"A PRE-EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING MENSTRUAL HYGIENE AMONG MENSTRUATING GIRLS OF B.TECH. IN KRISHNA INSTITUTE OF TECHNOLOGY, KANPUR''.

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR
THE DEGREE OF BACHELOR OF SCIENCE IN NURSING
OF THE CSJM UNIVERSITY OF HEALTH SCIENCES, KANPUR

BY

Ms. Saumya Gupta
Ms. Satya Singh
Ms. Shayar Kushwaha
Ms. Shivani Verma
BASIC B.Sc. (N) IV^(TH) Year
(2016-2020)

Under the Guidance of

Ms. Priya Gupta
Assist. Lect. M.sc (N) Child Health Nursing

KRISHNA INSTITUE OF NURSING SCIENCES AND RESEARCH, Kanpur

KRISHNA INSTITUTE OF NURSING SCIENCES AND RESEARCH, KANPUR

ABSTRACT

Adolescence is a transition period from childhood to adult life. During this period, pubertal development and sexual maturation take place. There is a substantial lacuna in the knowledge towards menstruation and menstrual hygiene among adolescent girls. Adolescent girls are often reluctant to discuss this topic with their parents, friends or anyone. This in turn leads to ignorance of the scientific facts and hygienic health practices among adolescent girls. Better knowledge and safe menstrual practices will avoid risk against reproductive tract infections and its consequences. With this scenario, it would be appropriate to give educational intervention to girls at school level itself. Therefore, increased knowledge about menstruation

right from childhood may escalate safe practices and may help in mitigating the suffering of millions of women.

INTRODUCTION

Good menstrual hygiene is fundamental to health, hygiene, education, work and wellbeing of women's and girl's everywhere. Menstruation is a natural part of human existence. Yet it has been neglected and under researched by the water, sanitation and hygiene (wash), sector as well as the health and education sector.The menstrual cycle is the regular natural change in the female reproductive system (specifically the uterus and ovaries) that makes pregnancy possible. The cycle is required for the production of oocytes, and for the preparation of the uterus for pregnancy. Up to 80% of women report having some symptom during the one to two weeks prior to menstruation.Common symptoms include acne, tender breast, bloating, feeling tried, irritability and mood change. These spots symptoms interfere with normal life and their force quality as premenstrual syndrome in 20 to 30% of women. In 3 to 8% they are severe.The first period usually beings between 12 and 15 year of age, a point in time know as menarche. They may occasionally start as 8, and this onset may still be earlier in developed world. The typical length of the first day of the next is 21 to 55 days is young women and 21 to 35 days in adult (an average of 28 days). Menstruation stops occurrence after menopause usually occurs between 25 and 55 year of age. Bleeding usually lasts around 2 to 7 days.The menstrual cycle is governed by hormonal changes. These changes can be altered by using hormonal birth control to prevent pregnancy. Each cycle can be divided into their phases based on the event in the ovary (ovarian cycle) or in the uterus (uterine cycle). The ovarian cycle is divided into menstruation, proliferative phase, and secreatory phase.

OBJECTIVES OF THE STUDY:

❖ To assess the knowledge of menstruating girls of B.Tech. regarding menstrual hygiene.

❖ To assess the effectiveness of structural teaching programme on knowledge regarding menstrual hygiene among menstruating girls of B.Tech.

❖ To find out the association between the pre-test knowledge score and the selected demographic variables such as age, monthly income, occupation of family, type of family, religion, knowledge of mother, and recreational facilities in family.

HYPOTHSESIS:

H0₁: There is no significant difference between pre-test and post-test knowledge scores regarding menstrual hygiene among menstruating girls of B.Tech.

H0₂: There is no significant association between pre-test knowledge scores with their demographic data regarding menstrual hygiene among menstruating girls of B.Tech.

H₁: There is significant difference between pre-test and post-test knowledge scores regarding menstrual hygiene among menstruating girls of B.Tech.

H₂: There is significant association between pre-test knowledge scores with their demographic data regarding menstrual hygiene among menstruating girls of B.Tech.

METHODOLOGY

RESEARCH APPROACH:

In this study research approach is Evaluative Approach.

RESEARCH DESIGN: Pre experimental one group pre-test post-test design.

Sample size: The sample size of the present study will be consist of 90 menstruating Girls.

Sample- Menstrual girls

Sample size - 90

Sampling Technique- Purposive Sampling Technique

DESCRIPTION OF THE TOOL

Semi structured Questionnaires were used (Annexure Enclosed)

A Self-administered, pre-tested and semi-structured Questionnaire (vernacular) was used for data collection. The questionnaire had six parts which are as follows:

First　　　　　— Socio demographic profile

Second　　　　— Menarche and Menstruation details

Third　　　　　— Knowledge regarding menstruation & Menstrual Hygiene

Fourth　　　　— Attitude of participants towards Menstruation & Menstrual　hygiene Fifth Practices

during menstruation.

Sixth　　　　　— Restrictions faced by participants during menstruation.

DATA COLLECTION PROCEDURE:

Pre-test sessions: After explaining the purpose of the study to the participants, the study was conducted in class room of the batches selected. Confidentiality was ensured. All ethical principles were adhered during data collection. Questions were explained to the students and they were asked to answer them without discussing among themselves. It was made sure that all the questions were answered by the participants. On completing the pre-test, interventions were given as per the group.

Intervention sessions: 1st session: Through interaction and group discussion for 30 mins.

2nd session: Flipbooks, pamphlets were used for health education for 45 mins. 3rd session: Audio Visual aids (PowerPoint presentation) for 30 mins.

Intervention sessions were given at b.tech. 1st year class room for 1st session and Computer class room which had Audio Visual support for remaining sessions. Above mentioned sessions were given for 3 months with one-month interval between sessions. The health education was given in English, vernacular language to facilitate better understanding among the participants.

Post-test sessions:Health education sessions were carried out for 3 months for each batches of students of group I & II. Following intervention an interval of 3 months was given and then post test was conducted.Post-test questionnaire assessed participants' knowledge and practices. Participants who left the Batches or who were absent on the day of post-test were followed up by two visits again to collect data. Participants who were not available even after two visits were considered to be loss to follow up and were excluded from the study. Once the post was completed in all three groups, Health education was given to schools in control group to create awareness to the participants.

RESULTS

In the present study, totally 540 girls were enrolled for study. During follow up, 90 participants were available for post-test and 02 girls were considered as loss to follow up and excluded from the study. The numbers of participants were 50, 50, and 20 in group I, II and III respectively. Health Educational intervention was given through Peers, directly by researcher and no intervention for groups I, II and III respectively.

Results of this study are presented under the following headings

1. Distribution of study participants based on socio-demographic characteristics
2. Distribution of participants based on information regarding menstruation
3. Baseline knowledge, attitude, practices regarding menstruation and menstrualhygiene
4. Distribution of participants based on restrictions faced during menstruation
5. Comparison of Baseline and follow-up Knowledge within groups
6. Comparison of Baseline and follow-up Practice within groups
7. Comparison of Follow-up Knowledge score between groups
8. Comparison of Follow-up Practice score between groups

5.1   DISTRIBUTION OF STUDY PARTICIPANTS BASED ON SOCIO- DEMOGRAPHIC CHARACTERISTICS

Figure 6: Distribution of Study Participants based on Age
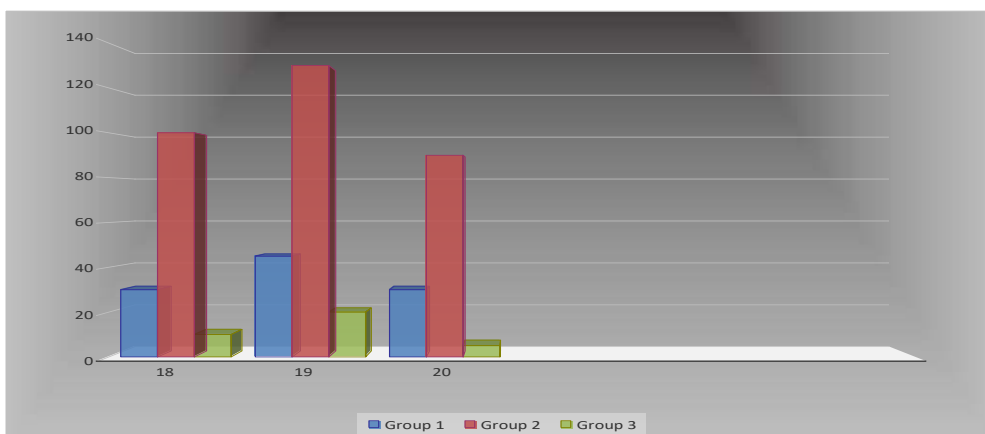
The age wise distribution of study participants are given in Figure 6. Majority i.e., 73% of participants were in the age group of 18 years followed by 19 and 20 yrs. There is no significant difference (p>0.05) in

age distribution between the groups.

