Chapter - IV

ANALYSIS OF THE DATA AND RESULT OF THE STUDY

OVERVIEW

This chapter deals with the analysis of data collected from the subjects under the study. The purpose of this study was to find out the effect of isolated and combined practice of naturopathy and yogasana on selected physiological, biochemical and psychological variables in menstrual irregularity women. The four groups namely experimental group- I (naturopathy) , experimental group- II- (yogasana), experimental group- III Combined (naturopathy with yogasana) and group- IV (Control group, No training was provided) were analyzed with the differences in the measures of selected physiological, biochemical and psychological variables in menstrual irregularity women to pre - test and post- test.

The subjects are selected at random but the groups were not equated in relation to factors to be examined. Hence the difference between the means at the four groups in the pre - test had to be taken in to account during the analysis of the post - test difference between the means. This was achieve by the final means were adjusted for differences in the initial means and the adjusted means were tested for significance. When the post –test means were significance, the Scheff's hoc test was administered to find out the paired means significance difference.

COMPUTATION OF ANALYSIS OF CO VARIANCE AND SCHEFFE'S POST HOC TEST

The following tables illustrate the statistical result of effect of isolated and combined practice of naturopathy and yogasana on selected physiological, biochemical and psychological variables in menstrual irregularity women. The ordered adjusted means and differences between the means of the groups under study were given in the following tables.

RESULTS ON SYSTOLIC BLOOD PRESSURE

The physiological variable systolic blood pressure was measured through Sphygmomanometer and stethoscope. The results on the effect of isolated and combined practice of naturopathy and yogasana on systolic blood pressure in menstrual irregularity women is presented in table VII.

Table VII

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON SYSTOLIC BLOOD PRESSURE OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	148.40	147.13	147.73	147.20	Between	15.52	3	5.17	0.09
					Within	3368.67	56	60.15	
Post Test Mean	135.07	134.93	133.07	144.13	Between	1113.07	3	371.02	6.25*
					Within	3326.53	56	59.40	
Adjusted Post Test Mean	134.63	135.20	133.00	144.36	Between	1182.04	3	394.01	9.45*
					Within	2293.35	55	41.70	
Mean Diff	13.33	12.20	14.67	3.07					

*Significant at 0.05 level

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

Table VII shows that the pre test mean scores of Systolic blood pressure (Experimental group I naturopathy was 148.40, Experimental group II yogasana was 147.13, Experimental Group III Combined (naturopathy & yogasana) was 147.73 and control group was 147.2. The post test means showed differences due to twelve weeks of Naturopathy, yogasana and combined (naturopathy & yogasana) and mean values recorded were 135.07, 134.93, 133.07 and 144.13 respectively.

The obtained F value on pre test scores 0.09 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant

difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 6.25 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 9.45 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of Naturopathy, yogasana and combined (naturopathy & yogasana) on the systolic blood pressure.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table VIII.

TABLE - VIII

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF SYSTOLIC BLOOD PRESSURE

Experimental Group – I (Naturopathy)	**Experimental Group – II (Yogasana)**	**Experimental Group – III (Combined)**	**Control Group**	**Mean difference**	**Required C.I**
134.63	135.20	-	-	0.57	6.74
134.63	-	133.00		1.63	6.74
134.63			144.36	9.73*	6.74
	135.20	133.00		2.20	6.74
	135.20		144.36	9.16*	6.74
		133.00	144.36	11.36*	6.74

***** Significant

Table-VIII shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXIX.

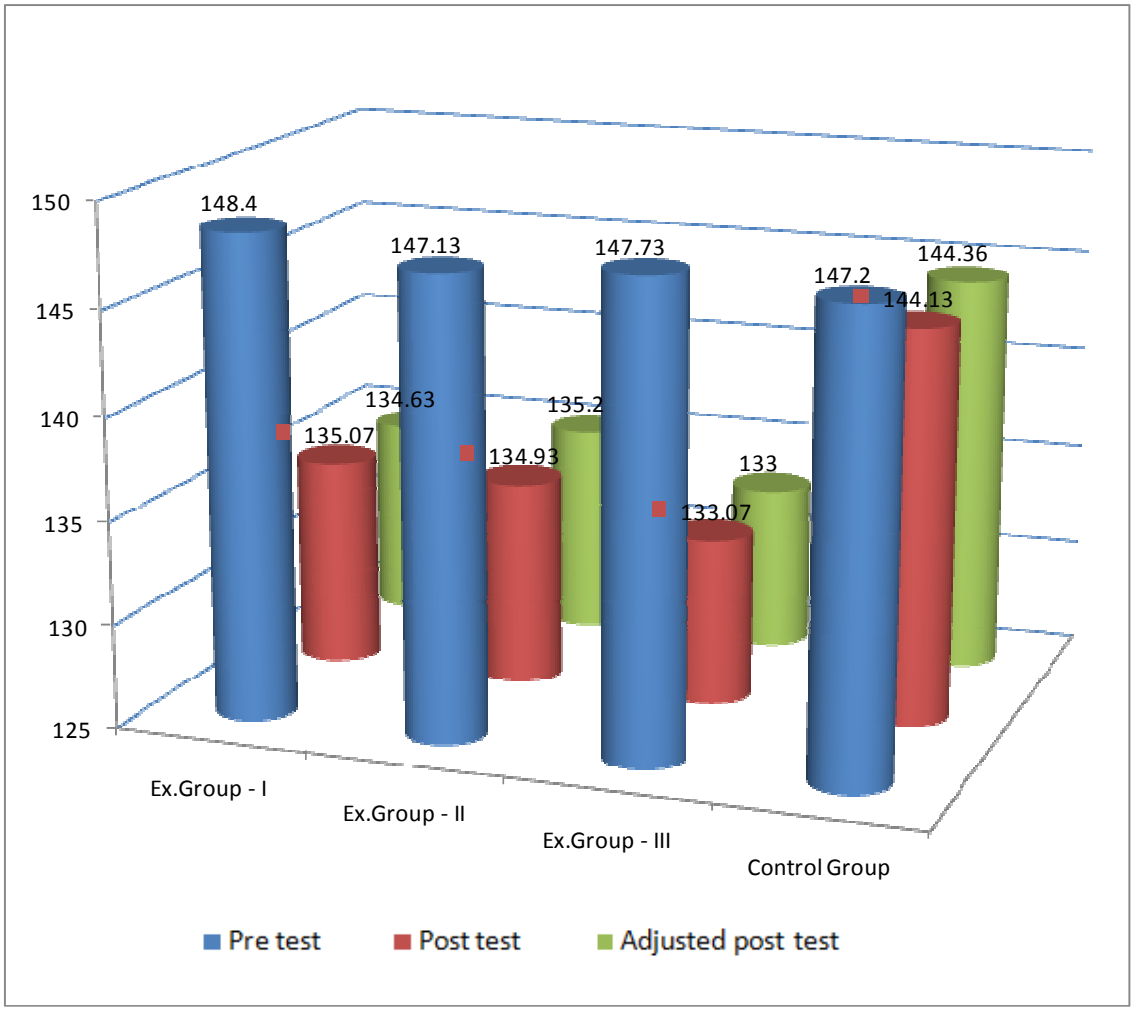

FIGURE - XXIX

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON SYSTOLIC BLOOD PRESSURE

DISCUSSIONS ON THE FINDINGS OF SYSTOLIC BLOOD PRESSURE

The results presented in Table VII showed that the obtained adjusted means on systolic blood pressure among naturopathy group was 134.63 followed by yogasana group with the mean value of 135.20 followed by combined group (naturopathy and yogasana) mean value of 133.00 and control group mean value of 144.36. The difference among pre test scores Post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.09, 6.25 and 9.45 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in systolic blood pressure than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on **systolic blood pressure** has in line with the study conducted by **Bowman, et.al., (2007*)***.

