Chapter - IV

ANALYSIS OF THE DATA AND RESULTS OF THE STUDY

4.1. OVERVIEW

The collected data pertaining to the study has been analyzed to find out the effect of integrated modulus of yogic practices on selected biochemical and psychological variables among middle aged type II diabetic men. To achieve this purpose of the study, thirty diabetic middle aged men from Puducherry state were randomly selected as subjects and they were divided into two equal groups. Each group consisted of the fifteen subjects. Group I underwent yoga practices for six days (Monday to Saturday) per week for twelve weeks and Group II acted as control group who did not participate in any special training apart from their regular activities. The subjects were tested on selected criterion variables such as blood glucose (both fasting and postprandial), HbA1c, total cholesterol, triglycerides, high density lipoproteins, low density lipoproteins, very low density lipoproteins, stress, anxiety and depression at prior and immediately after the training period. The selected criterion variables such as blood glucose (both fasting and postprandial) was measured by GOD-POD method, HbA1c, total cholesterol, triglycerides, high-density lipoprotein, low-density lipoprotein and very low-density lipoprotein were measured by ion exchange method and psychological variable such as depression, anxiety and stress were measured by using The Lovibond, S. H. & Lovibond, P. F. (1995) 42-DASS questionnaire method . The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between groups on each selected criterion variables separately. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as an appropriate.

4.2   TEST OF SIGNIFICANCE

This is the vital portion of thesis finding the conclusion by examining the hypotheses. The procedure of testing the hypotheses was either by accepting or rejecting the hypotheses and the results obtained in relation to the level of confidence. The test was usually called the test of significance since we test whether the differences between groups' scores were significant or not. In this study, if the obtained F-value was greater than the table value, the null hypotheses were rejected to the effect that there existed significant difference among the means of the groups compared. If the obtained values were lesser than the required values, then the null hypotheses were accepted to the effect that there existed no significant differences among the means of the groups under study.

4.2.1 LEVEL OF SIGNIFICANCE

The subjects were compared on selected variables among Diabetes II on the effect of integrated yogic practices among middle aged men. The selected criterion variables were measured both at initial and final stage of the experimental period from the two groups selected for the study. The difference between initial and final means on each of the selected criterion variable was the effect of yogic practices on the subjects. The obtained data were subjected to statistical treatment using ANCOVA. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as appropriate.

4.3 ANALYSIS OF THE DATA

4.3 .1 Blood glucose (fasting)

The data collected prior to and after the experimental period on blood glucose (fasting) for yogic practice group and control group were analysed and presented in Table - IV.

Table - IV

ANALYSIS OF COVARIANCE ON BLOOD GLUCOSE (FASTING) OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	157.93	136.93	Between	3307.5	1	3307.5	3.377
S.D.	38.773	21.346	Within	27425.9	28	979.495	
Post-test Mean	124.13	131.00	Between	353.633	1	353.633	0.769
S.D.	23.934	18.636	Within	12881.7	28	460.062	
Adjusted Post-test Mean	119.972	135.162	Between	1544.27	1	1544.27	4.863*
			Within	8573.4	27	317.53	

* Significant at 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table – IV   showed that the pre-test mean values of blood glucose (fasting) for yogic practice group and control group were 157.93 ± 38.773 and 136.93 ± 21.346 respectively. The obtained ‗F' ratio value of 3.377 for pre test scores of yogic practice group and control group on blood glucose (fasting) was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for blood glucose (fasting) for yogic practice group and control group were 124.13 ± 23.934 and 131.00 ± 18.636 respectively. The obtained _F' ratio value of 0.769 for post-test scores of yogic practice group and control group was lesser than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of blood glucose (fasting) for yogic practice group and control group were 119.972 and 135.162 respectively. The obtained _F' ratio value of 4.863 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on blood glucose (fasting). Moreover, the result of the study also shown that there was a significant decrease in blood glucose (fasting) level after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on blood glucose (fasting) were graphically represented in Figure – 2.
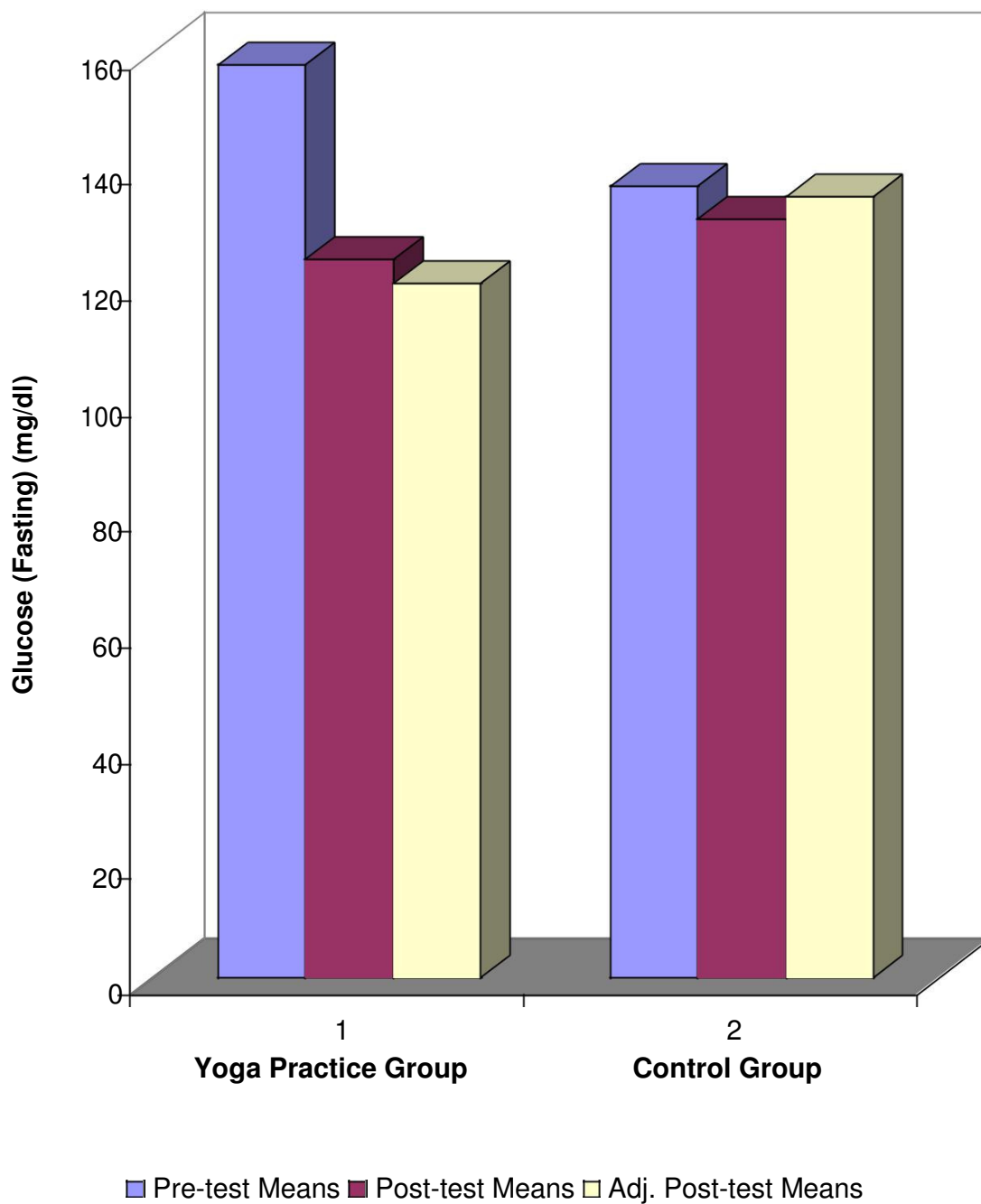
Figure – 2: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Blood glucose (fasting)

4.3 .2 Blood Glucose (Postprandial)

The data collected prior to and after the experimental period on blood glucose (postprandial) for yogic practice group and control group were analysed and presented in Table - V.

