

Effect of Pilates Exercises, Yogic Practices and Combined Pilates Exercises and Yogic Practices on Selected Psychological variables among College Female Students

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Abstract

The present study was designed to find out the effect of Pilates exercises, yogic practices and combined Pilates exercises and yogic practices on selected psychological variables among college female students. For this purpose sixty(N=60) college female students studying various affiliated colleges to Thiruvalluvar University, Vellore, Tamilnadu India were selected randomly as subjects. The age of the subjects were ranged between 18-21 years. The subjects were assigned at random into four groups of fifteen each (n=15) namely, Pilates exercises, yogic practices, combined Pilates exercises and yogic practices and control group. Group-I underwent Pilates Exercises, Group-II underwent yogic practices, Group-III underwent combined Pilates exercises and yogic practices and Group-IV acted as control. The duration of the training period for all the three experimental groups was restricted to twelve weeks and the number of sessions per week was confined to three in a week. For combined Pilates exercises and yogic practices the training period was restricted to alternative weeks for twelve weeks. Anxiety was selected as dependent variable and it was assessed by SCAT Questionnaire. All the subjects were tested prior to and immediately after the training for the entire selected variable. The data obtained from the experimental groups before and after the experimental period were statistically analyzed with Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, the Scheffe's Post hoc test was applied to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases. The results of the study showed that there was a significant difference was found among all the experimental groups namely Pilates exercises, yogic practices, combined Pilates exercises and yogic practices groups had significantly increase in Anxiety. Further the results of the study showed that combined Pilate's exercises and yogic practices group was found to be better than the Pilate's exercises group and yogic practices group in Anxiety.

Keywords: Pilates Exercises, Yogic Practices, Combined Pilates Exercises and Yogic Practices, Anxiety

1. Introduction

Functional Pilates (Pilates) is a series of exercise followed by soft tissue manipulation that enhances the optimal function of neuromyofacial system of human body. Pilates is an excellent way to trim down your body and strengthen core muscles without bulking up. This style of exercise will teach you how to control your body movements and increase your flexibility and grace. Joseph Pilates originally considered this to be a body/mind/ spirit approach to movement founded on the integrative effect of principles, Centering, Breathing, Movement flow / Rhythm. Pilates exercise does a lot of things to our body. Unlike other exercises which can cause stress and injuries. It can help to develop a healthy body by promoting blood to run deeply into your whole system, instead of causing stress [5]. Reduced levels of stress as well as improved respiratory and circulatory system are all direct benefits of Pilates training. Pilates is reducing the stress by the action of decreasing the cortisol through the breathing pattern (Essam Abdel et al., 2011).

Pilates is a therapeutic exercise intended to enhance strength, stabilizer core muscles, endurance, muscle coordination, posture and respiration. Exercises can be done on mats or require the use of specialized equipment and the concepts of Pilates include centering that occurs by tightening of the body's muscle core between the ribcage and the pelvic floor throughout exercise, focus where cognitive focus needed to accomplish the activity, balance that needs the posture and movement control throughout the activity, precision that allows the accurateness of the technique of exercise, flow to get smooth movement changes within the course of exercise and most importantly, respiration that needs proper inhalation and exhalation of air from the lungs in combination with the exercise (Wells et al., 2012).

Pilates provide complete coordination of body, mind and spirit. Pilates is based on six principles which enable to increase attention, motivation and enhance cognitive functions while minimizing stress on the body (Arline Muller, et al., 2012).

Yoga is a physical, mental and spiritual practice that originated in ancient India. It became popular in the west in the 20th century. The yoga comes from the Sanskrit word 'YUJ' meaning yoke or union. Thus, yoga is the practice that aims to join the MIND, BODY & SPIRIT. It incorporates breathing exercise, meditation & poses designed to encourage relaxation & reduce stress. With increasing scientific research in yoga, its therapeutic aspects are also being explored (Kanimozhi. K , B. Raja Mohamed Rabi(2018).

Yoga is known for its ability to ease stress, anxiety and promote relaxation, improves autonomic function by triggering neurohormonal mechanisms by the suppression of sympathetic activity, and even, now-a-days, several reports suggested yoga is beneficial for physical health of patients⁴ In fact, and multiple studies have shown that it can decrease the secretion of cortisol, the primary stress hormone.