Table 2: Socio- Demographic Profile of the Study Population

CHARACTERISTICS	INTERVENTIONGROUP I Peer Education N = 50		INTERVENTIONGROUP II Direct Education N = 50		CONTROL GROUP III No Intervention N = 20		Chi-Square value	P-Value
	n	(%)	n	(%)	n	(%)		
1. Family type								
Nuclear	130	(79.8)	131	(81.4)	131	(79.4)	0.225	0.894
Joint	33	(20.2)	30	(18.6)	34	(20.6)		
2. Religion								
Hindu	159	(97.5)	150	(93.2)	161	(97.6)	5.581	0.061
Non-Hindu	4	(2.5)	11	(6.8)	4	(2.4)		
3.Mother's Education								
Illiterate	49	(30.1)	57	(35.5)	62	(37.6)	2.170	0.338
Literate	114	(69.9)	104	(64.5)	103	(62.4)		
4. Father's Education								
Illiterate	43	(26.4)	51	(31.7)	51	(30.9)	1.278	0.528
Literate	120	(73.6)	110	(68.3)	114	(69.1)		
5.Mother's Occupation								
Unemployed	42	(25.2)	26	(16.1)	43	(24.8)	5.873	0.053
Employed	121	(74.8)	135	(83.8)	122	(75.1)		
6.Father's Occupation								
Unemployed	23	(14.1)	16	(10.0)	10	(6.0)	5.895	0.052
Employed	140	(85.9)	145	(90.0)	155	(93.9)		
7. House type								
Kutcha	70	(42.9)	75	(46.6)	77	(46.7)	6.638	0.156
Semi-pucca	60	(36.8)	63	(39.1)	71	(43.0)		
Pucca	33	(20.2)	23	(14.3)	17	(10.3)		

The socio-demographic profile of the study population distributed in each group iscompared in Table 2. Among the participants, almost 80% were from nuclear family, 77.9% and 89.9% of participants, 45.4% live in kutcha type of house. All the socio-demographiccharacteristics were found to be similar in all three groups.

Table 3: Distributions of Study participants based on Socio-Economic Status

SOCIO-ECONOMIC STATUS	INTERVENTION GROUP I Peer EducationN = 50 n (%)		INTERVENTION GROUP II Direct EducationN =50 n (%)		CONTROL GROUP III No InterventionN = 20 n (%)	
I (≥ 6254)	0	(0.0)	1	(0.6)	7	(4.2)
II (3127 6253)	4	(2.4)	2	(1.2)	8	(4.8)
III (1876 3126)	49	(30.1)	46	(28.5)	48	(29.1)
IV (938 1875)	98	(60.1)	102	(63.3)	91	(55.2)
V (< 938)	12	(7.4)	10	(6.2)	11	(6.7)

Socio economic status was classified based on Modified B.G.Prasad scale and is given in Table 3. More than half of participants i.e., 59.5% of the study participants belonged to B.tech 1st year and 2nd year.
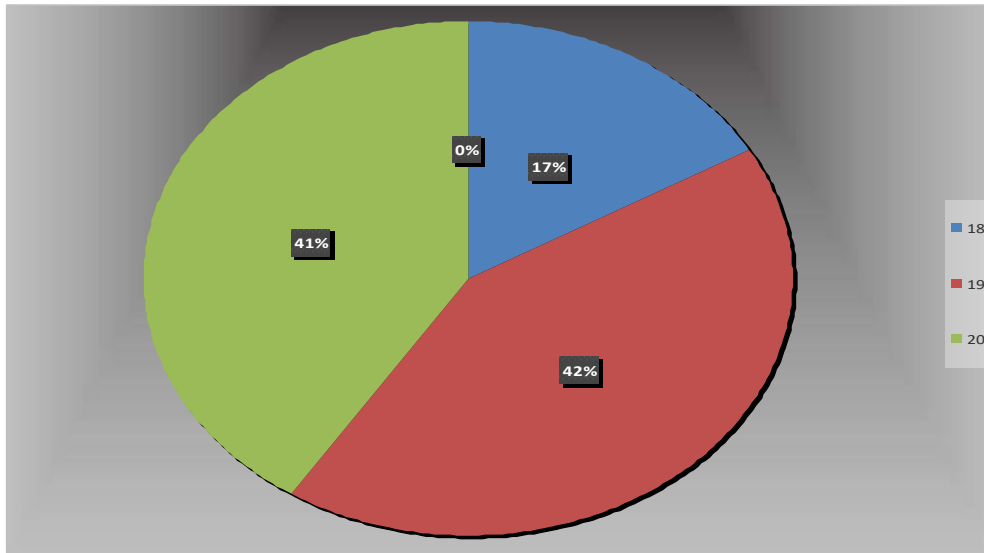
5.2 DISTRIBUTION OF PARTICIPANTS BASED ON INFORMATIONREGARDING MENSTRUATION

Table 4: Information regarding Menarche & Menstruation

CHARACTERISTICS	INTERVENTION GROUP I Peer EducationN = 50 n (%)		INTERVENTION GROUP II Direct EducationN = 50 n (%)		CONTROLGROUP III No Intervention N = 20 n (%)	
Age at menarche						
<12	55	(33.7)	51	(31.7)	60	(36.4)
13	86	(52.8)	102	(63.4)	88	(53.3)
>14	22	(3.5)	8	(4.9)	17	(10.3)
Regularity of menstrual cycles						
Regular cycles	138	(84.7)	134	(83.3)	134	(81.2)
Irregular cycles	25	(15.3)	27	(16.7)	31	(18.8)
Source of information						
Friends	27	(16.5)	25	(15.5)	16	(9.6)
Mother	34	(20.8)	31	(19.2)	41	(24.8)
Aunt	28	(17.1)	41	(25.4)	52	(31.5)
Sister	60	(36.8)	42	(26.0)	45	(27.2)
Others	14	(8.5)	22	(13.6)	11	(6.6)

Table 4 gives information regarding Menarche and Menstruation. Age at Menarche in 56.5% participants was 18 years. It is found to be similar in all three groups.

Among the participants, 83% of them were having regular menstrual cycles whereas, 17% girls had irregular cycles.

Figure 7: Source of information at Menstruation

The Source of information regarding menstruation is given above in Figure 7. About 17% of the girls answered that their source of information was 18 years of girls. Following that, 42% girls answered as 19 years of age. About 41% girls answered 20 years of age.