Table - V

ANALYSIS OF COVARIANCE ON BLOOD GLUCOSE (POSTPRANDIAL) OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	226.47	194.40	Between	7712.03	1	7712.03	2.193
S.D.	50.998	66.572	Within	98457.3	28	3516.33	
Post-test Mean	142.73	193.07	Between	19000.8	1	19000.8	12.127*
S.D.	7.750	55.439	Within	43869.9	28	1566.78	
Adjusted Post-test Mean	135.319	200.481	Between	29532.3	1	29532.3	34.948*
			Within	22815.7	27	845.03	

* Significant at 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table - V showed that the pre-test mean values of blood glucose (postprandial) for yogic practice group and control group were 236.47 ± 50.998 and 194.40 ± 66.572 respectively. The obtained _F' ratio value of 2.193 for pre test scores of yogic practice group and control group on blood glucose (postprandial) was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for blood glucose (postprandial) for yogic practice group and control group were 142.73 ± 7.750 and 193.07 ± 55.139 respectively. The obtained _F' ratio value of 12.127 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of blood glucose (postprandial) for yogic practice group and control group were 135.319 and 200.481 respectively. The obtained _F' ratio value of 34.948 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on blood glucose (postprandial). Moreover, the result of the study also shown that there was a significant decrease in blood glucose (postprandial) after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on blood glucose (postprandial) were graphically represented in Figure – 3.
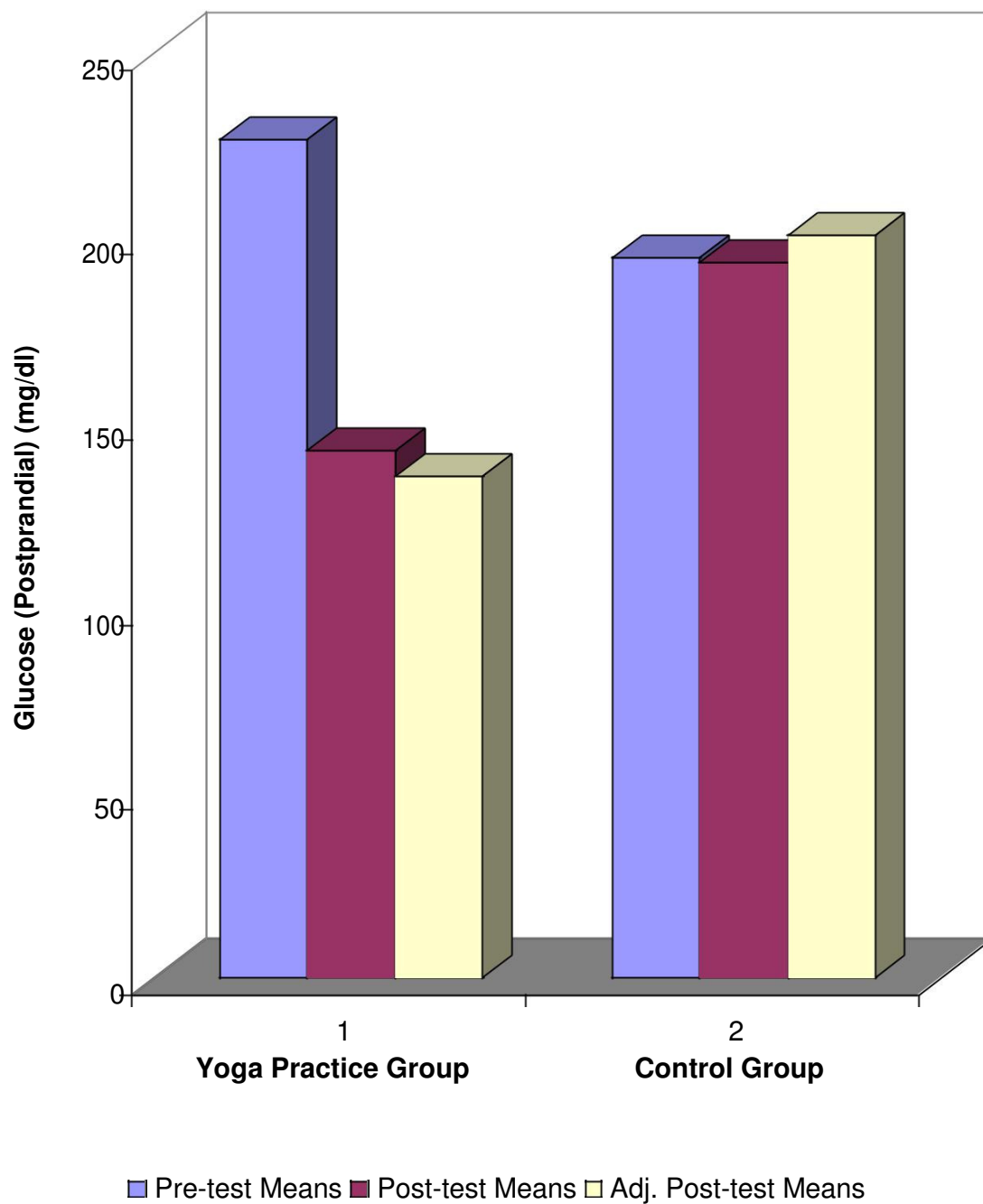
Figure – 3: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Blood Glucose (Postprandial)

4.3.3 HbA1c

The data collected prior to and after the experimental period on HbA1c for yogic practice group and control group were analysed and presented in Table - VI.

Table - VI

**ANALYSIS OF COVARIANCE ON HbA1C
OF YOGIC PRACTICE GROUP AND CONTROL GROUP**

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	6.56	6.42	Between	0.147	1	0.147	0.275
S.D.	0.80782	0.64498	Within	14.96	28	0.534	
Post-test Mean	6.053	6.24	Between	0.261	1	0.261	0.490
S.D.	0.75675	0.70285	Within	14.933	28	0.533	
Adjusted Post-test Mean	5.987	6.306	Between	0.755	1	0.755	12.689*
			Within	1.606	27	0.059	

* Significant 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table – VI showed that the pre-test mean values of HbA1c for yogic practice group and control group were 6.56 ± 0.80782 and 6.42 ± 0.64498 respectively. The obtained _F' ratio value of 0.275 for pre test scores of yogic practice group and control group on HbA1c was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for HbA1c for yogic practice group and control group were 6.053 ± 0.75675 and 6.24 ± 0.70285 respectively. The obtained _F' ratio

value of 0.490 for post-test scores of yogic practice group and control group was lesser than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of HbA1c for yogic practice group and control group were 5.987 and 6.306 respectively. The obtained ‗F' ratio value of 12.689 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on HbA1c. Moreover, the result of the study also shown that there was a significant decrease in HbA1c after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on HbA1c were graphically represented in Figure - 4.
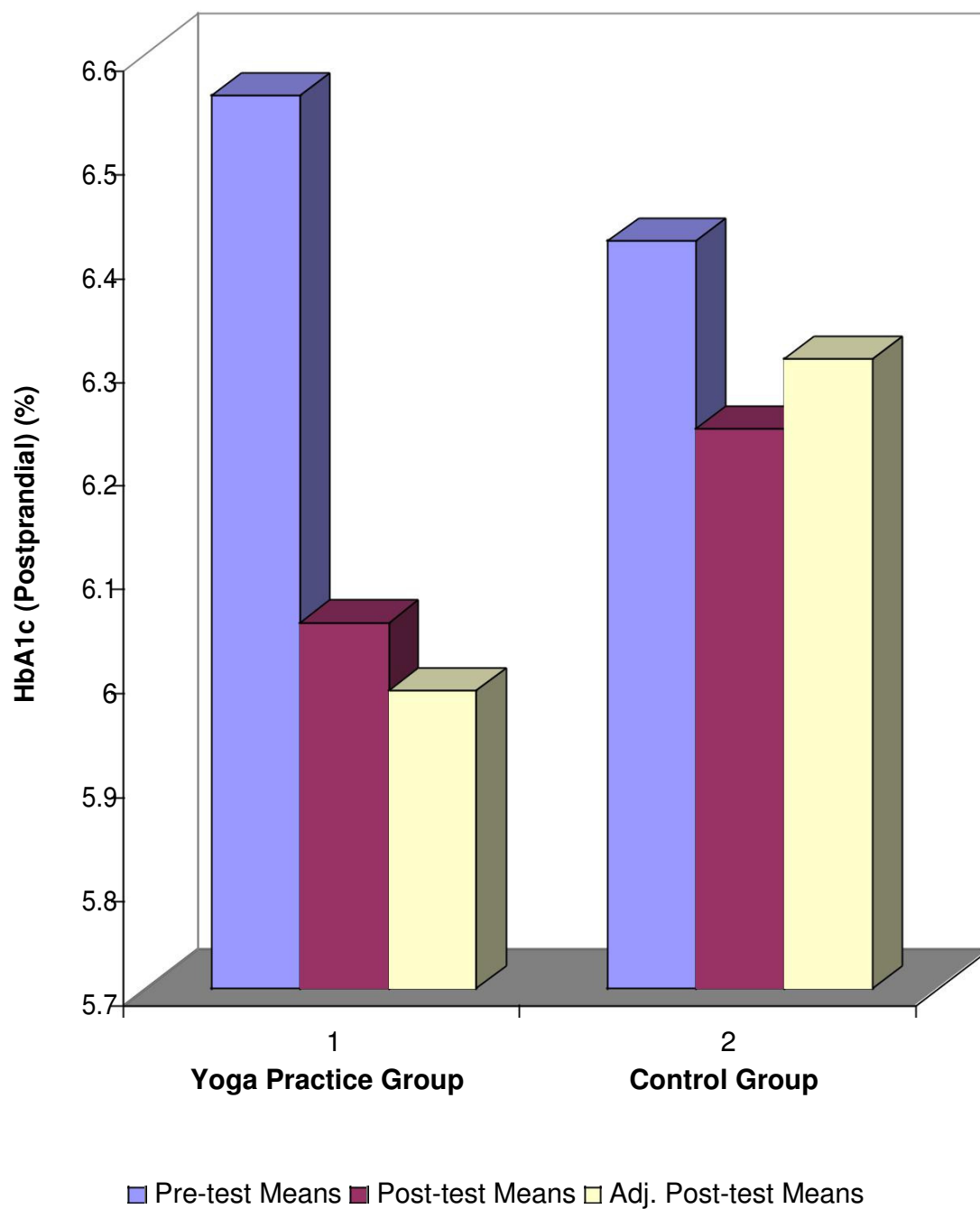
**Figure – 4: Bar Diagram Showing the Mean Values of Yogic Practice
Group and Control Group on HbA1c**