2. Methodology

The study was conducted on sixty (N=60) college female students studying various affiliated colleges to Thiruvalluvar University, Vellore, Tamilnadu India were selected randomly as subjects. The age of the subjects were ranged between 18-21 years. The subjects were assigned at random into four groups of fifteen each (n=15) namely, Pilates exercises, yogic practices, combined Pilates exercises and yogic practices and control group. Group-I underwent Pilates Exercises, Group-II underwent yogic practices, Group-III underwent combined Pilates exercises and yogic practices and Group-IV acted as control. The duration of the training period for all the three experimental groups was restricted to twelve weeks and the number of sessions per week was confined to three in a week. For combined Pilates exercises and yogic practices the training period was restricted to alternative weeks for twelve weeks. Anxiety was selected as dependent variable and it was assessed by SCAT Questionnaire (Martens, 1977). The data obtained from the experimental groups before and after the experimental period were statistically analyzed with Analysis of covariance (ANCOVA). Whenever the 'F' ratio for adjusted post test means was found to be significant, the Scheffe's Post hoc test was applied to determine the paired mean differences. The level of confidence was fixed at 0.05 level for all the cases.

3. Results and Discussions

The results of the Analysis of Covariance on Anxiety of the pre, post, and adjusted test scores of Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and Control group are presented in table -1.

Table – 1

Values of Analysis of Covariance for Experimental Groups and Control Group on Anxiety (Measures in Numbers)

Test	Pilates Exercises Group	Yogic Practices Group	Combined Pilates Exercises and Yogic Practices Group	Control Group	SV	SS	df	MS	F-ratio
Pre-Test Mean	23.87	24.80	24.93	24.07	BG	12.58	3	4.19	0.99
					WG	238.00	56	4.25	
Post-Test Mean	20.67	19.87	16.80	24.27	BG	424.00	3	141.33	29.27*
					WG	270.40	56	4.83	
Adjusted Post-Test Mean	20.89	19.71	16.59	24.41	BS	455.72	3	151.91	36.12*
					WS	231.90	55	4.21	

SV- Source of Variance, SS- Sum of Squares, df- degree of freedom, MS-Mean Squares, BG- Between Groups, WG-Within Groups, BS- Between Sets, WS-within Sets, * Significant at 0.05 level of confidence, Table value for df (3, 56) at 0.05 level = 2.76, Table value for df(3,55) at 0.05 level = 2.78

The table-1 shows that the pre test mean values of Anxiety for Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and control group are 23.87, 24.80, 24.93 and 24.07 respectively. The obtained 'F' ratio of 0.99 for the pre test mean values are lesser than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Anxiety. The post test mean values of Anxiety for Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and control group are 20.67, 19.87, 16.80, & 24.27 respectively. The obtained 'F' ratio of 29.27 for the post test mean values are higher than the table value of 2.76 for degrees of freedom 3 and 56 required for significance at 0.05 level of confidence on Anxiety. The adjusted post test mean values of Anxiety for Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and control group is 20.89, 19.71, 16.59 and 24.41 respectively. The obtained 'F' ratio of 36.12 for the adjusted post test mean is greater than the table value of 2.78 for degrees of freedom 3 and 55 required for significance at 0.05 level of confidence on Anxiety.

The analysis of the study indicated that there was a significant difference between the adjusted post-test means of Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and control group on Anxiety.

Pair wise comparisons of Scheffe's post hoc test results are presented in table – 2.

Table – 2
The Scheffe's test for the differences between the adjusted post tests paired means on Anxiety (Measures in Numbers)

Certain Variables	Adjusted Post test Means				Mean Difference	Confidence Interval
	Pilates Exercises Group	Yogic Practices Group	Combined Pilates Exercises and Yogic Practices Group	Control Group		
Anxiety	20.89	19.71			1.18	2.16
	20.89		16.59		4.30*	2.16
	20.89			24.41	3.52*	2.16
		19.71	16.59		3.12*	2.16
		19.71		24.41	4.70*	2.16
			16.59	24.41	7.82*	2.16

* Significant at 0.05 level of confidence

Table-2 shows that the adjusted post test mean differences on Anxiety between Pilate's exercises group and combined Pilate's exercises & yogic practices group, Pilate's exercises group and control group, yogic practices group and combined Pilate's exercises & yogic practices group, yogic practices group and control group, combined Pilate's exercises & yogic practices group and control group are 4.30, 3.52, 3.12, 4.70 and 7.82 respectively and they are greater than the

confidence interval value 2.16, which shows significant differences at 0.05 level of confidence.