RESULTS ON DIASTOLIC BLOOD PRESSURE

The physiological variable diastolic blood pressure was measured through Sphygmomanometer and stethoscope. The results on the effect of isolated and combined practice of naturopathy and yogasana on diastolic blood pressure in menstrual irregularity women is presented in table IX.

Table IX

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON DIASTOLIC BLOOD PRESSURE OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	88.87	89.47	89.60	89.07	Between	5.25	3	1.75	0.32
					Within	308.00	56	5.50	
Post Test Mean	82.40	82.87	81.40	87.20	Between	295.60	3	98.53	30.10*
					Within	183.33	56	3.27	
Adjusted Post Test Mean	82.48	82.82	81.33	87.24	Between	301.70	3	100.57	32.45*
					Within	170.47	55	3.10	
Mean Diff	6.47	6.60	8.20	1.87					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table IX shows that the pre test mean scores of diastolic blood pressure (Experimental group I naturopathy was 88.87, Experimental group II yogasana was 89.47, Experimental Group III Combined (naturopathy & yogasana) was 89.60 and

control group was 89.07. The post test means showed differences due to twelve weeks of naturopathy, yogasana and combined training (naturopathy & yogasana) and mean values recorded were 82.40, 82.87, 81.40 and 87.20 respectively.

The obtained F value on pre test scores 0.32 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 30.10 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 32.45 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined training (naturopathy & yogasana) on the diastolic blood pressure.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table X.

TABLE – X

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF DIASTOLIC BLOOD PRESSURE

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
82.48	82.82	-	-	0.34	1.84
82.48	-	81.33		1.15	1.84
82.48			87.24	4.76*	1.84
	82.82	81.33		1.49	1.84
	82.82		87.24	4.42*	1.84
		81.33	87.24	5.91*	1.84

* Significant

Table-X shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXX.

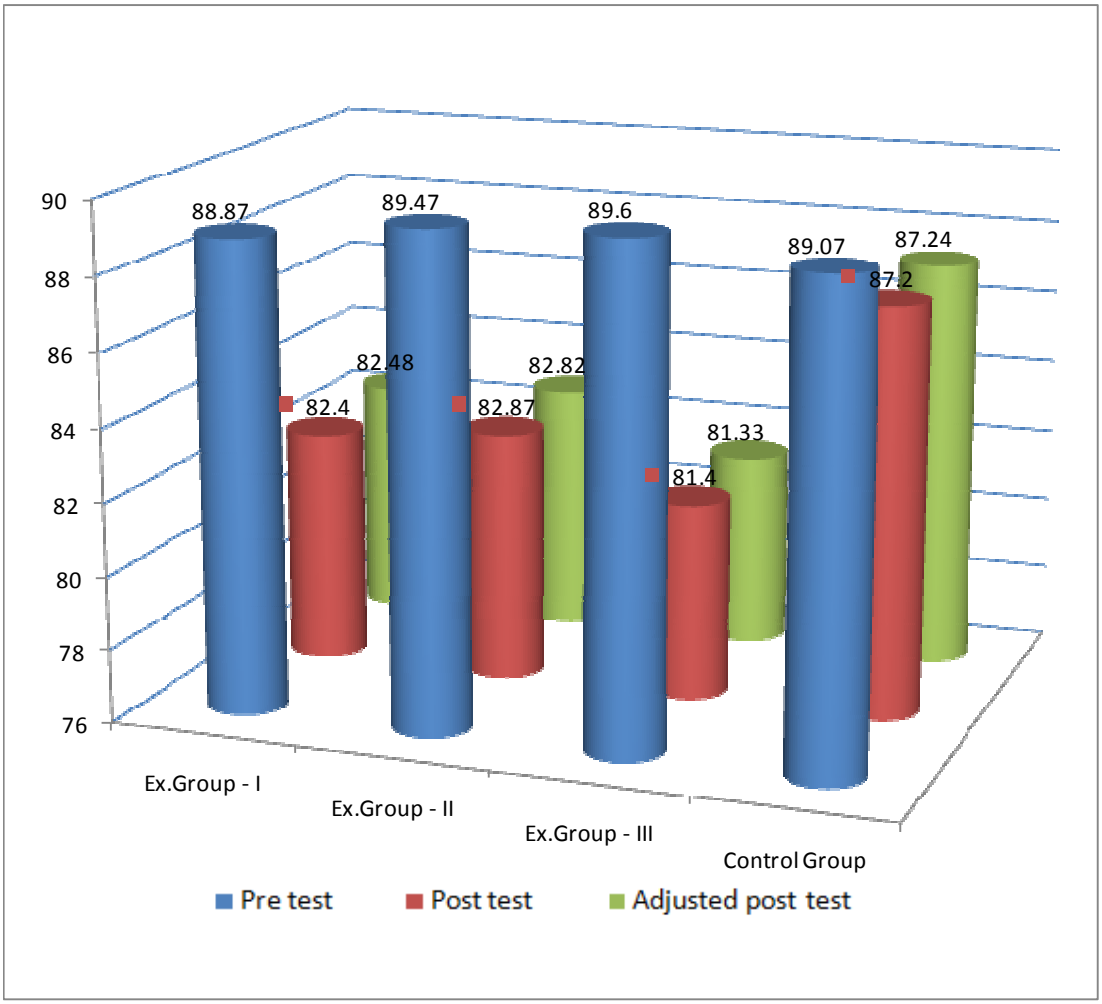

FIGURE - XXX

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON DIASTOLIC BLOOD PRESSURE

DISCUSSIONS ON THE FINDINGS OF DIASTOLIC BLOOD PRESSURE

The results presented in table IX showed that the obtained adjusted means on diastolic blood pressure among naturopathy group was 82.48 followed by yogasana group with the mean value of 82.82 followed by combined group (naturopathy and yogasana) mean value of 81.33 and control group mean value of 87.24. The difference among pre test scores Post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.32, 30.10 and 32.45 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test Scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in diastolic blood pressure than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on diastolic blood pressure has in line with the study conducted by **Sakthignanavel, (1998)**.

RESULTS ON RESPIRATORY RATE

The physiological variable respiratory rate was measured number of breath per minute. The results on the effect of isolated and combined practice of naturopathy and yogasana on respiratory rate in menstrual irregularity women is presented in Table XI.

Table XI

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON RESPIRATORY RATE OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	22.8	23.07	22.93	22.47	Between	2.98	3	0.99	0.16
					Within	356.00	56	6.36	
Post Test Mean	18.27	17.87	21.2	18.47	Between	104.05	3	34.68	10.29*
					Within	188.80	56	3.37	
Adjusted Post Test Mean	18.27	17.78	21.16	18.57	Between	102.70	3	34.23	12.36*
					Within	152.38	55	2.77	
Mean Diff	4.5	5.2	1.73	4					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table XI shows that the pre test mean scores of respiratory rate (Experimental group I naturopathy was 22.8. Experimental group II yogasana was 23.07, Experimental Group III Combined (naturopathy & yogasana) was 22.93 and control group was 22.47. The post test means showed differences due to twelve weeks of

naturopathy, yogasana and combined training (naturopathy & yogasana) and mean values recorded were 18.27, 17.87, 21.2 and 18.47 respectively.