4.3.4 Total cholesterol

The data collected prior to and after the experimental period on total cholesterol for yogic practice group and control group were analysed and presented in Table - VII.

Table - VII

**ANALYSIS OF COVARIANCE ON TOTAL CHOLESTEROL
OF YOGIC PRACTICE GROUP AND CONTROL GROUP**

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	193.13	200.53	Between	410.70	1	410.70	0.431
S.D.	29.681	32.029	Within	26695.5	28	953.41	
Post-test Mean	173.07	208.47	Between	9398.70	1	9398.70	14.602*
S.D.	23.270	27.31	Within	18022.7	28	643.667	
Adjusted Post-test Mean	175.55	208.983	Between	6841.3	1	6841.3	30.793*
			Within	5998.61	27	222.171	

* Significant 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table - VII showed that the pre-test mean values of total cholesterol for yogic practice group and control group were 193.13 ± 29.681 and 200.53 ± 32.029 respectively. The obtained _F' ratio value of 0.431 for pre test scores of yogic practice group and control group on total cholesterol was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for total cholesterol for yogic practice group and control group were 173.07 ± 23.270 and 208.47 ± 27.31 respectively. The obtained ‗F' ratio value of 14.602 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of total cholesterol for yogic practice group and control group were 175.55 and 208.983 respectively. The obtained ‗F' ratio value of 30.793 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on total cholesterol. Moreover, the result of the study also shown that there was a significant decrease in total cholesterol after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on total cholesterol were graphically represented in Figure - 5.
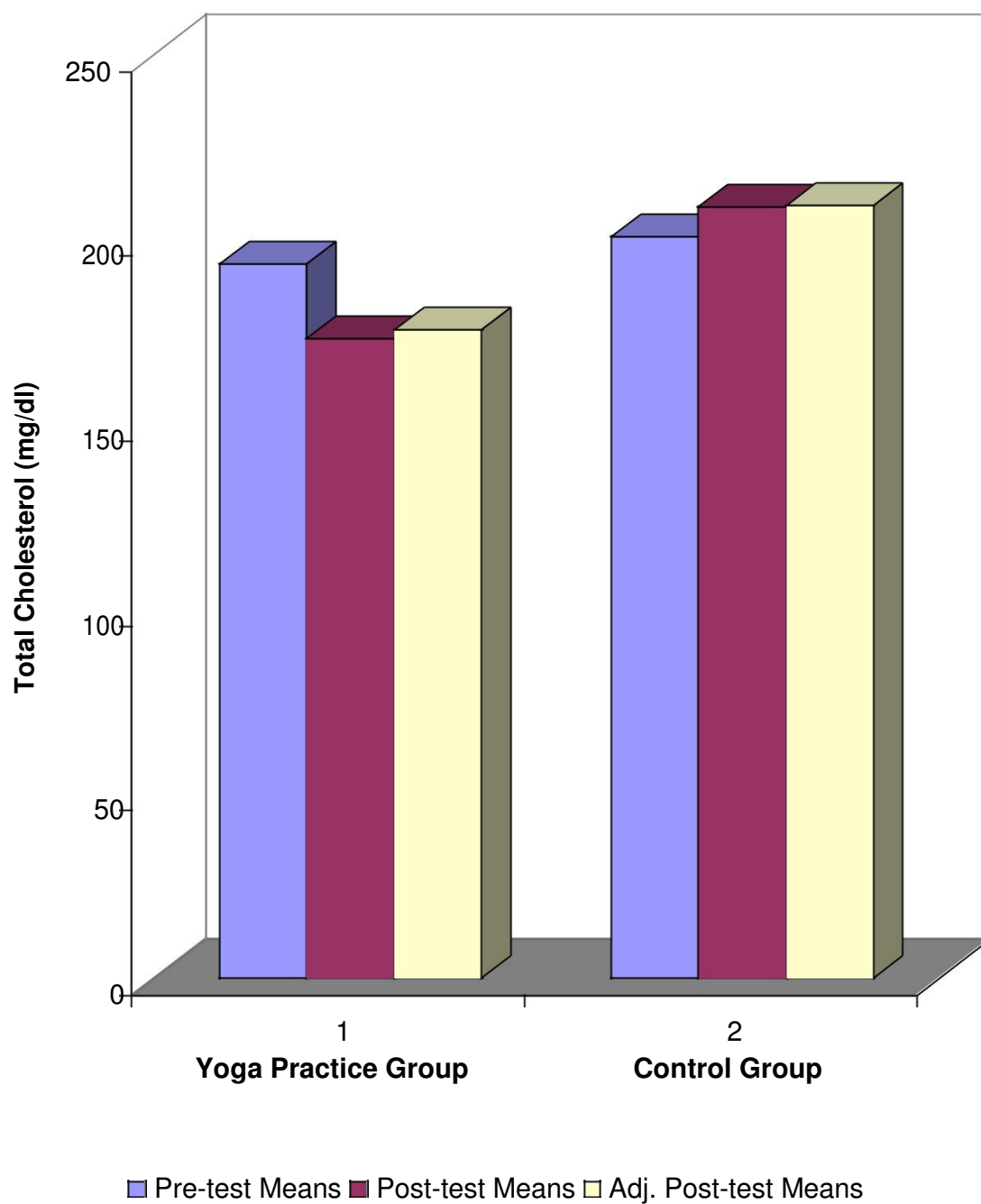
Figure – 5: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Total Cholesterol

4.3.5 Triglycerides

The data collected prior to and after the experimental period on triglycerides for yogic practice group and control group were analysed and presented in Table - VIII.