Table 5: Mean Distributions of Menarche & Menstruation Details

CHARACTERISTICS	INTERVENTION GROUP I Peer EducationN = 50 Mean (SD)		INTERVENTION GROUP II Direct EducationN = 50 Mean (SD)		CONTROLGROUP III No InterventionN = 20 Mean (SD)	
Age at Menarche(years)	12.79	(0.68)	12.69	(0.66)	12.69	(0.73)
Duration of menstruation(days)	4.71	(1.15)	4.68	(1.14)	5.03	(1.23)
Interval between cycles(days)	29.80	(3.21)	29.50	(3.80)	29.10	(3.49)

Mean Distribution of Menstruation details is given in Table 5. The Mean age of Menarche is 12.7 years (± 0.66) and it is equally distributed among all the three groups. Mean duration of menstruation cycle and Mean interval between cycles were 4.71 days ($\pm$ 1.15) and 29.50 days (± 3.50) respectively and it is equally distributed among all the three groups. A one-way analysis of variance (ANOVA) was calculated for comparing the mean age at menarche, Mean duration of cycle and Mean interval between the cycles. It was found that the difference was insignificant ($P>0.05$)

**5.2 BASELINE KNOWLEDGE, ATTITUDE,PRACTICES REGARDINGMENSTRUATION AND MENSTRUAL HYGIENE**

5.2.1 Pre-test results comparing Knowledge among Study Participants

Table 6: Baseline Knowledge regarding Menstruation and Menstrual hygiene among Study Population

Questions asked (Correct response)	INTERVENTIONGROUP I Peer EducationN = 50		INTERVENTION GROUP II Direct EducationN = 50		CONTROL GROUP III No InterventionN = 20	
	n	(%)	n	(%)	n	(%)
1. What is Menstruation	68	(41.7)	96	(59.6)	96	(58.2)
2.Cause of Menstruation	57	(35.0)	64	(39.8)	79	(47.9)
3.From where does the blood flow during menstruation	20	(12.3)	46	(28.6)	47	(28.5)
4.Does food affect menstruation	84	(51.5)	89	(55.3)	95	(57.6)
5.Have you heard about Menstrual Hygiene	89	(54.6)	107	(66.5)	98	(59.4)
6.Poor hygiene leads to infection	62	(38.0)	90	(55.9)	87	(52.4)
7.Normal duration of menstruation	52	(31.9)	58	(36.0)	49	(29.7)
8.Normal interval of menstrual cycle	44	(26.9)	31	(19.2)	42	(25.5)
9.Age at Menopause	53	(32.5)	52	(32.2)	46	(27.8)
10.Menstruation indicates fertility	72	(44.2)	89	(55.3)	82	(49.7)

Pre-test knowledge assessment and its distribution among groups are given in Table 6. About 53.1% of participants were able to answer that Menstruation was aPhysiological process and 40.9% of girls were aware that it is caused by hormones. Among the study participants, 23.1% answered that menstrual blood flows from uterus. More than half (54.8%) of girls said that food doesn't affect menstruation. Almost 60.1% girls said that they have heard about menstrual hygiene and 48.7% were aware that poor menstrual hygiene can lead to infection and reproductive tract diseases. About 32.5%, 14.9% and 30.8% of girls had correct knowledge regarding normal duration of menstrual cycle, normal interval between cycles and age at menopause respectively. Almost 49.7% girls were aware that menstruation indicates fertility.

Figure 8: Distribution of Baseline Knowledge Score among groups
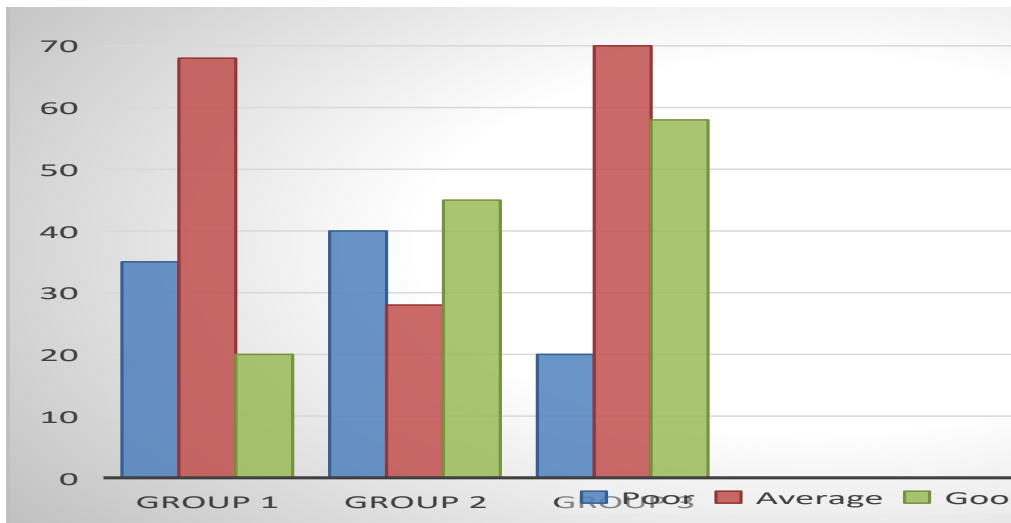
The knowledge score were demarcated into Poor, Average, and Good and is given in Figure 8. Mean score was calculated for each group to facilitate comparison. The pre- test Knowledge Mean scores (SD) were 35, 68 and 20 for group I, II and III respectively. A one-way analysis of variance (ANOVA) was done and showed that the difference of mean Knowledge score between the groups were not significant (P value>0.05).

5.22 PRE-TEST RESULTS SHOWING ATTITUDE OF THE STUDYPOPULATION

Table 7: Distribution of Study Population based on their Attitude towardsMenstruation and Menstrual hygiene

Questions asked	INTERVENTION GROUP I Peer Education N =50		INTERVENTION GROUP II Direct Education N = 50		CONTROL GROUP III No Intervention N = 20	
	n	(%)	n	(%)	n	(%)
1.How did you feel at Menarche						
Afraid	102	(62.6)	82	(51.6)	84	(50.9)
Embarrassed	26	(16.0)	32	(19.9)	34	(20.6)
Guilty	2	(1.2)	5	(3.1)	4	(2.4)
Nothing	33	(20.2)	41	(25.5)	43	(26.1)
2. How do feel when you don't get periods						
Happy	47	(28.8)	37	(23.0)	25	(15.2)
Afraid	57	(35.0)	64	(39.8)	60	(36.4)
Worried	37	(22.7)	41	(25.5)	51	(30.9)
Nothing	22	(13.5)	19	(11.8)	29	(17.6)
3.Is it better to know about menstruation before attaining menarche						

Yes	97	(59.5)	114	(70.8)	112	(67.9)
No	66	(40.5)	47	(29.2)	53	(32.1)
4.Educating girls regarding M & MH is necessary						
Yes	139	(85.3)	135	(83.9)	130	(78.8)
No	24	(14.7)	47	(15.5)	35	(21.2)

The fourth part of Questionnaire was intended to explore the Attitude of participants towards Menstruation and menstrual hygiene. When questioned regarding first reaction towards menarche about 50% of participants responded that they were afraid. Among the participants 22.3% answered that they were happy when they don't get periods. 82.6% of the participants responded that educating girls regarding Menstruationand Menstrual Hygiene is necessary. The results are tabulated in above Table 7.

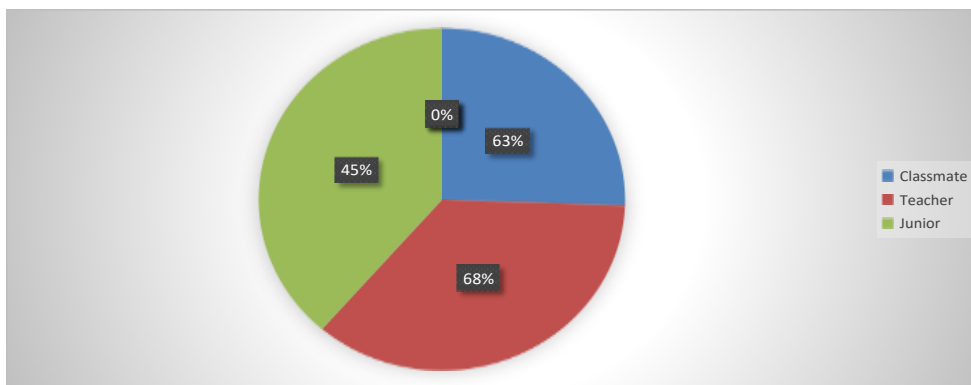## Figure 9: Participants' preferred persons to discuss Menstrual issues

Figure 9 shows to who are the participants were comfortable to discussmenstruation related issues. When the participants were questioned "To whom are they comfortable to discuss Menstruation and Menstrual hygiene related issues?". about 49% of girls responded as friends, followed by mother and sister. About 8% of the girlsanswered others which included teachers, aunt and grandmother.