The obtained F value on pre test scores 0.16 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 10.29 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 12.36 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the respiratory rate.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table XII.

TABLE - XII

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF RESPIRATORY RATE

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
18.58	18.27	-	-	0.31	1.74
18.58	-	17.79		0.79	1.74
18.58			21.16	2.58*	1.74
	18.27	17.79		0.48	1.74
	18.27		21.16	2.89*	1.74
		17.79	21.16	3.37*	1.74

***** Significant

Table-XII shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXXI.

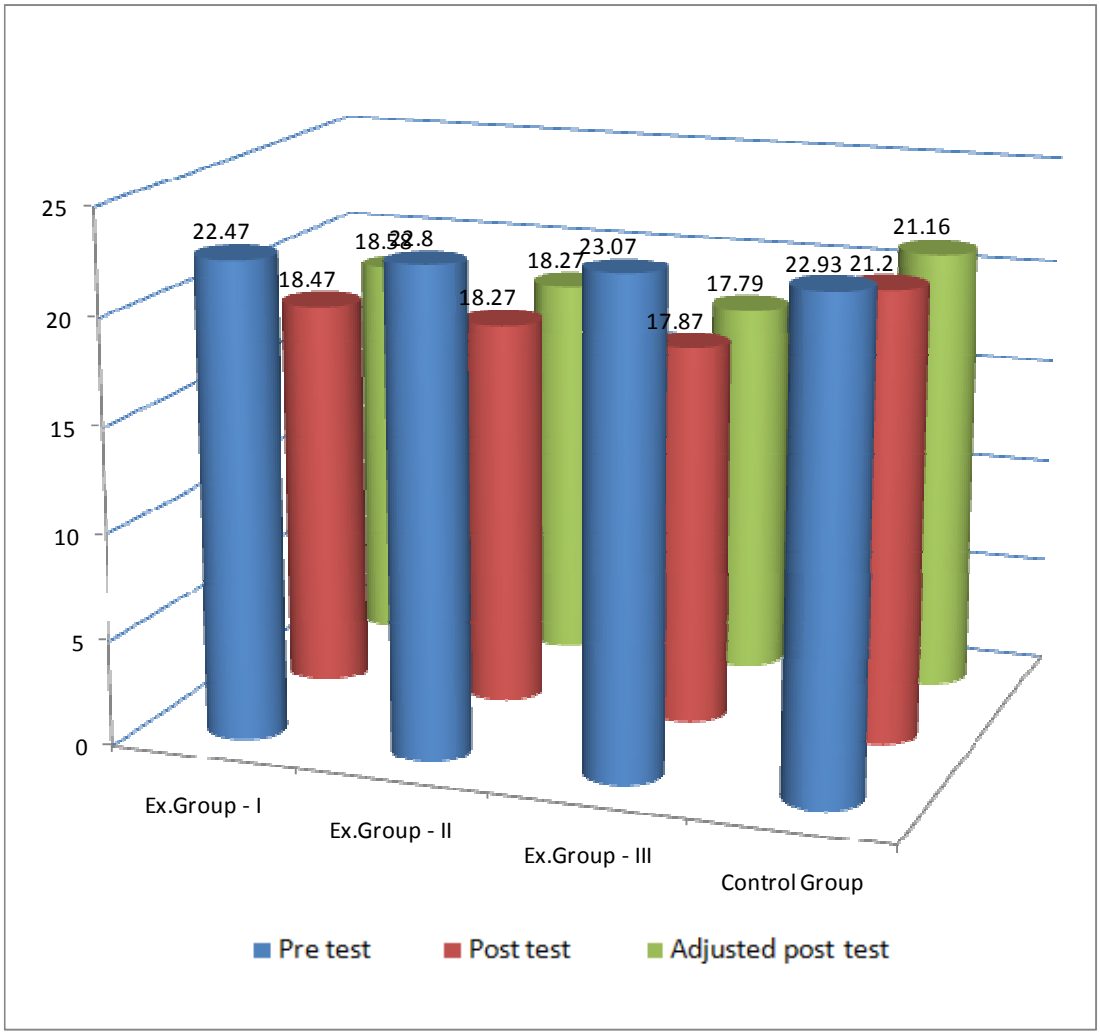

FIGURE - XXXI

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON RESPIRATORY RATE

DISCUSSIONS ON THE FINDINGS OF RESPIRATORY RATE

The results presented in Table XI showed that the obtained adjusted means on respiratory rate among naturopathy group was 18.27 followed by yogasana group with the mean value of 17.78 followed by combined group (naturopathy and yogasana) mean value of 21.16 and control group mean value of 18.57. The difference among pre test scores Post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.16, 10.29 and 12.36 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test Scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in respiratory rate than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on respiratory rate has in line with the study conducted by **Rube Jesintha and John Parthiban (2007)**.

RESULTS ON HEMOGLOBIN

The Biochemical variable of Hemoglobin was measured through blood test was used. The results on the effect of isolated and combined practice of naturopathy and yogasana on Hemoglobin in menstrual irregularity women is presented in Table XIII.

Table XIII

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON HEMOGLOBIN OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	10.02	10.61	10.05	10.23	Between	3.26	3	1.09	0.63
					Within	96.46	56	1.72	
Post Test Mean	13.02	12.98	13.61	10.41	Between	91.46	3	30.49	39.11*
					Within	43.65	56	0.78	
Adjusted Post Test Mean	13.08	12.88	13.66	10.41	Between	92.61	3	30.87	46.74*
					Within	36.33	55	0.66	
Mean Diff	3.00	2.37	3.56	0.19					

*Significant

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

Table XIII shows that the pre test mean scores of hemoglobin (Experimental group I naturopathy was 10.02. Experimental group II yogasana was 10.61, Experimental Group III Combined (naturopathy & yogasana) was 10.05 and control group was 10.23. The post test means showed differences due to twelve weeks of

naturopathy, yogasana and combined training (naturopathy & yogasana) and mean values recorded were 13.02, 12.98, 13.61 and 10.41 respectively.

The obtained F value on pre test scores 0.63 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 39.11 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 46.74 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the hemoglobin.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table XIV.