Table - VIII

ANALYSIS OF COVARIANCE ON TRIGLYCERIDES OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	159.13	180.13	Between	3307.5	1	3307.5	2.273
S.D.	43.849	31.432	Within	40749.5	28	1455.34	
Post-test Mean	142.47	233.47	Between	62107.5	1	62107.5	29.95*
S.D.	40.967	49.685	Within	58055.5	28	2073.41	
Adjusted Post-test Mean	147.955	227.979	Between	44423.3	1	44423.3	25.56*
			Within	46923.8	27	1737.92	

* Significant at 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table - VIII showed that the pre-test mean values of triglycerides for yogic practice group and control group were 159.13 ± 43.849 and 180.13 ± 31.432 respectively. The obtained ‗F' ratio value of 2.273 for pre test scores of yogic practice group and control group on triglycerides was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for triglycerides for yogic practice group and control group were 142.47 ± 40.967 and 233.47 ± 49.685 respectively. The obtained ‗F' ratio value of 29.95 for post-test scores of yogic practice group and control group was higher than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of triglycerides for yogic practice group and control group were 147.955 and 227.979 respectively. The obtained ‗F' ratio value of 25.56 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on tryglycerides. Moreover, the result of the study also shown that there was a significant decrease in tryglycerides after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on tryglycerides were graphically represented in Figure – 6
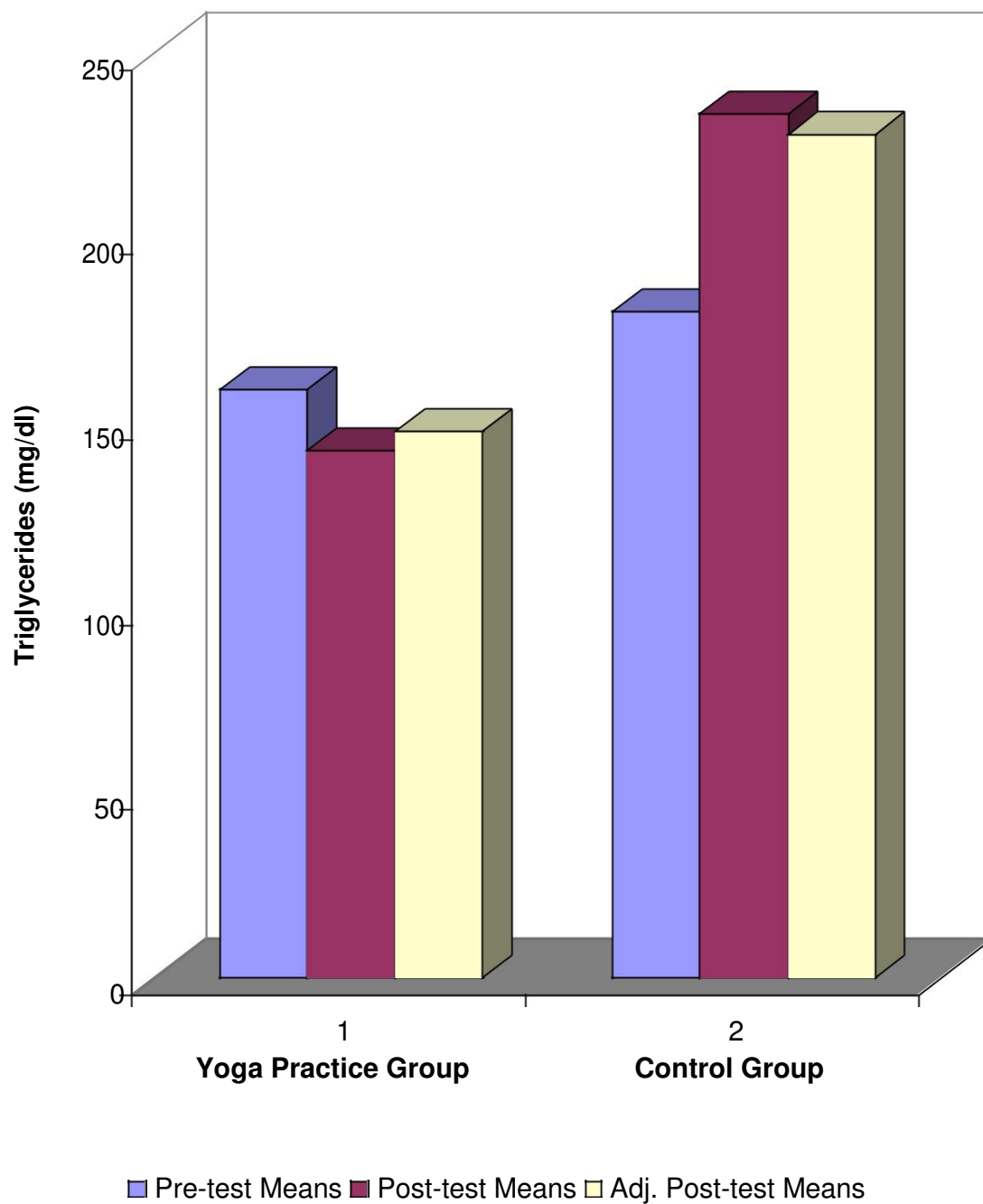
Figure – 6: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Triglycerides

4.3.6 High Density Lipoproteins

The data collected prior to and after the experimental period on high density lipoproteins for yogic practice group and control group were analysed and presented in Table - IX.

Table - IX

ANALYSIS OF COVARIANCE ON HIGH DENSITY LIPOPROTEINS OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	41.33	37.20	Between	128.133	1	128.133	2.182
S.D.	5.851	9.182	Within	1659.13	28	59.276	
Post-test Mean	47.40	38.00	Between	662.70	1	662.70	13.57*
S.D.	5.221	8.392	Within	1367.60	28	48.843	
Adjusted Post-test Mean	45.758	39.642	Between	260.368	1	260.368	22.01*
			Within	319.383	27	11.829	

* Significant at 0.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table – IX showed that the pre-test mean values of high density lipoproteins for yogic practice group and control group were 41.33 ± 5851 and 37.20 ± 9.182 respectively. The obtained _F' ratio value of 2.182 for pre test scores of yogic practice group and control group on high density lipoproteins was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for high density lipoproteins for yogic practice group and control group were 47.40 ± 5.221 and 38.00 ± 8.392 respectively. The obtained ‗F' ratio value of 13.57 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of high density lipoproteins for yogic practice group and control group were 45.758 and 39.642 respectively. The obtained ‗F' ratio value of 22.01 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on high density lipoproteins. Moreover, the result of the study also shown that there was a significant increase in high density lipoproteins after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on high density lipoproteins were graphically represented in Figure – 7.
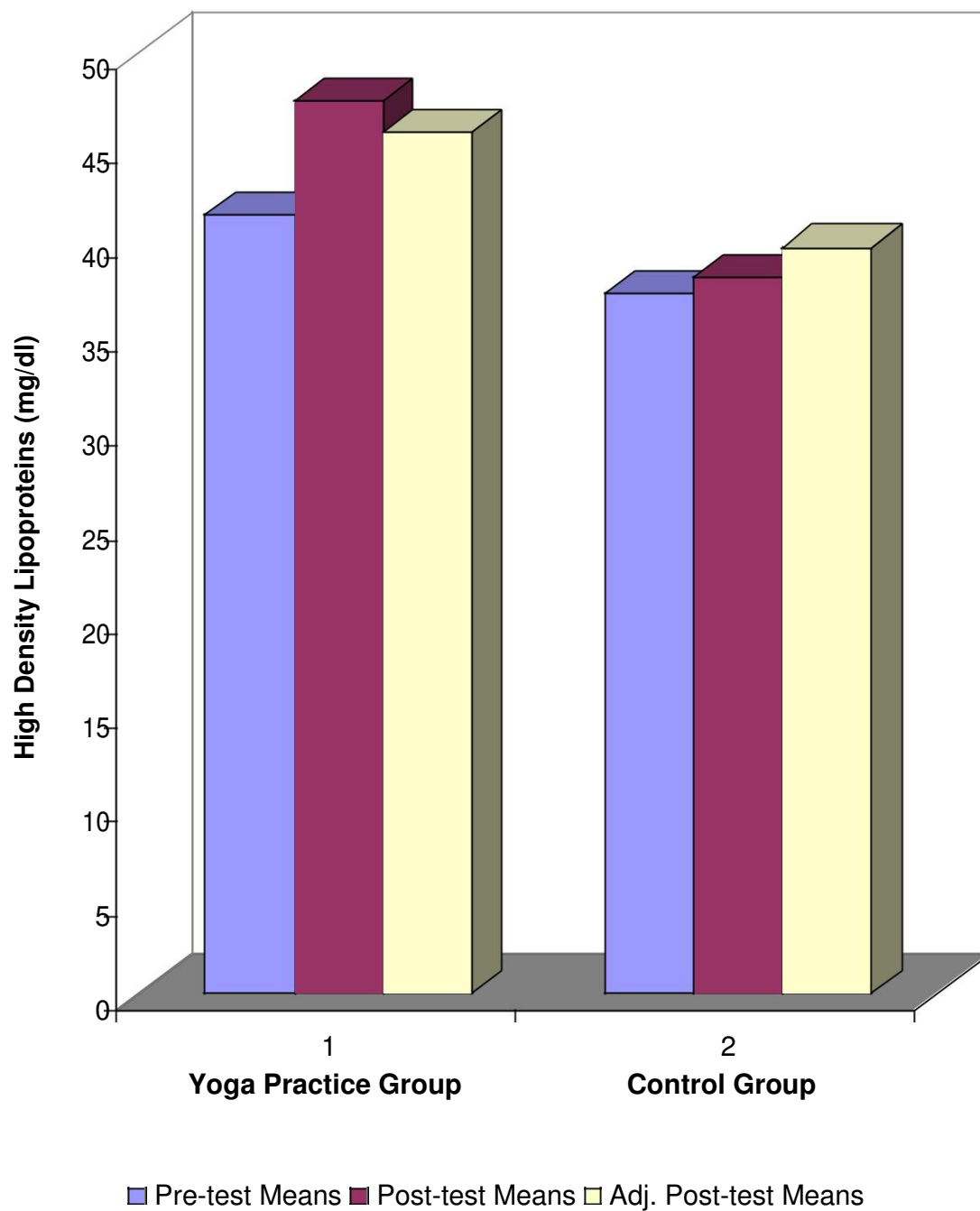
Figure – 7: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on High Density Lipoproteins