## 5.2.2PRE-TEST RESULTS COMPARING THE MENSTRUAL HYGIENE PRACTICES OF THE STUDY POPULATION

Table 8: Baseline Assessment of Menstrual Hygiene Practices of Study Population

Questions asked	INTERVENTIONGROUP I Peer Education N = 50		INTERVENTION GROUP II Direct Education N = 50		CONTROL GROUP III No Intervention N = 20	
	n	(%)	n	(%)	n	(%)
1.Absorbent used Sanitary Napkin	163	(100.0)	161	(100.0)	165	(100.0)
2.Frequency of changing absorbent during day						
≤ 2	36	(22.1)	43	(26.7)	49	(29.7)
≥ 3	127	(77.9)	118	(73.3)	1.16	(70.3)
3.Change absorbent before sleep						
YesNo	100	(61.3)	92	(57.1)	102	(61.8)
	63	(38.7)	69	(42.9)	63	(38.2)
4.Disposal of used absorbent						

Fair Practice	143	(87.7)	122	(75.8)	145	(87.9)
Poor Practice	20	(12.3)	39	(24.2)	20	(12.1)
5.Regular cleaning of genitalia						
Fair Practice	98	(60.1)	70	(43.5)	83	(50.3)
Poor Practice	65	(39.9)	91	(56.5)	82	(49.7)
6.Materials used for cleaning						
Water with soap	88	(54.0)	72	(44.7)	90	(54.5)
Water only	48	(29.4)	53	(32.9)	62	(37.6)
Not washing regularly	27	(16.6)	36	(22.4)	13	(7.9)

Practices during menstruation was elicited in fifth part of the questionnaire and compiled in Table 8. It was found that about 100% of the participants in all three groups use sanitary napkin during menstruation. Regarding frequency of changing absorbent, 73.3% of participants answered that they change it more than 3 times in a day. They were asked whether they change pad before sleep for which 60% of participants responded yes. Burying, burning, disposing in waste bin after proper wrapping was considered to be fair practice and 83.8% girls were practicing it. About 51.3% of participants were cleaning their genitalia regularly.

Figure 10: Distribution of Baseline Practice Score among Groups
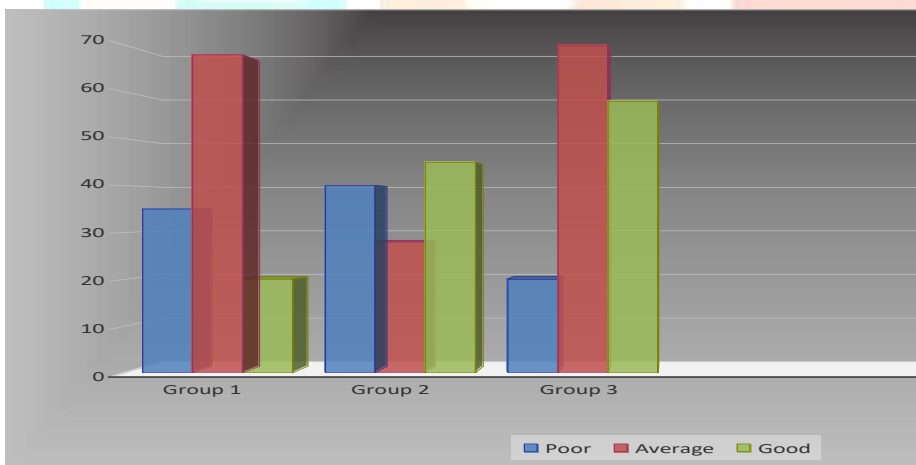
A total of 12 marks were given for practices during menstruation. The practice score was categorized into poor practice (≤ 4), Average practice (5-8) and Good practice. (≥ 9). Test practice Mean scores (SD) were 7.96(2.74), 7.71(2.54) and 8.46(2.41) for group I, II and III respectively. The practice score for each group is given in Figure 10 A one-way analysis of variance (ANOVA) was done and showed that the differenceof mean Practice score between the groups were not significant (P value>0.05).

5.3 DISTRIBUTION OF PARTICIPANTS BASED ON RESTRICTIONS FACED DURING MENSTRUATION

Figure 11: Restrictions faced by Participants during Menstruation
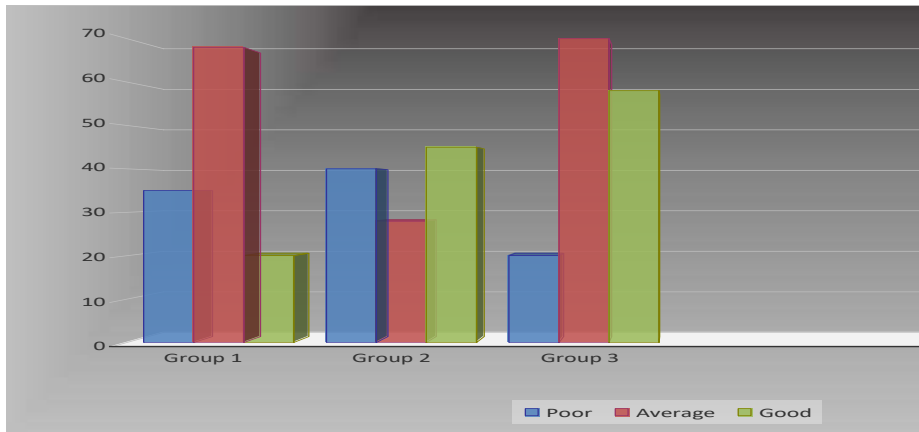
The final part of the questionnaire probed the details regarding restrictions faced by the participants and also type of restrictions during menstruation. On taking average for three groups, 76.7% of girls are facing different kinds of restriction during menstruation and it is given in Figure 11.

Figure 12: Various types of Restrictions faced by Participants duringMenstruation

Participants were asked about the various types of restriction they face during menstruation and it is depicted in Figure 12. About 74.6% of them responded that they were secluded totally and not allowed to touch anyone at house whereas 70.4% of girls were given separate utensils for eating. About 67.4% of them were restricted from entering kitchen during menstruation. Among them, 93.5% of girls faced restriction to enter Pooja room or temple and about 21% of girls were not allowed to go to batches. About 55.8% and 70.5% of girls were not allowed to play and visit neighbors or relatives respectively. About one-third of them were made to sleep on floor (74.7%) and wash their clothes separately (76.8%) during menstruation.

Table 9: Various Types of Restrictions faced by Participants during Menstruation

Types of Restrictions	INTERVENTION GROUP I Peer Education N = 50		INTERVENTION GROUP II Direct Education N = 50		CONTROL GROUP III No Intervention N = 20	
	n	(%)	n	(%)	n	(%)
Total seclusion	97	(76.3)	91	(71.6)	92	(76.0)
Separate utensils	97	(76.3)	78	(61.4)	89	(73.5)
Kitchen	90	(70.8)	79	(62.2)	84	(69.4)
Pooja/ Temple	126	(99.2)	115	(90.5)	110	(90.9)
Foods	57	(44.8)	63	(49.6)	67	(55.3)
School going	19	(14.9)	33	(25.9)	27	(22.3)
Playing	86	(67.7)	69	(54.3)	55	(45.4)
Visiting Neighbour	95	(74.8)	88	(69.2)	82	(67.7)
Sleep on floor	94	(74.0)	88	(69.2)	98	(80.9)
Wash clothes	104	(81.8)	87	(68.5)	97	(80.1)

The comparison of restrictions during Menstruation between each group is given in Table 9. The types of restrictions were total seclusion, to use separate utensils, not allowed to enter or cook in kitchen, restricted from entering/performing Pooja, etc. It is almost similar in all three groups.