TABLE - XIV

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF HEMOGLOBIN

Experimental Group – I (Naturopath)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
13.08	12.88	-	-	0.20	0.85
13.08	-	13.66		0.58	0.85
13.08			10.41	2.67*	0.85
	12.88	13.66		0.78	0.85
	12.88		10.41	2.47*	0.85
		13.66	10.41	3.25*	0.85

***** Significant

Table-XIV shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXXII

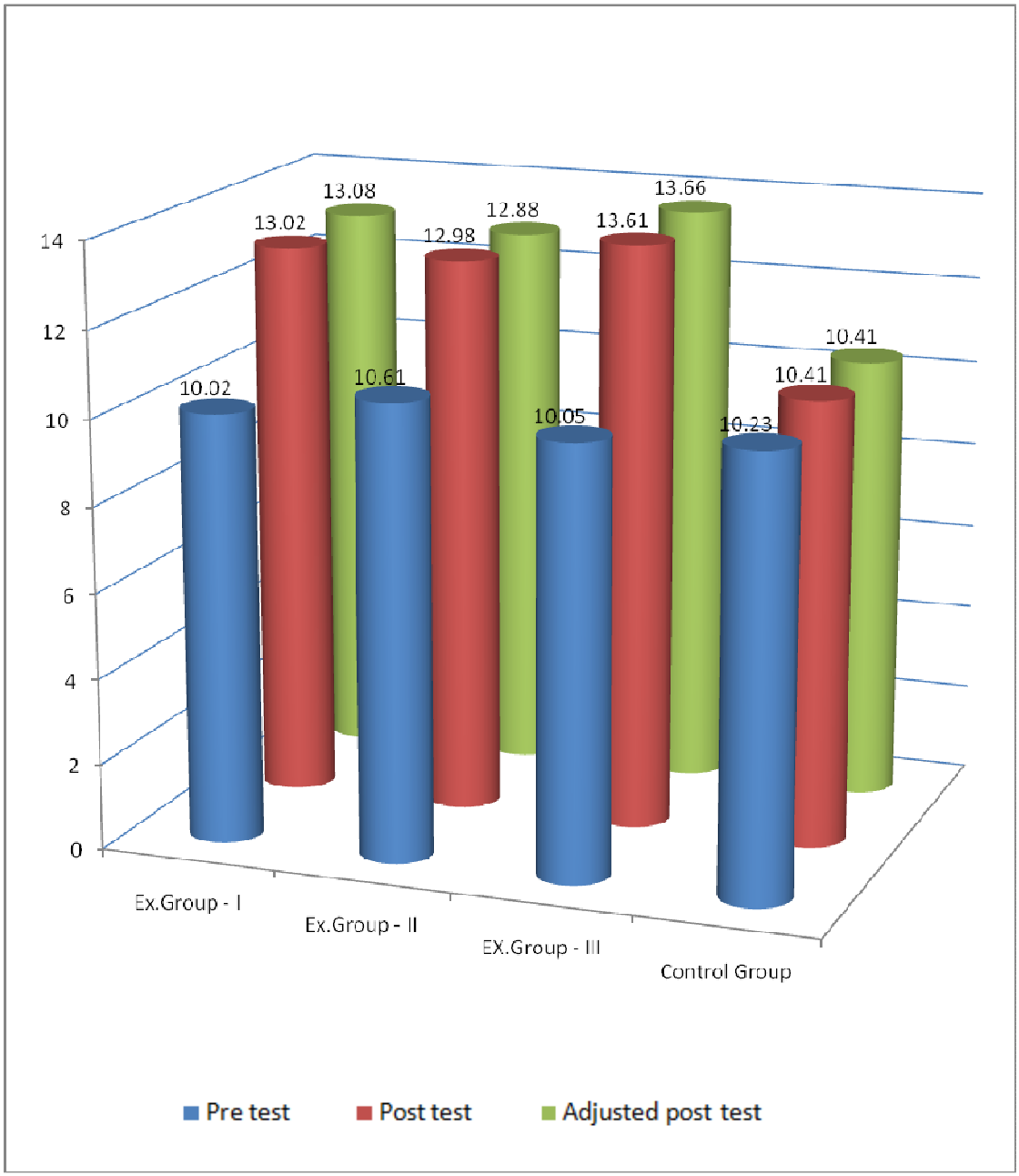

FIGURE - XXXII

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON HEMOGLOBIN

DISCUSSIONS ON THE FINDINGS OF HEMOGLOBIN

The results presented in Table XIII showed that the obtained adjusted means on Hemoglobin among naturopathy group was 13.08 followed by yogasana group with the mean value of 12.88 followed by combined group (naturopathy and yogasana) mean value of 13.66 and control group mean value of 10.41. The difference among pre test scores Post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.63, 39.11 and 46.74 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test Scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in Hemoglobin than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on Hemoglobin has in line with the study conducted by **Bijlani RL, et al (2005)**.

RESULTS ON TSH

The Biochemical variable of TSH was measured through blood test was used. The results on the effect of isolated and combined practice of naturopathy and yogasana on TSH in menstrual irregularity women is presented in Table XV.

Table XV

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON TSH OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	1.37	1.46	1.50	1.37	Between	0.18	3	0.06	0.18
					Within	18.98	56	0.34	
Post Test Mean	3.37	3.88	4.11	1.49	Between	63.76	3	21.25	59.98*
					Within	19.84	56	0.35	
Adjusted Post Test Mean	3.37	3.87	4.10	1.49	Between	62.71	3	20.90	58.90*
					Within	19.52	55	0.35	
Mean Diff	1.99	2.42	2.62	0.12					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table XV shows that the pre test mean scores of TSH (Experimental group I naturopathy was 1.37. Experimental group II yogasana was 1.46, Experimental Group III combined (naturopathy & yogasana) was 1.50 and control group was 1.37. The

post test means showed differences due to twelve weeks of naturopathy, yogasana and combined training (naturopathy & yogasana) and mean values recorded were 3.37, 3.88, 4.11 and 1.49 respectively.

The obtained F value on pre test scores 0.18 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 59.98 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 58.90 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the TSH.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in table XVI.

TABLE - XVI

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF TSH

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
3.37	3.87	-	-	0.50	0.62
3.37	-	4.10		0.73	0.62
3.37			1.49	1.88*	0.62
	3.87	4.10		0.23	0.62
	3.87		1.49	2.38*	0.62
		4.10	1.49	2.61*	0.62

* Significant

Table-XVI shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXXIII.