4.3.7 Low Density Lipoproteins

The data collected prior to and after the experimental period on low density lipoproteins for yogic practice group and control group were analysed and presented in Table - X.

Table - X

ANALYSIS OF COVARIANCE ON LOW DENSITY LIPOPROTEINS OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	119.9733	127.307	Between	403.33	1	4033.33	0.373
S.D.	31.45399	34.2746	Within	30297.4	28	1082.05	
Post-test Mean	97.1733	123.773	Between	5306.7	1	5306.7	7.95*
S.D.	24.8105	26.823	Within	18690.5	28	667.516	
Adjusted Post-test Mean	99.512	121.434	Between	3557.05	1	3557.05	15.09*
			Within	6363.08	27	235.67	

* Significant at 0.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table - X showed that the pre-test mean values of low density lipoproteins for yogic practice group and control group were 119.9733 ± 31.45399 and 127.307 ± 34.2746 respectively. The obtained _F' ratio value of 0.373 for pre test scores of yogic practice group and control group on low density lipoproteins was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for low density lipoproteins for yogic practice group and control group were 97.1733 ± 24.8105 and 123.773 ± 26.823 respectively. The obtained _F' ratio value of 7.95 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of low density lipoproteins for yogic practice group and control group were 99.512 and 121.434 respectively. The obtained _F' ratio value of 15.09 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on low density lipoproteins. Moreover, the result of the study also shown that there was a significant decrease in low density lipoproteins after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on low density lipoproteins were graphically represented in Figure – 8.
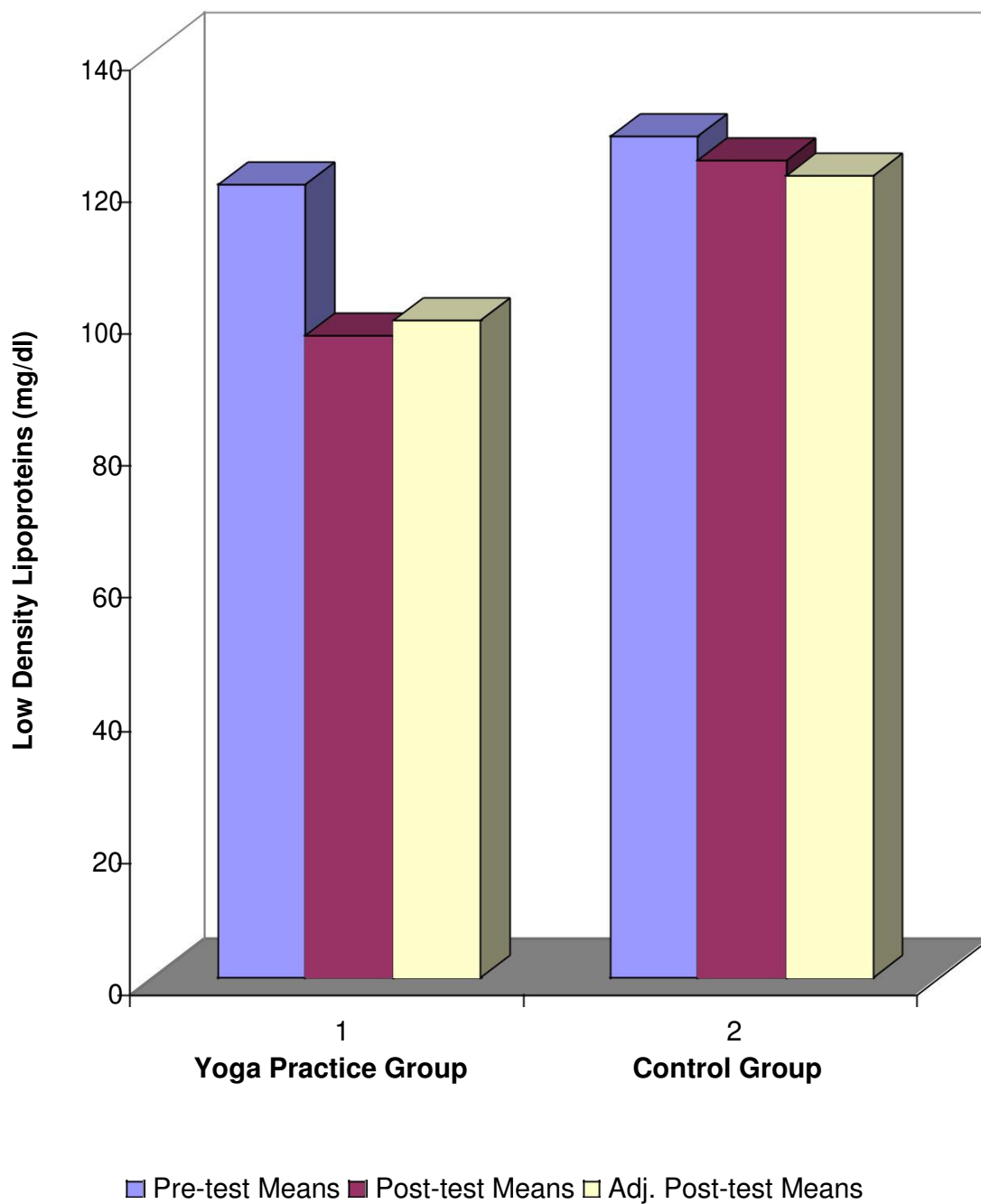
**Figure – 8: Bar Diagram Showing the Mean Values of Yogic Practice
Group and Control Group on Low Density Lipoproteins**

4.3.8 Very Low Density Lipoproteins

      The data collected prior to and after the experimental period on very low density lipoproteins for yogic practice group and control group were analysed and presented in Table - XI.

Table - XI

ANALYSIS OF COVARIANCE ON VERY LOW DENSITY LIPOPROTEINS OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	31.8267	36.0267	Between	132.30	1	132.30	2.273
S.D.	8.7697	6.2864	Within	1629.98	28	58.214	
Post-test Mean	28.4933	46.6933	Between	2484.3	1	2484.3	29.95*
S.D.	8.19333	9.93691	Within	2322.22	28	82.936	
Adjusted Post-test Mean	29.591	45.596	Between	1776.93	1	1776.93	25.56*
			Within	1876.95	27	69.517	