5.3 COMPARISON OF BASELINE AND FOLLOW-UP KNOWLEDGE WITHIN GROUPS

Table 10: Comparison between Baseline & Follow-Up Knowledge Score

KNOWLEDGE SCORE	BASELINE		FOLLOW-UP		PERCENTAGE CHANGE %
	n	(%)	n	(%)	
GROUP I					
Poor (0-3)	92	(56.4)	28	(17.2)	-39.2
Average (4-7)	65	(39.8)	76	(46.6)	6.8
Good (8-10)	06	(3.6)	59	(36.2)	32.4
GROUP II					
Poor (0-3)	66	(41.0)	9	(5.6)	-35.4
Average (4-7)	78	(48.4)	68	(42.2)	-6.2
Good (8-10)	17	(10.6)	84	(52.2)	41.6
GROUP III					
Poor (0-3)	67	(40.6)	49	(29.7)	-10.9
Average (4-7)	77	(46.7)	81	(49.1)	2.4
Good (8-10)	21	(12.7)	35	(21.2)	8.5

Following intervention, a Post-test was conducted and the results were compared with the Pre-test. Knowledge and practice component were elicited in the post-test. Comparison of Baseline and Follow-up Knowledge is given in Table 10. There is a decrease in number of participants who had poor knowledge in all groups but comparatively more in group I & II. The percentage of participants with good knowledge has increased by 32.4% and 41.6% in group I and II respectively.

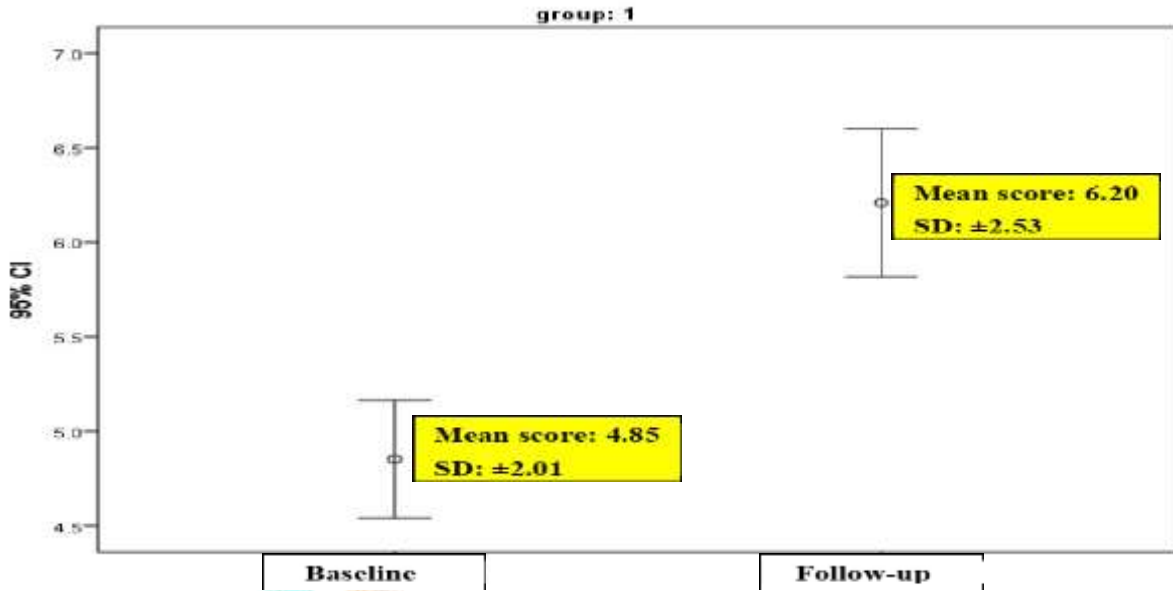**Figure 13A: Comparison of Mean Baseline & Follow-Up Knowledge Score forGroup I**

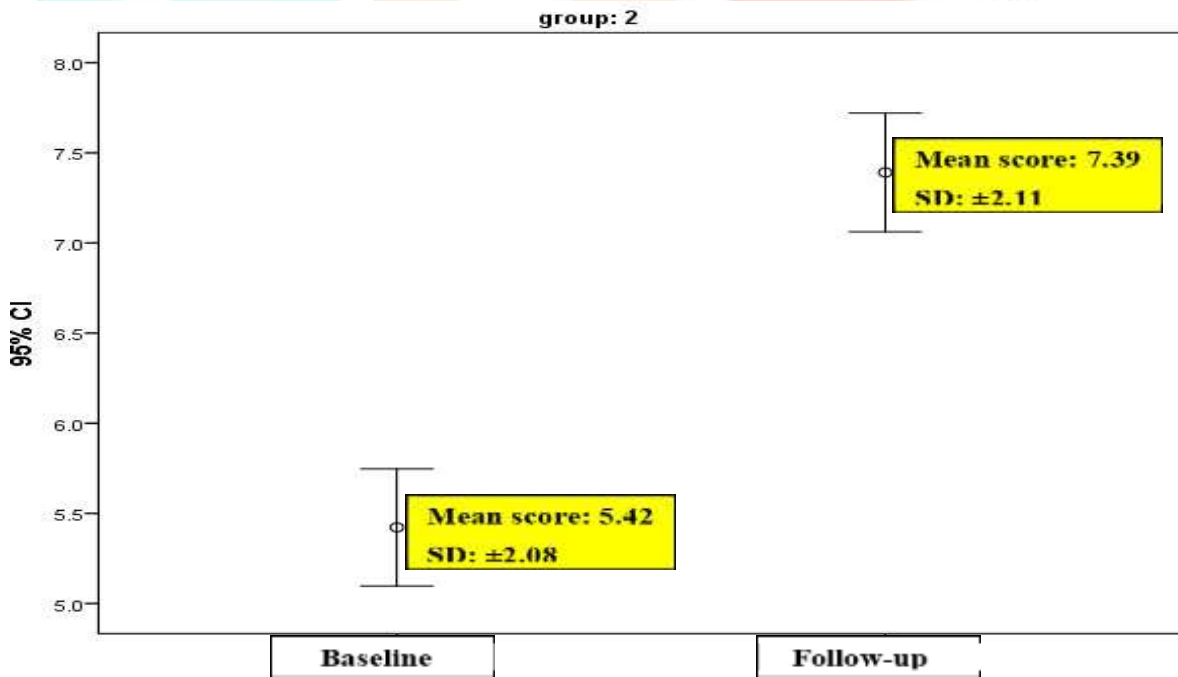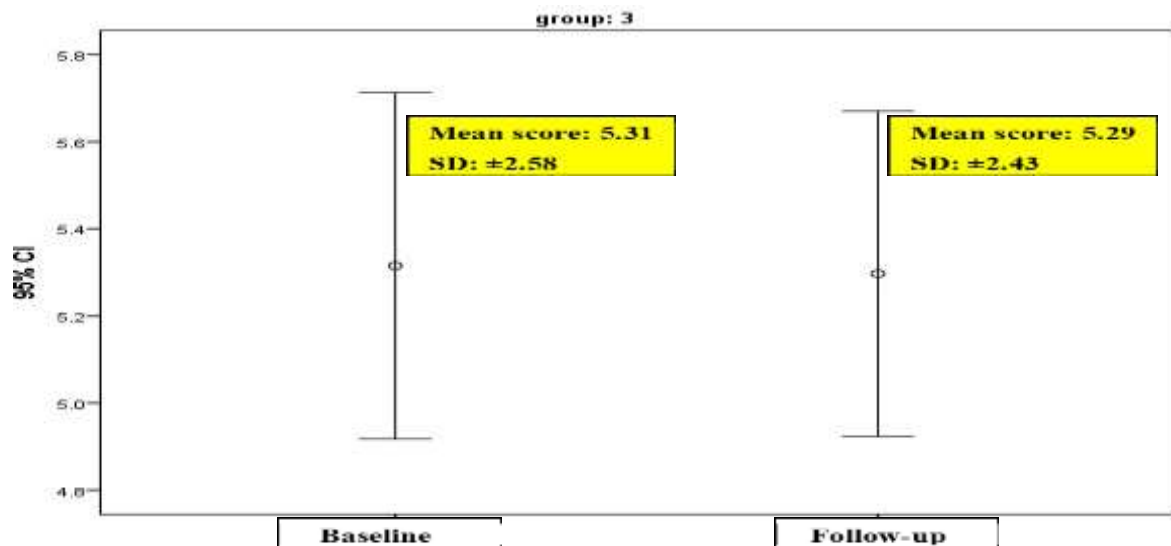**Figure 13B: Comparison of Mean Baseline & Follow-Up Knowledge Score forGroup II**