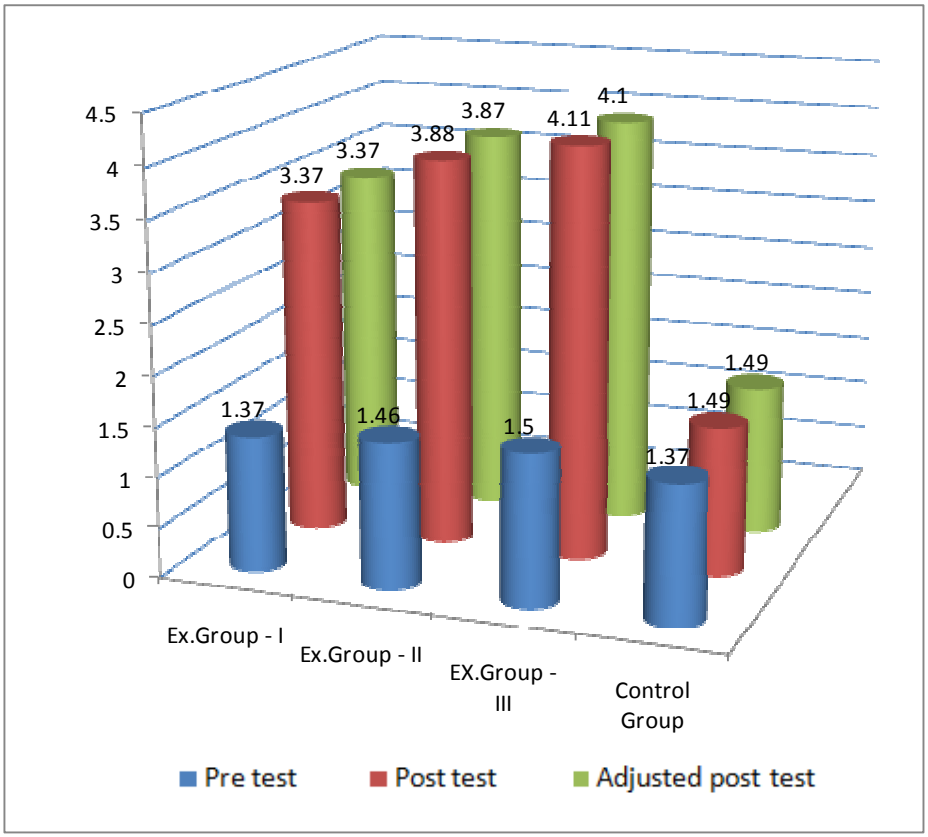

FIGURE - XXXIII

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON TSH

DISCUSSIONS ON THE FINDINGS OF TSH

The results presented in table XV showed that the obtained adjusted means on TSH among naturopathy group was 3.37 followed by yogasana group with the mean value of 3.87 followed by combined group (naturopathy and yogasana) mean value of 4.10 and control group mean value of 1.49. The difference among pre test scores Post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.18, 59.98 and 58.90 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in TSH than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on TSH has in line with the study conducted by **Tchernof A, Calles-Escandon J, Sites Ck, Poehlman Et.** .

RESULTS ON T3

The Biochemical variable of T3 was measured through blood test used. The results on the effect of isolated and combined practice of naturopathy and yogasana on T3 in menstrual irregularity women is presented in Table XVII**.**

Table XVII

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON T3 OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	**EX.GR. II**	**EX.GR. III**	**Control**	**Source of Variance**	**Sum of Squares**	**df**	**Mean Squares**	**Obtained F**
Pre Test Mean	1.47	1.46	1.54	1.56	Between	0.11	3	0.04	0.11
					Within	17.91	56	0.32	
Post Test Mean	3.35	3.22	3.77	1.46	Between	47.01	3	15.67	65.50*
					Within	13.40	56	0.24	
Adjusted Post Test Mean	3.36	3.23	3.76	1.45	Between	47.20	3	15.73	65.64*
					Within	13.18	55	0.24	
Mean Diff	1.88	1.76	2.23	0.11					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table XVII shows that the pre test mean scores of T3 (Experimental group I naturopathy was 1.47. Experimental group II yogasana was 1.46, Experimental Group III combined (naturopathy & yogasana) was 1.54 and control group was 1.56. The post test means showed differences due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) and mean values recorded were 3.35, 3.22, 3.77 and 1.46 respectively.

The obtained F value on pre test scores 0.11 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 65.50 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 65.64 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the T3.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table XVIII.

TABLE - XVIII

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF T3

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
3.36	3.23	-	-	0.13	0.51
3.36		3.76		0.40	0.51
3.36			1.45	1.91*	0.51
	3.23	3.76		0.53	0.51
	3.23		1.45	1.78*	0.51
		3.76	1.45	2.31*	0.51

* Significant

Table- XVIII shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXXIV.

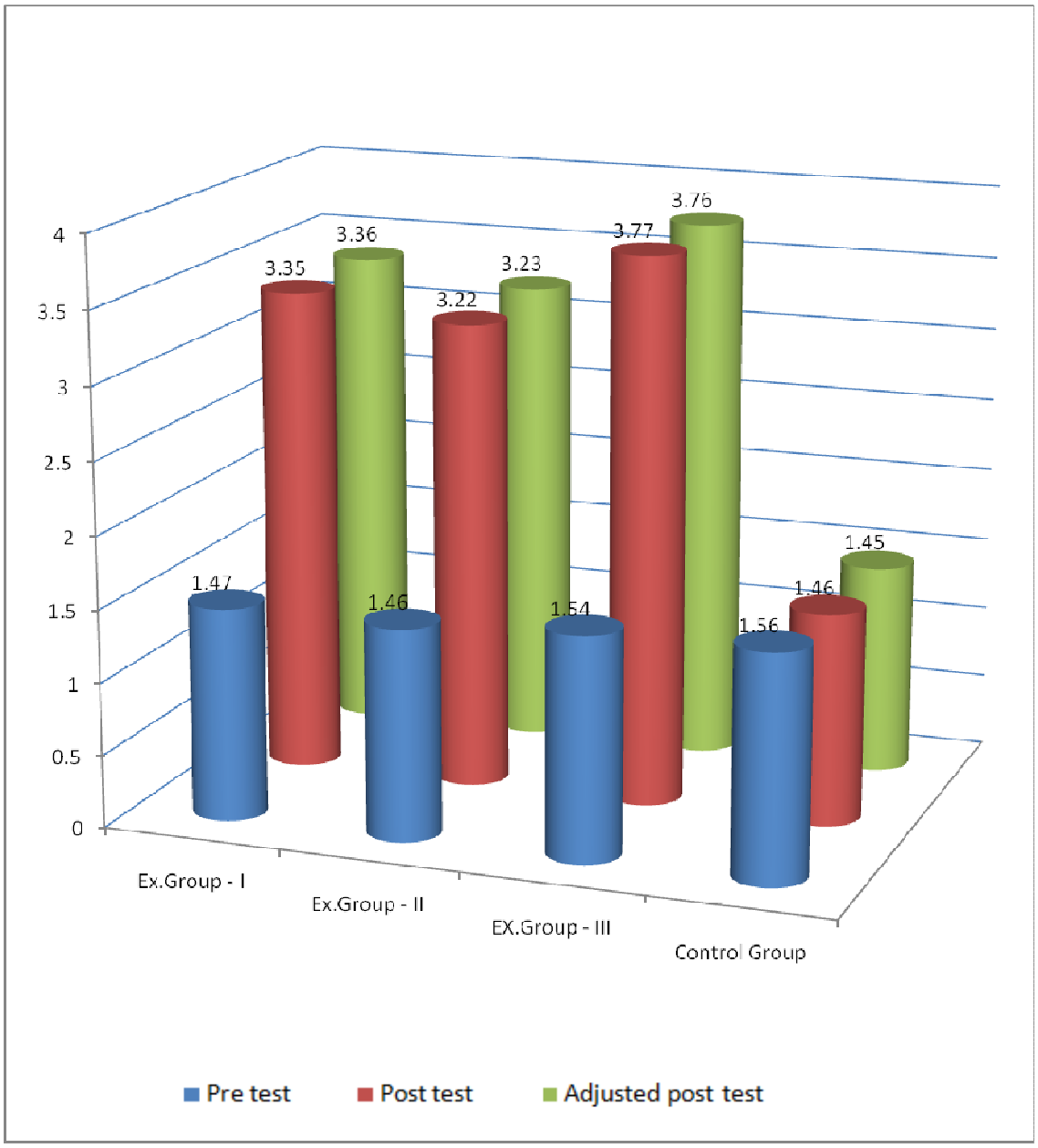

FIGURE - XXXIV

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON T3

DISCUSSIONS ON THE FINDINGS OF T3

The results presented in table XVII showed that the obtained adjusted means on T3 among naturopathy group was 3.36 followed by yogasana group with the mean value of 3.23 followed by combined group (naturopathy and yogasana) mean value of 3.76 and control group mean value of 1.45. The difference among pre test scores post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.11, 65.50 and 65.64 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test Scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in T3 than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

Besides that yogasana group and combined group also having significance difference in favor of combined group

The result of this study on T3 has in line with the study conducted by **Anjum Sayyed, et al (2010)**.