* Significant at 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

      Table - XI showed that the pre-test mean values of very low density lipoproteins for yogic practice group and control group were 31.8267 ± 8.7697 and 36.0267 ± 6.2864 respectively. The obtained _F' ratio value of 2.273 for pre test scores of yogic practice group and control group on very low density lipoproteins was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for very low density lipoproteins for yogic practice group and control group were 28.4933 ± 8.19333 and 46.6933 ± 9.93691 respectively. The obtained ‗F' ratio value of 29.95 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of very low density lipoproteins for yogic practice group and control group were 29.591 and 45.596 respectively. The obtained ‗F' ratio value of 25.56 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on very low density lipoproteins. Moreover, the result of the study also shown that there was a significant decrease in very low density lipoproteins after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on very low density lipoproteins were graphically represented in Figure – 9.
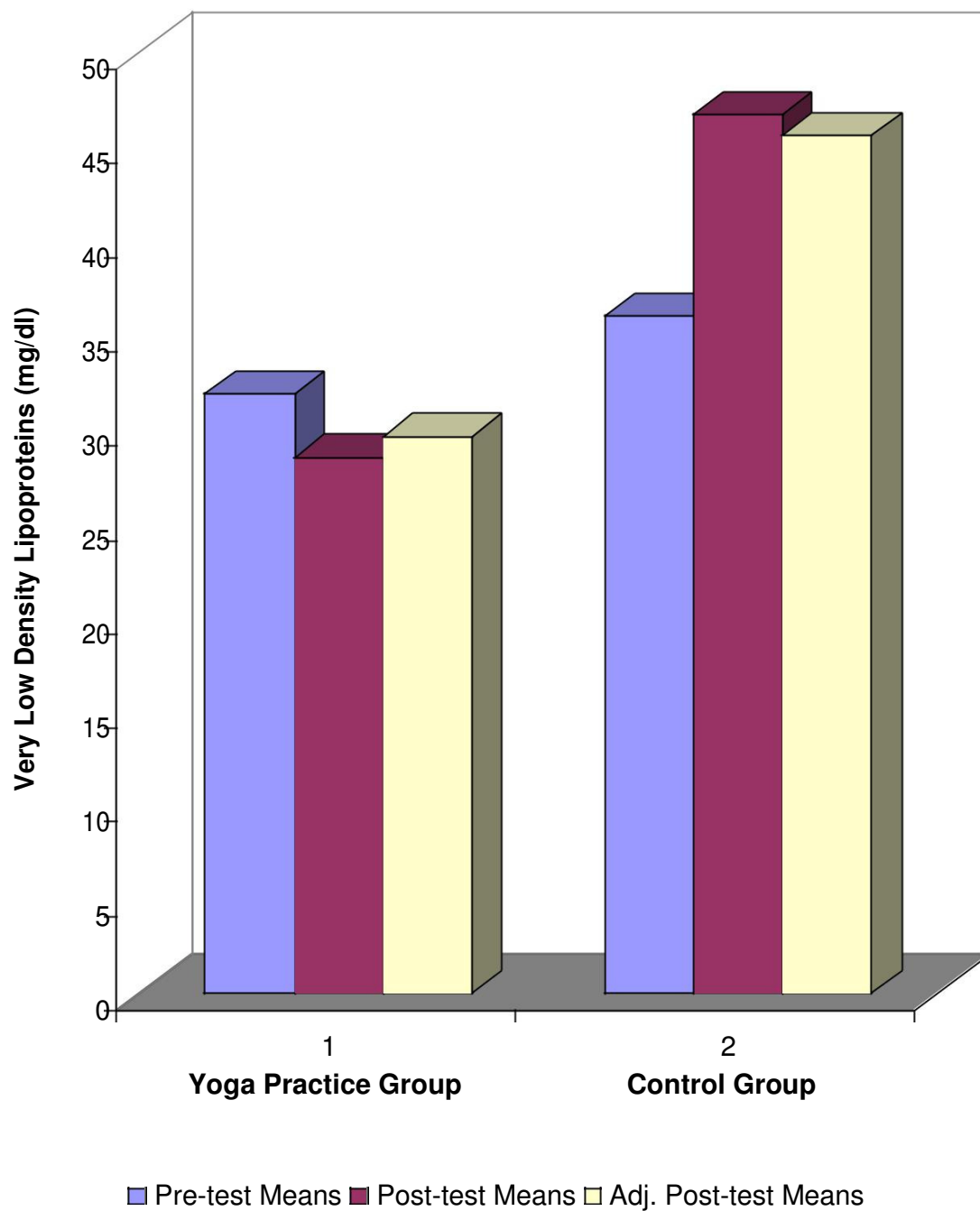
Figure – 9: Bar Diagram Showing the Mean Values of Yogic Practice
Group and Control Group on Very Low Density Lipoproteins

4.3.9 Depression

The data collected prior to and after the experimental period on depression for yogic practice group and control group were analysed and presented in Table - XII.

Table - XII

**ANALYSIS OF COVARIANCE ON DEPRESSION OF
YOGIC PRACTICE GROUP AND CONTROL GROUP**

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	17.60	18.13	Between	2.133	1	2.133	0.589
S.D.	2.293	1.407	Within	101.333	28	3.619	
Post-test Mean	9.60	18.13	Between	546.133	1	546.133	234.06*
S.D.	1.765	1.246	Within	65.333	28	2.333	
Adjusted Post-test Mean	9.643	18.090	Between	524.151	1	524.151	225.71*
			Within	62.701	27	2.322	

* Significant 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table - XII showed that the pre-test mean values of depression for yogic practice group and control group were 17.60 ± 2.293 and 18.13 ± 1.407 respectively. The obtained _F' ratio value of 0.589 for pre test scores of yogic practice group and control group on depression was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for depression for yogic practice group and control group were 9.60 ± 1.765 and 18.13 ± 1.246 respectively. The obtained _F' ratio value

of 234.06 for post-test scores of yogic practice group and control group was lesser than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of depression for yogic practice group and control group were 9.643 and 18.090 respectively. The obtained ‗F' ratio value of 255.71 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on depression. Moreover, the result of the study also shown that there was a significant decrease in depression after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on depression were graphically represented in Figure -10.
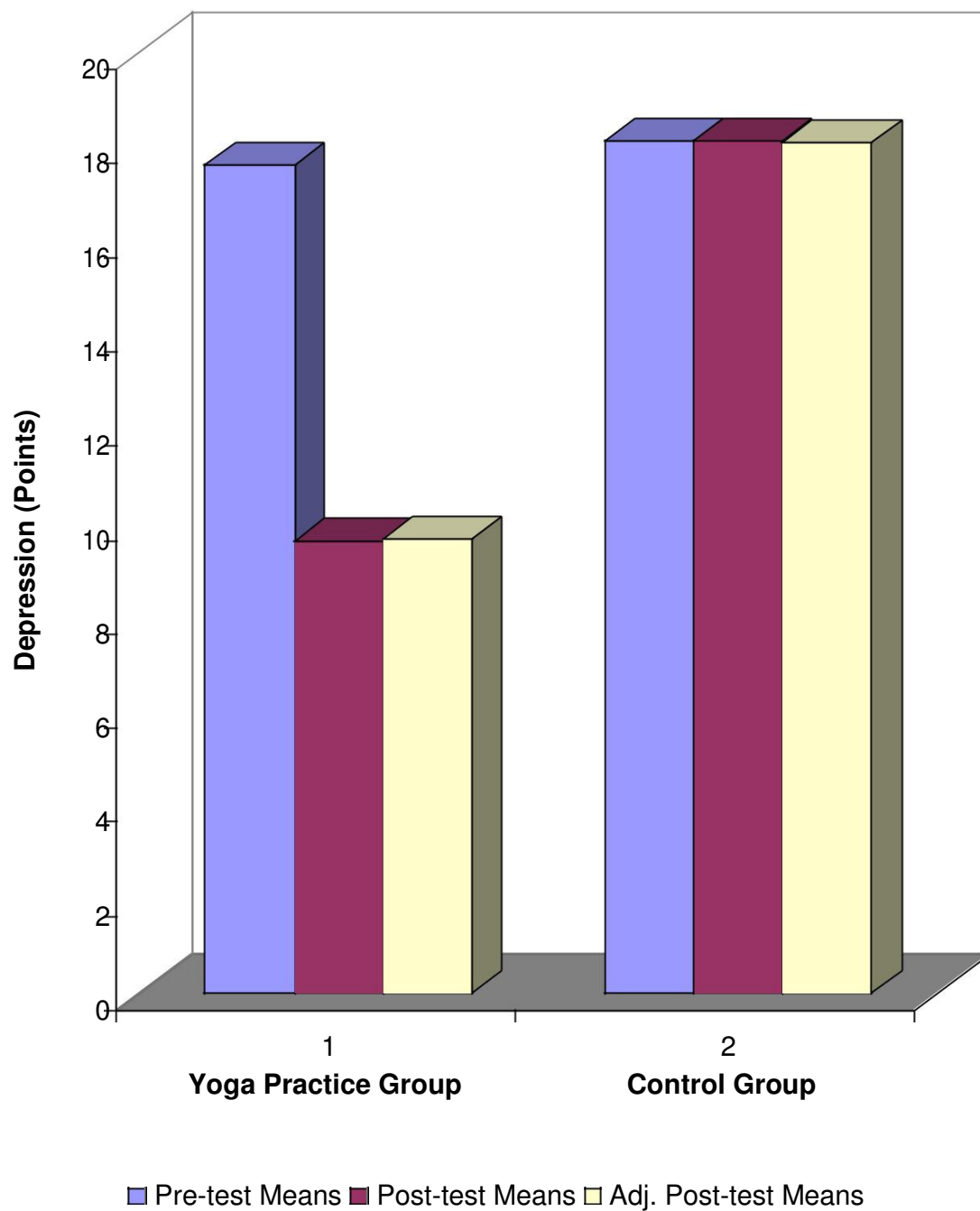
Figure –10: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Depression

4.3.10 Anxiety

The data collected prior to and after the experimental period on anxiety for yogic practice group and control group were analysed and presented in Table - XIII.