Figure 13C: Comparison of Mean Baseline & Follow-Up Knowledge Score forGroup III

The follow-up Mean Knowledge scores (SD) were 6.20 (2.53), 7.39 (2.11) and 5.30 (2.43) for groups I, II and III respectively. The Mean scores and its difference are plotted as Error bars with 95% confidence interval in figure 13A, 13B and 13C for group.

I, II and III respectively. While comparing the baseline and follow-up, there is increase of mean Knowledge score in both group I and II

Table 11: Comparison of Mean Baseline & Follow-Up Knowledge Scores andits Significance

Group	Paired Differences					t value	df	Sig. (2-tailed)
	Mean (Baseline Follow up)	SD	Standard. Error Mean	95% C.I of the Difference				
				Lower	Upper			
I	-1.35583	3.17140	.24840	-1.84635	-.86530	-5.458	162	.000
II	-1.96894	2.56277	.20197	-2.36782	-1.57006	-9.748	160	.000
III	.01818	3.21481	.25027	-.47599	.51235	.073	164	.942

The Mean difference of knowledge score and its significance are given in Table 10 On comparing Baseline and Follow-up Mean Knowledge score, there is a differencein group I & II. Paired t test confirms the result and it shows significant difference ($p < 0.05$) in Knowledge score in both group I & II. There is no significant difference in group III.

5.6 **COMPARISON OF BASELINE AND FOLLOW-UP PRACTICE WITHINGROUPS**

Table 12: Comparison between Baseline & Follow-Up Practice Score

PRACTICE SCORE	BASELINE		FOLLOW-UP		PERCENTAGECHANGE %
	n	(%)	n	(%)	
GROUP I					
Poor ≤ 4	23	(14.1)	6	(3.7)	-10.4
Average(5-8)	67	(41.1)	29	(17.8)	-23.3
Good ≥ 9	73	(44.7)	128	(78.5)	33.8
GROUP II					
Poor ≤ 4	18	(11.2)	8	(5.0)	-6.2
Average(5-8)	87	(54.0)	13	(8.1)	-45.9
Good ≥ 9	56	(34.8)	140	(86.9)	52.1
GROUP III					
Poor ≤ 4	11	(6.7)	7	(4.2)	-2.5
Average(5-8)	73	(44.2)	50	(30.3)	-13.9
Good ≥ 9	81	(49.1)	108	(65.5)	16.4

Comparison of Baseline and Follow-up Practice during Menstruation is given in Table 12. There is a decrease in number of participants who had poor practice score in all groups but comparatively more in group I & II. The percentage of participants with good practice score has increased by 33.8% and 52.1% in group I and II respectively.