RESULTS ON T4

The Biochemical variable of T4 was measured through blood Test. The results on the effect of isolated and combined practice of naturopathy and yogasana on T4 in menstrual irregularity women is presented in Table XIX.

Table XIX

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON T4 OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	0.95	0.99	0.91	0.95	Between	0.05	3	0.02	0.15
					Within	5.70	56	0.10	
Post Test Mean	1.18	1.39	1.45	0.84	Between	3.44	3	1.15	13.10*
					Within	4.90	56	0.09	
Adjusted Post Test Mean	1.18	1.39	1.45	0.84	Between	3.45	3	1.15	
					Within	4.82	55	0.09	13.12*
Mean Diff	0.23	0.40	0.54	0.11					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table XIX shows that the pre test mean scores of T4 (Experimental group I naturopathy was 0.95. Experimental group II yogasana was 0.99, Experimental Group III combined (naturopathy & yogasana) was 0.91 and control group was 0.95. The post test means showed differences due to twelve weeks of naturopathy, yogasana and

combined training (naturopathy & yogasana) and mean values recorded were 1.18, 1.39, 1.45 and 0.84 respectively.

The obtained F value on pre test scores 0.15 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 13.10 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 13.12 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the T4.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in table XX.

TABLE - XX

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF T4

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
1.18	1.39	-	-	0.21	0.31
1.18	-	1.45		0.27	0.31
1.18			0.84	0.34*	0.31
	1.39	1.45		0.06	0.31
	1.39		0.84	0.55*	0.31
		1.45	0.84	0.61*	0.31

***** Significant

Table-XX shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXXV.

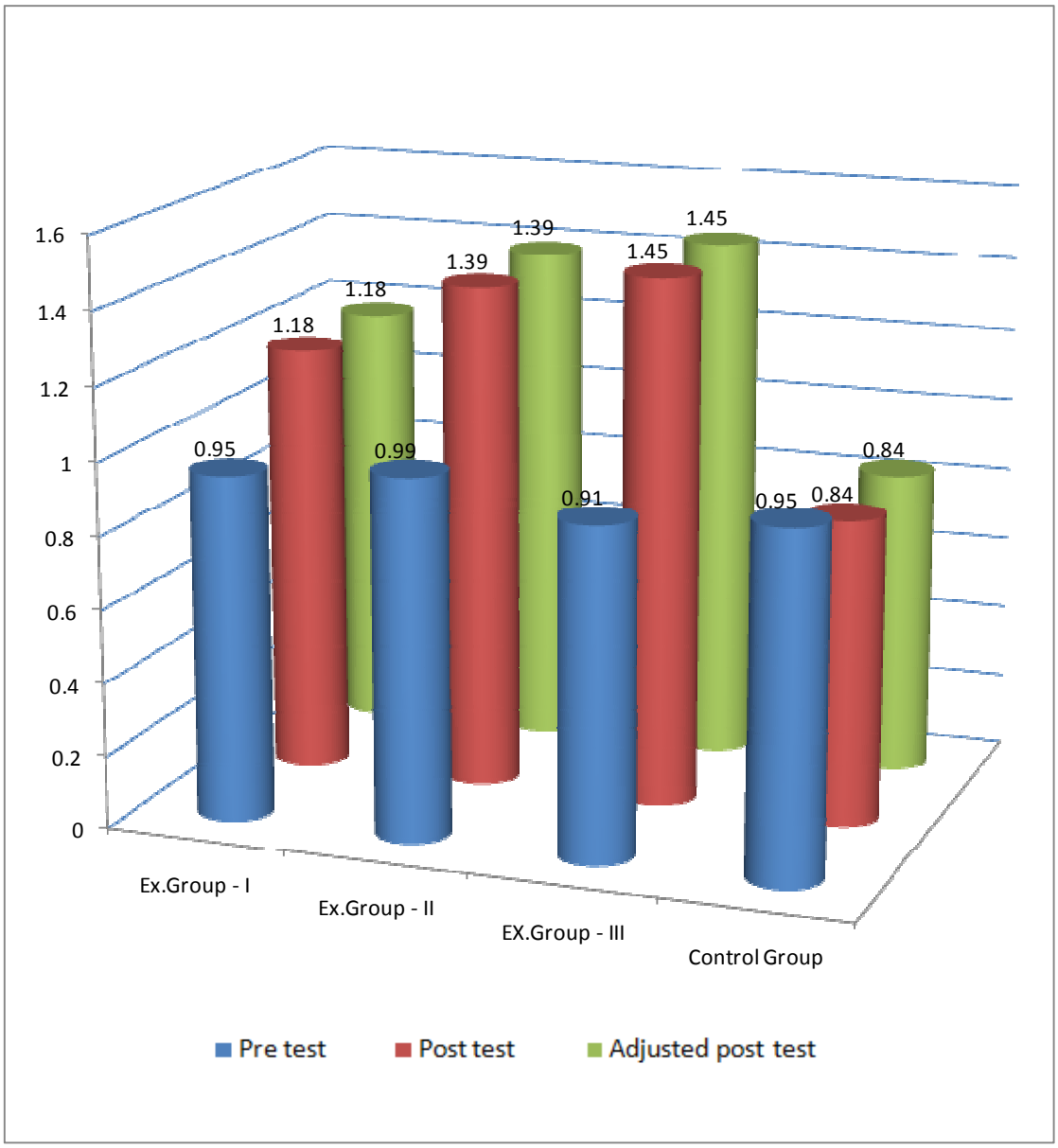

FIGURE – XXXV

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON T4

DISCUSSIONS ON THE FINDINGS OF T4

The results presented in table XIX showed that the obtained adjusted means on T4 among naturopathy group was 1.18 followed by yogasana group with the mean value of 1.39 followed by combined group (naturopathy and yogasana) mean value of 1.45 and control group mean value of 0.84. The difference among pre test scores post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.15, 13.10 and 13.12 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in T4 than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on T4 has in line with the study conducted by **Kasundra, PM*, Thumar, PB and Mungra, JD (2010)**.

RESULTS ON STRESS

The Psychological variable of stress was measured through Latha's stress questionnaire (1997). The results on the effect of isolated and combined practice of naturopathy and yogasana on stress in menstrual irregularity women is presented in Table XXI.

Table XXI

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON STRESS OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	67.00	68.53	70.20	69.60	Between	88.60	3	29.53	0.17
					Within	10007.73	56	178.71	
Post Test Mean	50.40	55.93	42.07	68.80	Between	5666.73	3	1888.91	11.60*
					Within	9117.87	56	162.82	
Adjusted Post Test Mean	51.28	56.08	41.41	68.43	Between	5671.73	3	1890.58	15.22*
					Within	6832.75	55	124.23	
Mean Diff	16.60	12.60	28.13	0.80					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table XXI shows that the pre test mean scores of stress (Experimental group I naturopathy was 67.00. Experimental group II yogasana was 68.53, Experimental

Group III combined (naturopathy & yogasana) was 70.20 and control group was 69.60. The post test means showed differences due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) and mean values recorded were 50.40, 55.93, 42.07 and 68.80 respectively.