Table - XIII

ANALYSIS OF COVARIANCE ON ANXIETY OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	14.20	13.73	Between	1.633	1	1.633	1.055
S.D.	1.146	1.335	Within	43.333	28	1.548	
Post-test Mean	7.93	13.73	Between	252.30	1	252.30	110.61*
S.D.	1.710	1.280	Within	63.867	28	2.281	
Adjusted Post-test Mean	7.820	13.847	Between	262.591	1	262.591	132.37*
			Within	53.56	27	1.984	

* Significant 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table – XIII showed that the pre-test mean values of anxiety for yogic practice group and control group were 14.20 ± 1.146 and 13.73 ± 1.335 respectively. The obtained _F' ratio value of 1.055 for pre test scores of yogic practice group and control group on anxiety was less than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The post-test mean values for anxiety for yogic practice group and control group were 7.93 ± 1.710 and 13.73 ± 1.280 respectively. The obtained _F' ratio value

of 110.61 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of anxiety for yogic practice group and control group were 7.820 and 13.847 respectively. The obtained _F' ratio value of 132.37 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on anxiety. Moreover, the result of the study also shown that there was a significant decrease in anxiety after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on anxiety were graphically represented in Figure - 11.
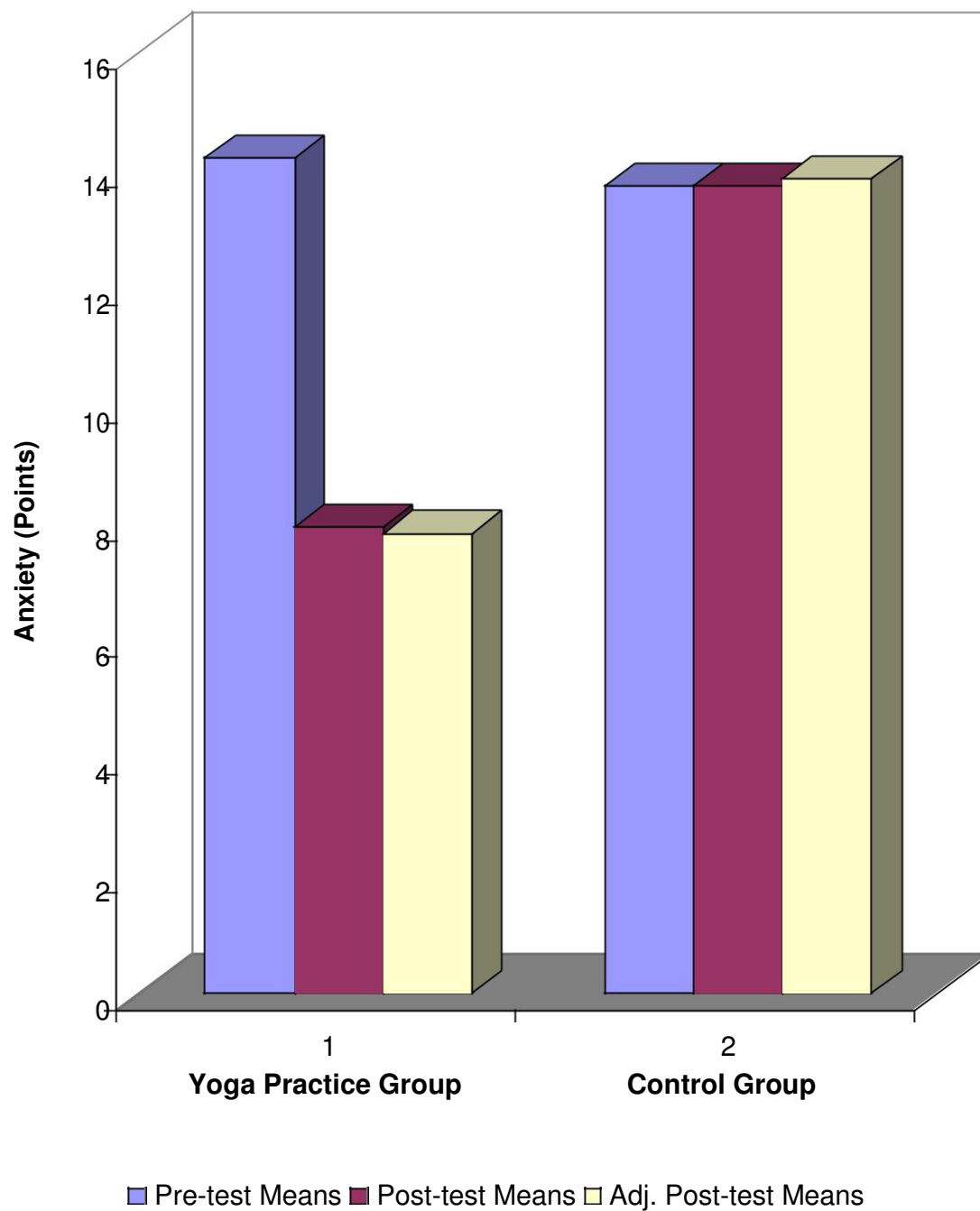
Figure – 11: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Anxiety

4.3.11 Stress

The data collected prior to and after the experimental period on stress for yogic

practice group and control group were analysed and presented in Table - XIV.

Table - XIV

ANALYSIS OF COVARIANCE ON STRESS OF YOGIC PRACTICE GROUP AND CONTROL GROUP

	Yoga Practice Group	Control Group	Source of Variance	Sum of Square	df	Mean Square	„F ratio
Pre- test Mean	19.67	20.60	Between	6.533	1	6.533	1.083
S.D.	2.769	2.098	Within	168.933	28	6.033	
Post-test Mean	12.67	20.40	Between	448.533	1	448.533	187.63*
S.D.	0.976	1.957	Within	66.933	28	2.390	
Adjusted Post-test Mean	12.770	20.297	Between	85.846	1	85.846	34.671*
			Within	66.853	27	2.476	

* Significant 00.05 level of confidence.
(The table values required for significance at 0.05 level of confidence with df 1 and 28
and 1 and 27 were 4.20 and 4.21 respectively).

Table – XIV showed that the pre-test mean values of stress for yogic practice

group and control group were 19.67 ± 2.769 and 20.60 ± 2.098 respectively. The

obtained ‗F' ratio value of 1.083 for pre test scores of yogic practice group and control

group on stress was less than the required table value of 4.20 for significance with df 1

and 28 at 0.05 level of confidence.

The post-test mean values for stress for yogic practice group and control group

were 12.67 ± 0.976 and 20.40 ± 1.957 respectively. The obtained ‗F' ratio value of

187.63 for post-test scores of yogic practice group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at 0.05 level of confidence.

The adjusted post-test mean values of stress for yogic practice group and control group were 12.770 and 20.297 respectively. The obtained ‗F' ratio value of 34.671 for adjusted post-test scores of yogic practice group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at 0.05 level of confidence.

The results of this study showed that there was a significant difference between yogic practice group and control group on stress. Moreover, the result of the study also shown that there was a significant decrease in stress after the yogic practice when compared with the control group.

