-47.
- [18]. Holsti L, Grunau RE, Oberlander TF, Whitfield MF, Weinberg J. 'Body movements: an important additional factor in discriminating pain from stress in preterm infants.' *Clin J Pain*. 2005 Nov-Dec;21(6):491-8.
- [19]. Kowalewska M, Welfel E, Kawczyński P, Pokrzywnicka M. 'Clinical condition of newborns from water birth at the Perinatology Clinic, Institute Of Gynecology and Obstetrics of the Medical University in Łódź, in the years 1996-2001'. *Ginekol Pol*. 2004 Apr;75(4):267-73.