The obtained F value on pre test scores 0.17 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 11.60 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 15.22 was greater than the required F value at 2.78. This proved that there was a significant difference among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the Physiological variable stress.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table XXII.

TABLE - XXII

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF STRESS

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
51.28	56.08	-	-	4.80	11.63
51.28	-	41.41		9.87	11.63
51.28			68.43	17.15*	11.63
	56.08	41.41		14.67*	11.63
	56.08		68.43	12.35	11.63
		41.41	68.43	27.02*	11.63

***** Significant

Table-XXII shows that there was significant difference between naturopathy and control group and yogasana group and control group, combined (naturopathy and yogasana) group and control group.

The obtained adjusted mean values were presented through bar diagram in Figure XXXVI.

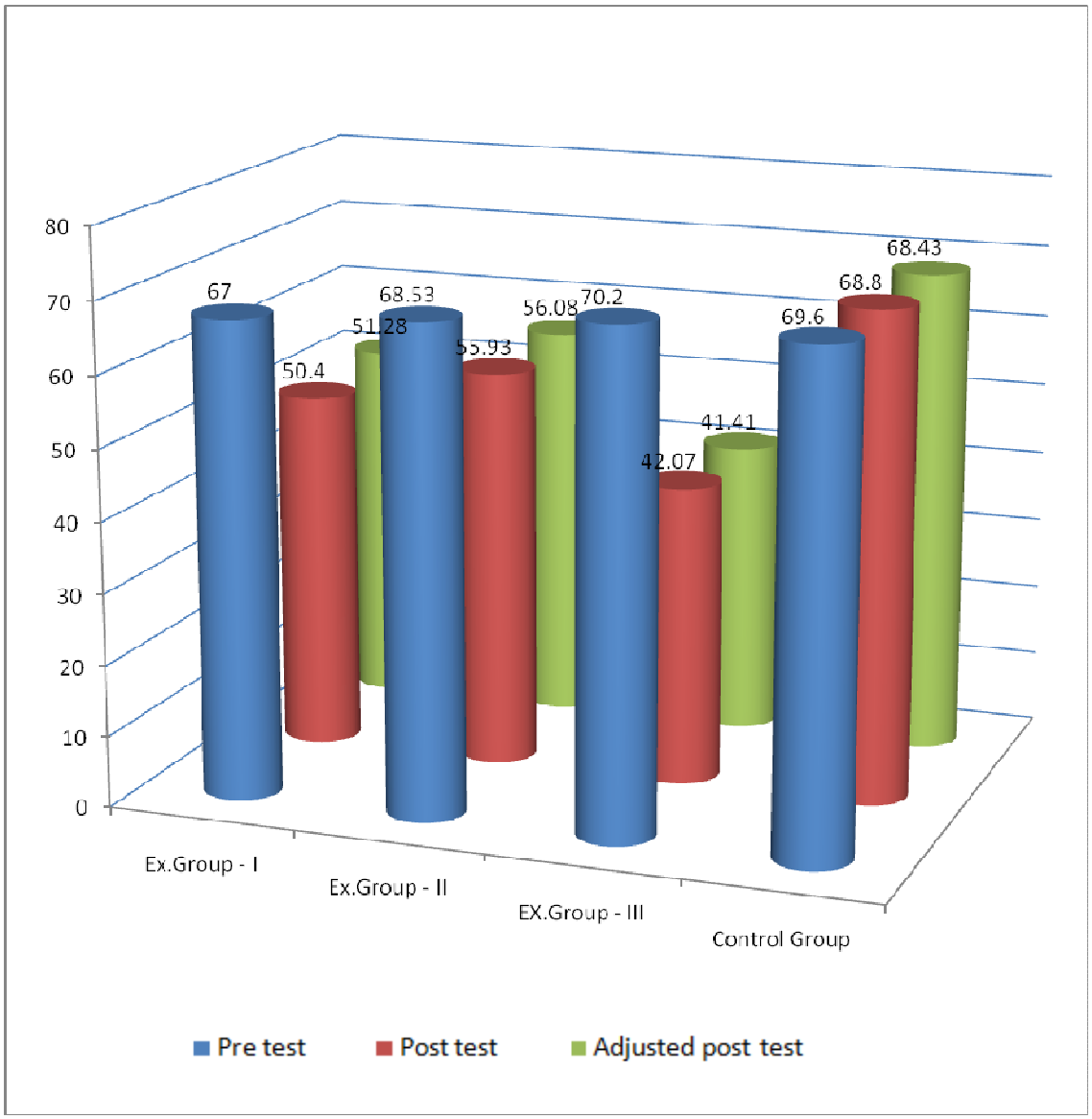

FIGURE - XXXVI

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPs I, II & III AND CONTROL GROUP ON STRESS

DISCUSSIONS ON THE FINDINGS OF STRESS

The results presented in Table XXI showed that the obtained adjusted means on stress among naturopathy group was 51.28 followed by yogasana group with the mean value of 56.08 followed by combined group (naturopathy and yogasana) mean value of 41.41 and control group mean value of 68.43. The difference among pre test scores post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.17, 11.60 and 15.22 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in stress than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on Stress has in line with the study conducted by **Baldwin, (1999)**.

RESULTS ON DEPRESSION

The Psychological variable of depression was measured through Goldberg Depression Questionnaire designed by Ivan Goldberg (1993). The results on the effect of isolated and combined practice of naturopathy and yogasana on depression in menstrual irregularity women is presented in table XXIII.

Table XXIII

COMPUTATION OF ANALYSIS OF COVARIANCE FOR PRE AND POST – TESTS DATA ON DEPRESSION OF EXPERIMENTAL AND CONTROL GROUPS

	EX.GR. I	EX.GR. II	EX.GR. III	Control	Source of Variance	Sum of Squares	df	Mean Squares	Obtained F
Pre Test Mean	53.13	52.33	50.93	50.13	Between	82.20	3	27.40	0.55
					Within	2803.73	56	50.07	
Post Test Mean	43.53	36.00	32.93	52.80	Between	3529.92	3	1176.64	8.79*
					Within	7493.07	56	133.80	
Adjusted Post Test Mean	43.10	35.80	33.14	53.24	Between	3625.78	3	1208.59	9.16*
					Within	7254.84	55	131.91	
Mean Diff	9.60	16.33	18.00	-2.67					

Table F-ratio at 0.05 level of confidence for 3 and 56(df) =2.77, 3 and 55(df) =2.78.

*Significant at 0.05 level

Table XXIII shows that the pre test mean scores of depression (Experimental group I naturopathy was 53.13. Experimental group II yogasana was 52.33,

Experimental Group III combined (naturopathy & yogasana) was 50.93 and control group was 50.13. The post test means showed differences due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) and mean values recorded were 43.53, 36.00, 32.93 and 52.80 respectively.

The obtained F value on pre test scores 0.55 was lesser than the required F value of 2.78 to be significant at 0.05 level. This proved that there was no significant difference between the groups at initial stage and the randomization at the initial stage was equal.

The post test scores analysis proved that there was significant difference between the groups as the obtained F value at 8.79 was greater than the required F value at 2.78. This proved that the differences between the post test mean at the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value at 9.16 was greater than the required F value at 2.78. This proved that there was significant differences among the means due to twelve weeks of naturopathy, yogasana and combined (naturopathy & yogasana) on the depression.