Figure 14A: Comparison of Mean Baseline & Follow-Up Practice Score forGroup-I
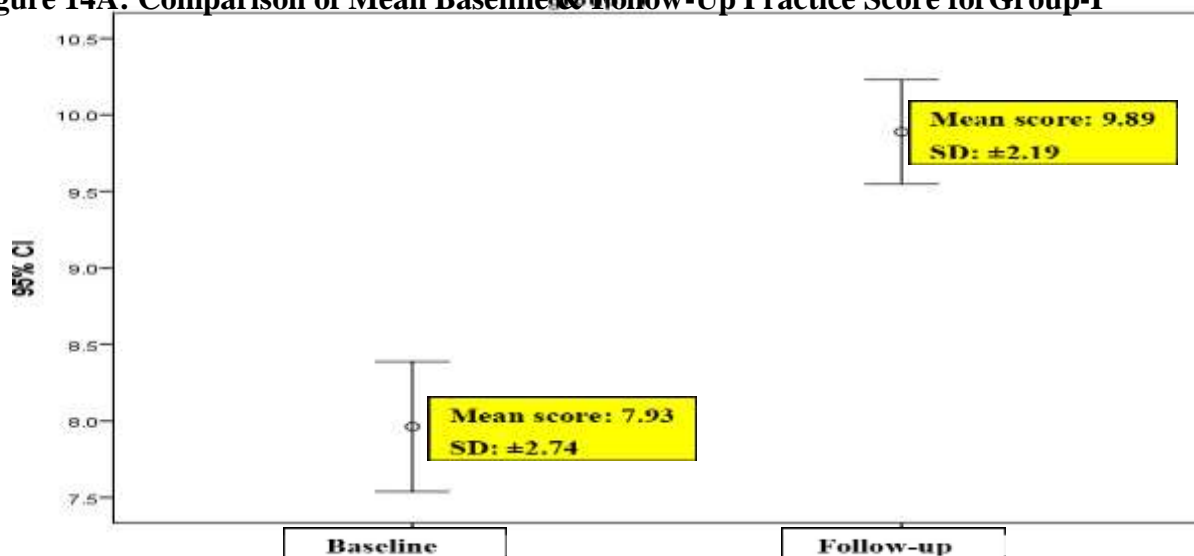
Figure 14B: Comparison of Mean Baseline & Follow-Up Practice Score forGroup II
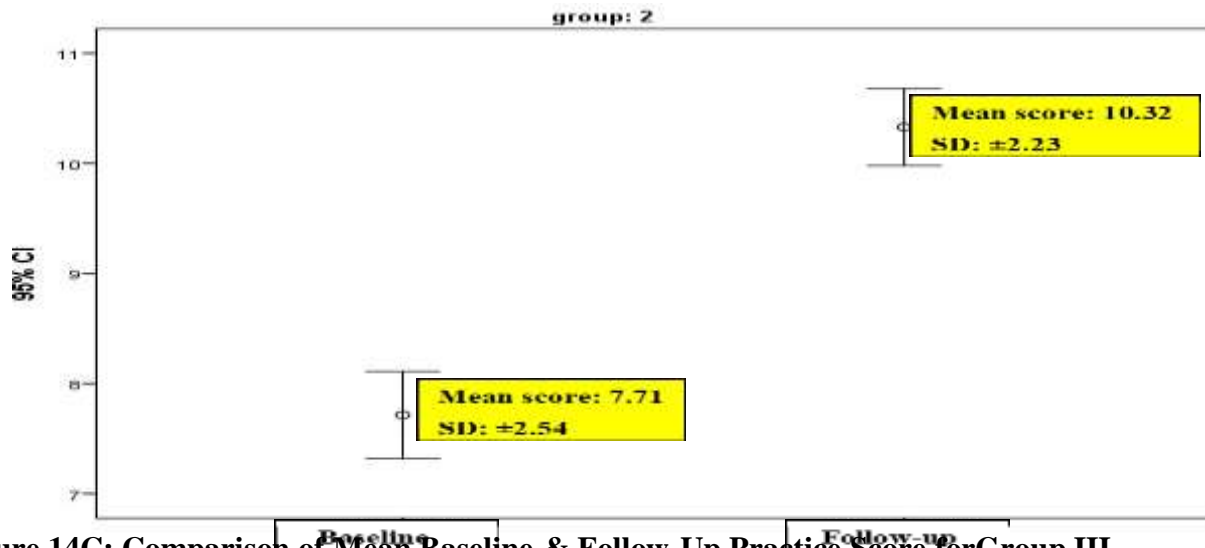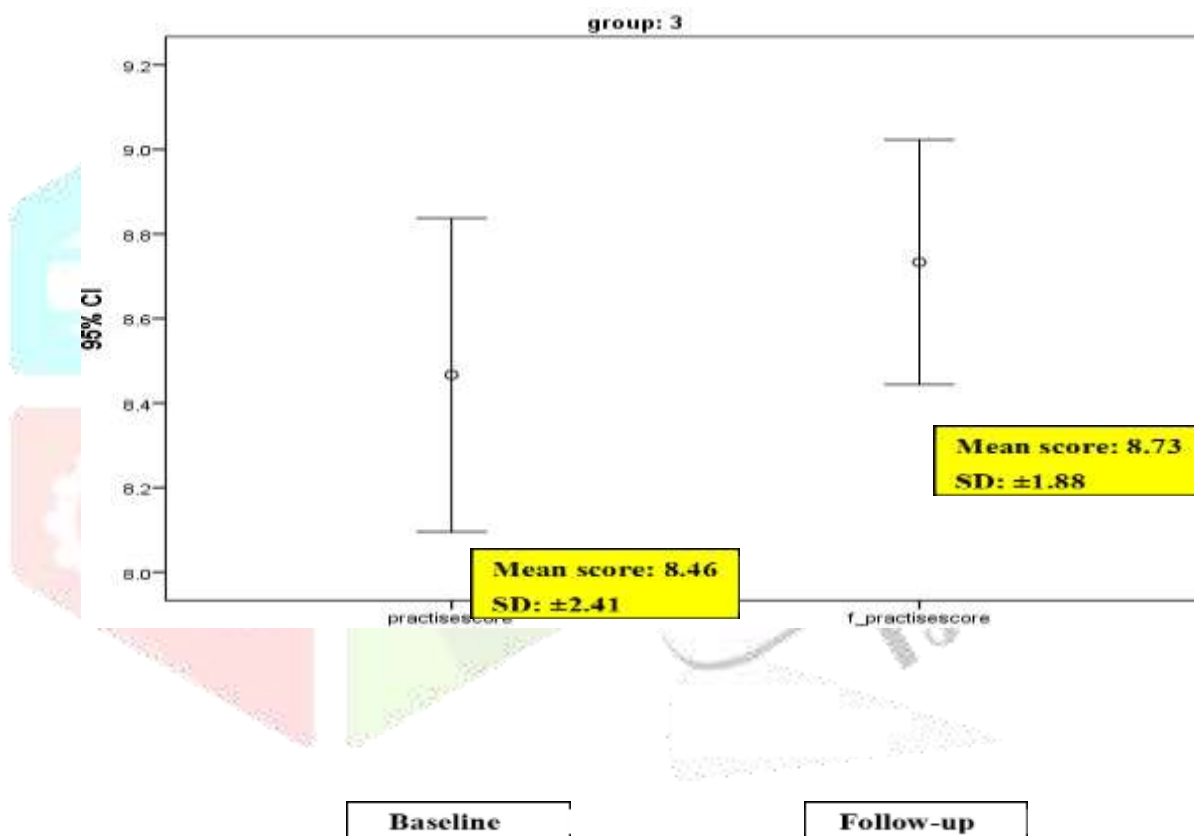

group: 2

Mean score: 10.32
SD: ±2.23

Mean score: 7.71
SD: ±2.54

Baseline   Follow-up

Figure 14C: Comparison of Mean Baseline & Follow-Up Practice Score forGroup III

group: 3

Mean score: 8.46
SD: ±2.41

Mean score: 8.73
SD: ±1.88

practisescore   f_practisescore

Baseline   Follow-up

The follow-up Mean Practice scores (SD) were 9.89 (2.19), 10.32 (2.23) and 8.73 (1.88) for groups I, II and III respectively. The Mean scores and its difference are plotted as Error bars with 95% confidence interval in Figure 14A, 14B and 14C for group I, II and III respectively. While comparing the baseline and follow-up, there is increase of Mean Practice score in both group I and II.

Table 13 Comparison of Mean Baseline & Follow-Up Practice Scores and itsSignificance

| Group | Paired Differences | | | | | t value | df | Sig. (2-tailed) |
| | Mean (Baseline Follow up) | SD | Standard. Error Mean | 95% C.I of the Difference | | | | |
				Lower	Upper			
I	1.9264	3.4669	.2715	1.3902	2.4626	7.094	162	.000
II	2.6149	3.4965	.2756	2.0707	3.1591	9.489	160	.000
III	.2667	2.5736	.2004	-.1289	.6623	1.331	164	.185

The Mean difference of Practice score and its significance are given in Table 13. On comparing Baseline and Follow-up Mean Practice score, there is a difference in group I & II. Paired t test was done and it shows significant difference ($p < 0.05$) in Practice score in both group I & II. There is no significant difference in group III
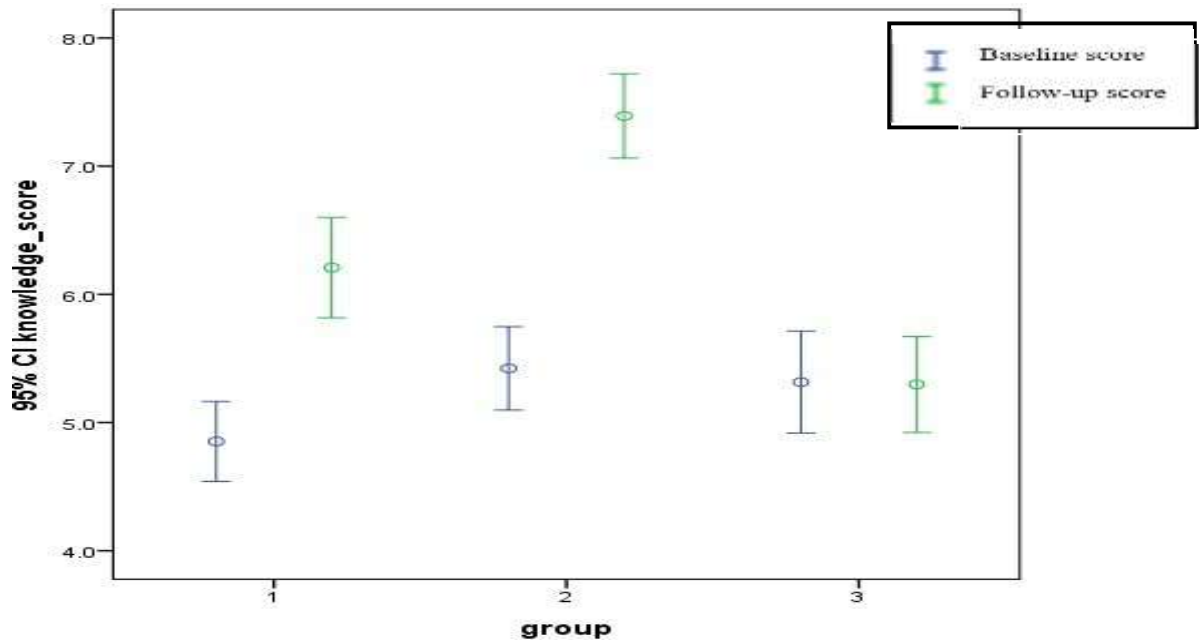
5.6 COMPARISON OF FOLLOW-UP KNOWLEDGE SCORES BETWEENGROUPS

Table 14 Comparison of Follow up Knowledge Score between Groups

Follow-up Knowledge score	Mean	SD	F	Sig.
Group I	6.209	2.5300	32.081	.000
Group II	7.391	2.1130		
Group III	5.297	2.4301		

A one-way analysis of variance (ANOVA) was calculated on follow-up knowledge score. The analysis showed significant difference $P < 0.05$ which indicates that there is Mean difference between the three groups in the follow-up scores as given in Table 14.