The mean values of yogic practice group and control group on stress were graphically represented in Figure - 12.
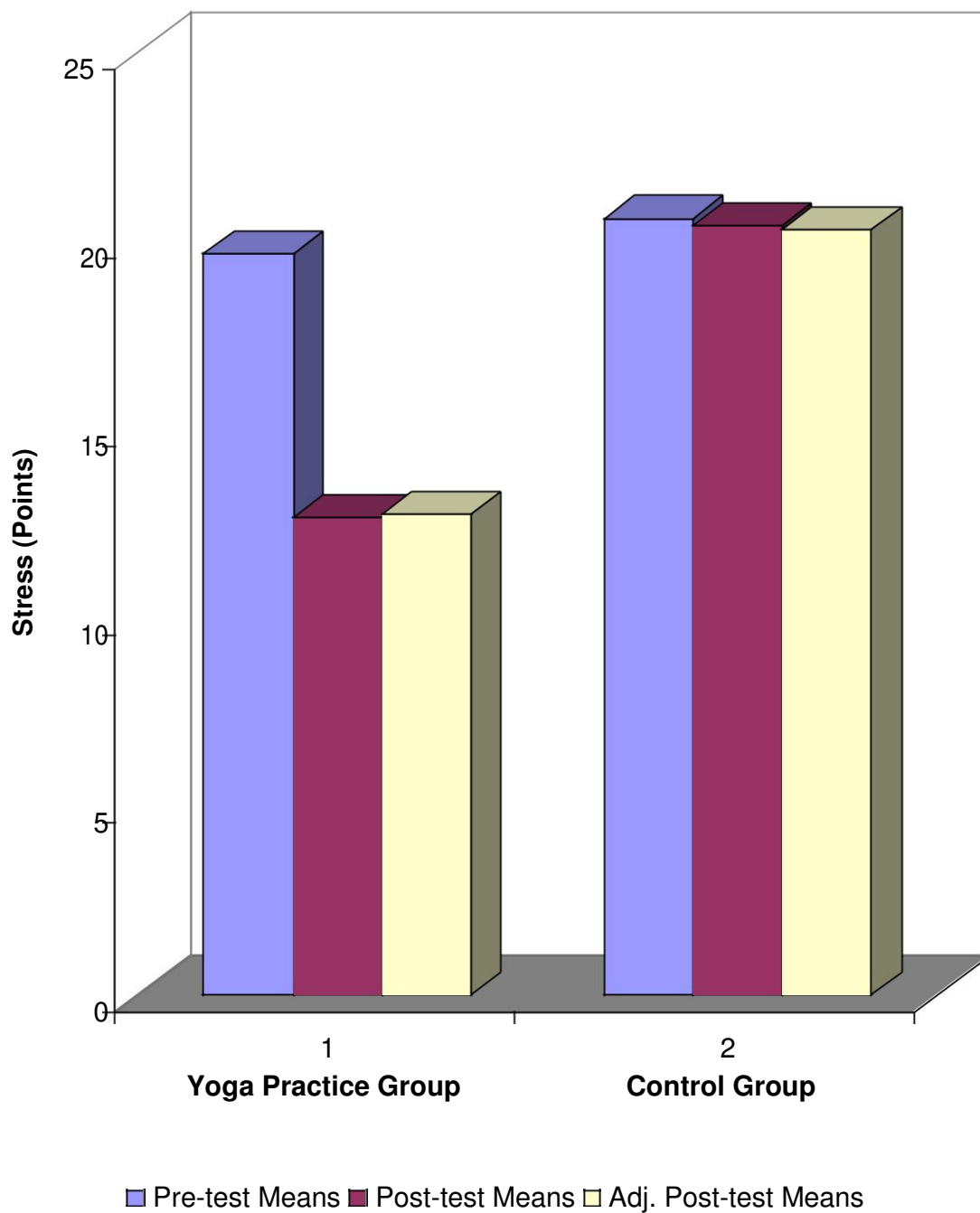
Figure – 12: Bar Diagram Showing the Mean Values of Yogic Practice Group and Control Group on Stress

4.4 RESULTS OF THE VARIABLES

The overall study reveals that the results are in the desired direction as far as blood glucose (both fasting and postprandial), HbA1c, total cholesterol, triglycerides, high density lipoproteins, low density lipoproteins, very low density lipoproteins, stress, anxiety and depression are concerned. Furthermore yoga practice group showed more favourable changes in selected biochemical variables such as blood glucose (both fasting and postprandial), HbA1c, total cholesterol, triglycerides, high density lipoproteins, low density lipoproteins and very low density lipoproteins and psychological variables such as stress, anxiety and depression when compared with the control group.

4.4.1 DISCUSSION ON FINDINGS

The state of the mind and that of the body are intimately related. If the mind is relaxed, the muscles in the body will also be relaxed. Stress produces a state of physical and mental tension. Yoga, developed thousands of years ago, is recognized as a form of mind-body medicine. In yoga physical postures and breathing exercises improve muscle strength, blood glucose (postprandial), blood circulation and oxygen uptake as well as hormone functions. In addition, the relaxation induced by meditation helps to stabilize the autonomic nervous system with a tendency towards parasympathetic dominance. Physiological benefits, which follow, help yoga practitioner become more resilient to stressful conditions and reduce a variety of important risk factors for various diseases, especially cardio-respiratory diseases. Based on the results of the study the following findings were drawn:

1. Both fasting and postprandial blood glucose was decreased after the yoga practice when compared with the control group. The findings of *Ravi Prakash Upadhyay and others* (**2013**) and *Dharanvir Ranjan Bharati and others* (**2011)** were also in line with the findings of the present study.

2. The findings of the study also show that there was a significant decrease in HbA1c after the yogic practices when compared with the control group. *Robin Monroe and others (2004)* also found that there was a significant improvement in the performance HbA1c after the yogic practices.

3. The result of the study was shows that the total cholesterol decreased significantly after practicing the yoga. The findings of *Elangovan and Babu* (**2011)** and *Dhananjai and others* (**2010)** have proved that there was a significant decrease in cholesterol after the yogic practices among obese male and female. In the present study middle aged diabetic male patients and the training period was six days per week for twelve weeks. So, due to the practice of yoga, the cholesterol may be reduced.

4. In the present study the level of triglycerides was decreased after the twelve weeks of yogic practices. The findings of *Prasad KVV and others* (**2006)** and *Mahajen and others* (**1999)** also show that there was a significant decrease in the level of triglycerides.

5. There was a positive alteration in high, low and very low density lipoproteins in the present study after twelve weeks of yogic practices. The result of *Mahajen and others* (**1999)** shows that there was a significant positive alternation in cholesterol, triglycerides, high density lipoproteins and low and very low

density lipoproteins after the asanas and pranayama on both male (16%) and female (84%).

6. Stress was decreased significantly after the twelve weeks of yogic practices. The finding of *Hafner-Holter, Kopp and Gunter* (**2009**) was also in line with the findings of the present study, i.e. a significant decrease in stress after the yogic practices.

7. The present study as found that there was a significant reduction in anxiety due to the twelve weeks of yogic practices.The results of *Samprasad and others* (**1991**) and *Asnani.* (**2001**) are also in line with the findings of the present study.

8. The present study as found that there was significant reduction in depression due to the twelve weeks of yogic practices. The results of *Javnbakht M., Hejazi Kenari R. and Hisami M.* (**2009**)*, Brown and Gerbarg* (**2005**) and *Asnani.* (**2001**) are also in line with the findings of the present study.

4.5 DISCUSSION ON HYPOTHESES

The researcher had formulated the following hypotheses as earlier.

1. The first hypothesized formulates that there would be a significant difference between integrated modules of yoga practice group and control group on blood glucose (fasting/postprandial), HbA1c, triglycerides, HDL, LDL, VLDL and total cholesterol, depression, anxiety and stress. The result of the study also shows that there was a significant difference was occurred between the yoga practice group and control group on selected criterion variables such as, blood glucose

(fasting/postprandial), HbA1c, triglycerides, HDL, LDL, VLDL and total cholesterol, depression, anxiety and stress. So, the researcher's first hypothesis was accepted.

2. Second it was hypothesized that that there would be a significant decrease in selected biochemical variables such as, blood glucose (fasting/postprandial), HbA1c, triglycerides, LDL, VLDL and total cholesterol and selected psychological variables such as, depression, anxiety and stress after the integrated modules of yogic practices. The result of the study also shows that there was a significant reduction in blood glucose (fasting/postprandial), HbA1c, triglycerides, LDL, VLDL and total cholesterol, depression, anxiety and stress after the integrated modules of yogic practice. So, the researcher's second hypothesis was also accepted.

3. In third it was hypothesized that there would be a significant increase in HDL after the integrated modules of yogic practices. The result of the study also shows that there was a significant increase in HDL cholesterol after the yoga practice. So, the researcher's third hypothesis was also accepted.