Since significant improvement were recorded. The results were subjected to post hoc analysis using Scheffe`s Confidence Interval test. The results were presented in Table XXIV.

TABLE - XXIV

SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST – TEST PAIRED MEANS OF DEPRESSION

Experimental Group – I (Naturopathy)	Experimental Group – II (Yogasana)	Experimental Group – III (Combined)	Control Group	Mean difference	Required C.I
43.10	35.80	-	-	7.30	11.98
43.10	-	33.14		9.96	11.98
43.10			53.24	10.14	11.98
	35.80	33.14		2.66	11.98
	35.80		53.24	17.44*	11.98
		33.14	53.24	20.10*	11.98

***** Significant

Table-XXIV shows that there was significant difference between yogasana group and control group, combined (naturopathy and yogasana) group and control group whereas thers is no significant difference between naturopathy and control group. This may be due to insufficient training period.

The obtained adjusted mean values were presented through bar diagram in Figure XXXVII.

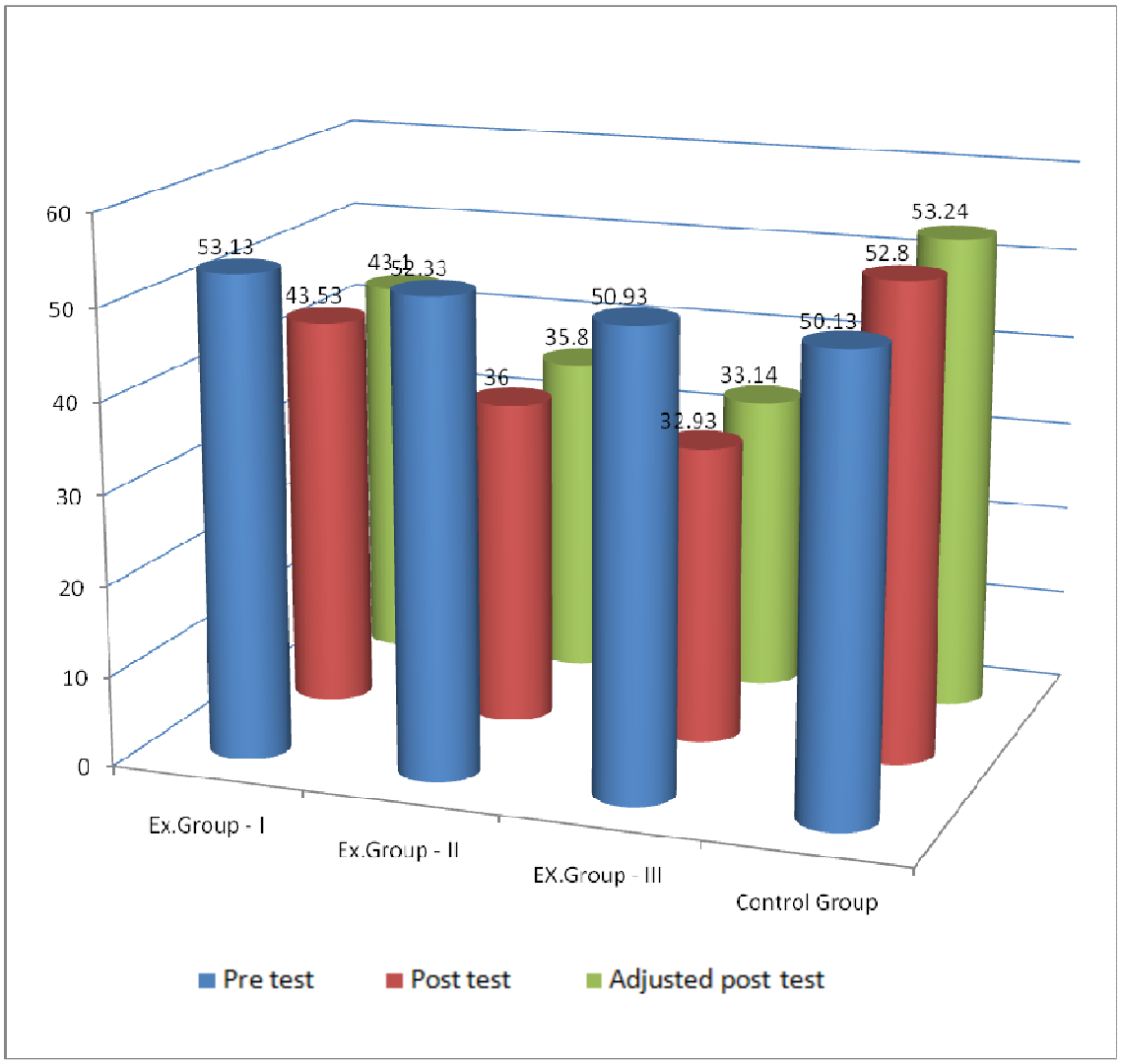

FIGURE - XXXVII

BAR DIAGRAM SHOWING POST-TEST VALUES OF EXPERIMENTAL GROUPS I, II & III AND CONTROL GROUP ON DEPRESSION

DISCUSSIONS ON THE FINDINGS OF DEPRESSION

The results presented in Table XXIII showed that the obtained adjusted means on depression among naturopathy group was 43.10 followed by yogasana group with the mean value of 35.80 followed by combined group (naturopathy and yogasana) mean value of 33.14 and control group mean value of 53.24. The difference among pre test scores post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and F values obtained were 0.55, 8.79 and 9.16 respectively. It was found that obtained F value on pre test score was not significant at 0.05 level of confidence as the obtained value was lesser than the required table value and post test scores was significant at 0.05 level of confidence as the value was greater than the required table F value of 2.78.

The post hoc analysis through Scheffe`s confidence test proved that due to twelve weeks treatment the naturopathy group and yogasana group and combined group (naturopathy and yogasana) there was significant improvement in depression than control group and the differences were significant at 0.05 level. The post hoc analysis between the experimental group namely naturopathy group and yogasana and combined group (naturopathy and yogasana) proved that there was significant difference.

The result of this study on depression has in line with the study conducted by **Woolery A,et al .(2004)**.

DISCUSSION ON HYPOTHESES

1) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in physiological variable of **Systolic blood pressure.** According to Table VII it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.
2) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in physiological variable of **Diastolic blood pressure.** According to Table IX it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.
3) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in physiological variable of **Respiratory Rate.** According to Table XI it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.

4) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in biochemical variable of **Hemoglobin.** According to Table XIII it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.
5) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in biochemical variable of **TSH.** According to Table XV it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.
6) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in biochemical variable of **T3.** According to Table XVII it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.
7) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in biochemical variable of **T4.** According to Table XIX it was proved that there was significant difference between naturopathy

group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.

8) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in psychological variable of **Stress.** According to Table XXI it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.
9) It was hypothesized that there would be significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group in psychological variable of **Depression.** According to Table XXIII it was proved that there was significant difference between naturopathy group, yogasana group, combined group (naturopathy and yogasana) and control group and hence the research hypothesis was accepted and null hypothesis rejected at 0.05 level of confidence.

Thus the researcher has successfully completed the study and presented the results clearly and proceeded with the summary and conclusions along with recommendations in the next chapter.