Figure 15: Comparison of Mean Baseline & Follow-Up Knowledge Scores between Groups

The comparison of Mean Baseline and Follow up Knowledge scores among the groups are plotted as Error bars with 95% confidence interval in Figure 15. While comparing the baseline and follow-up score among groups, there is increase of scores in both group I and II and no difference in group III

Table 15: Multiple Comparisons of Knowledge Scores between Groups

Tukey HSD (Honest Significant Difference) test

Dependent Variable	(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Follow up Knowledge Score	1	2	-1.1827*	.2629	.000	-1.801	-.565
		3	.9116*	.2612	.002	.297	1.526
	2	1	1.1827*	.2629	.000	.565	1.801
		3	2.0943*	.2621	.000	1.478	2.710
	3	1	-.9116*	.2612	.002	-1.526	-.297
		2	-2.0943*	.2621	.000	-2.710	-1.478

* The mean difference is significant at the 0.05 level

Multiple comparisons Tukey test was used to show whether groups differed from each other in knowledge aspect. It resulted that there is a statistically significant difference in knowledge score between Group I vs Group II (p=0.001), Group I vs Group III (p=0.002), Group II vs Group III (p=0.001). When comparing the mean difference, it is evident that knowledge score of Group II is comparatively more than Group I and is given in above Table 15.

5.6 **COMPARISON OF FOLLOW-UP PRACTICE BETWEEN AMONG GROUPS**

Table 16: Comparison of Follow up Practice Score between Groups

Follow-up Practice score	Mean	SD	F	Sig.
Group I	9.89	2.19	24.959	.000
Group II	10.32	2.23		
Group III	8.73	1.88		

A one-way analysis of variance (ANOVA) was calculated on follow-up Practice score. The analysis was significant P< 0.05 which indicates that there is Mean difference between the three groups in the follow-up practice scores as given in Table 16.

Figure 16: Comparison of Mean Baseline & Follow-up Practice Scoresbetween groups
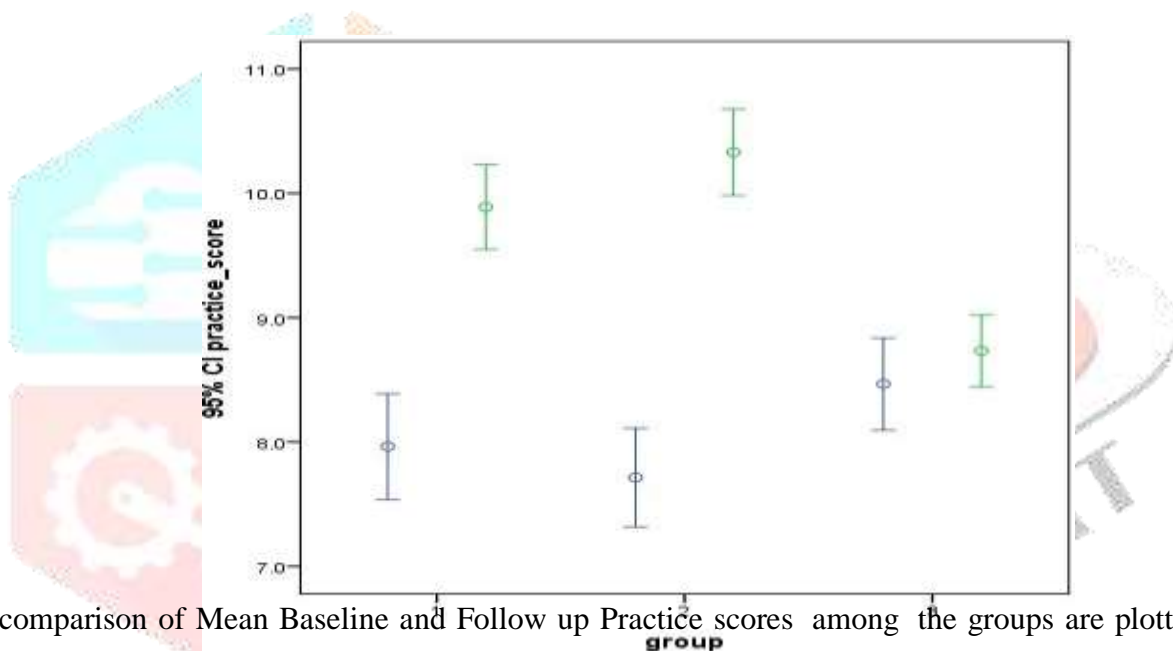
The comparison of Mean Baseline and Follow up Practice scores among the groups are plotted as Error bars with 95% confidence interval in Figure 16. While comparing the baseline and follow-up score among groups, there is increase of scores in both group I and II and no difference in group III.

Table 17: Multiple Comparisons of Practice Scores between GroupsTukey HSD (Honest Significant Difference) test

Dependent Variable	(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Follow-up Practice Score	2 1 3		-.4396	.2345	.147	-.991	.112
			1.1562*	.2330	.000	.608	1.704
			.4396	.2345	.147	-.112	.991
	2	1	1.5959*	.2337	.000	1.046	2.145
		3	-1.1562*	.2330	.000	-1.704	-.608
	1 3 2		-1.5959*	.2337	.000	-2.145	-1.046

The mean difference is significant at the 0.05 level

Multiple comparisons Tukey test was used to show whether groups differed from each other in practice aspect. It showed that there is a statistically significant difference in practice score between Group I vs Group III (p=0.001), Group II vs Group III (p=0.001). However, there were no differences between the Group I and Group II ($p = 0.147$). When comparing the mean difference, it is evident that knowledge score of Group II is comparatively more than Group I and is given in above Table 170.

RECOMMENDATIONS

1. Taking into account the health implications and prevailing socio-cultural and economic factors, effective strategies should be implemented to persuade adolescent school girls to adopt healthy menstrual practices.

2. A well-informed continuous, school education programme should be delivered to students at early age itself.

3. Information on safe hygiene and sanitary practices should be included in the school curriculum, and that there should be better communication between female students and their teachers, and between daughters and mothers.

4. It is important to impart such education to the teenage girls and teachers, extending it to their family members, especially mothers, will be a blessing in disguise.

CONCLUSION

The health of adolescent girl has always been an important social goal of all societies. Over the years, Adolescent health has evolved through various stages. By improving adolescent girls health we can render a healthy population.

The findings led to the conclusion that the students have deficient knowledge, various misconceptions and inadequate practices regarding menstruation and its management at baseline assessment. The positive results of this study demonstrate the feasibility of implementing a health education programme on menstrual hygiene at schools especially age group of 18, 19 and 2 0 years. The intervention produced significant positive changes in Knowledge and Menstrual hygiene practices among both peer led and direct intervention group. This concludes that educational intervention can bring about many changes in a less discussed topic like menstruation.

An important finding of this study was that sanitary napkins were used by all study participants which was the reason of better menstrual hygienic practices among them. Programme for providing free sanitary pads to be implemented country wide to provide our adolescent girls with a better menstrual experience and hygiene. Menstrual issues should be addressed at younger age itself to reduce the sufferings of adolescent girls. This will ensure the health of the girls, which can be regarded as the index of a healthy society.