Further the table-2 shows that the adjusted post test mean differences on Anxiety between Pilate's exercises group and yogic practices group is 1.18. The value is lesser than the confidence interval value 02.16, which shows no significant differences at 0.05 level of confidence.

The results of the study further have revealed that there is a significant difference in Anxiety between the adjusted post test means of Pilate's exercises group and combined Pilate's exercises & yogic practices group, Pilate's exercises group and control group, yogic practices group and combined Pilate's exercises & yogic practices group, yogic practices group and control group, combined Pilate's exercises & yogic practices group and control group. Further the results of the study revealed that there is no significant difference in Anxiety between Pilate's exercises group and yogic practices group.

However, the increase in Anxiety was significantly higher for Combined Pilate's exercises and yogic practices group than other experimental groups.

It may be concluded that the combined Pilate's exercises and yogic practices group has exhibited better than the other experimental groups in increasing Anxiety.

The pre and post test mean value of experimental groups on Anxiety is graphically represented in the Figure -1.

The adjusted post test mean value of experimental groups on Anxiety is graphically represented in the Figure -2.

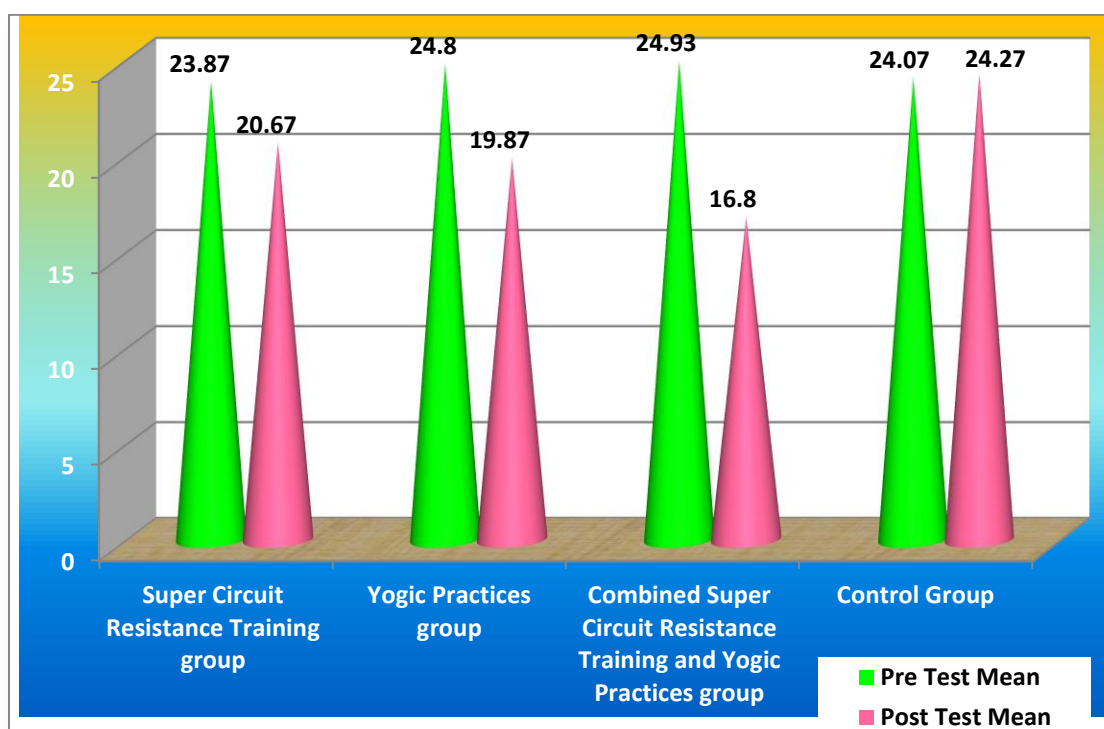
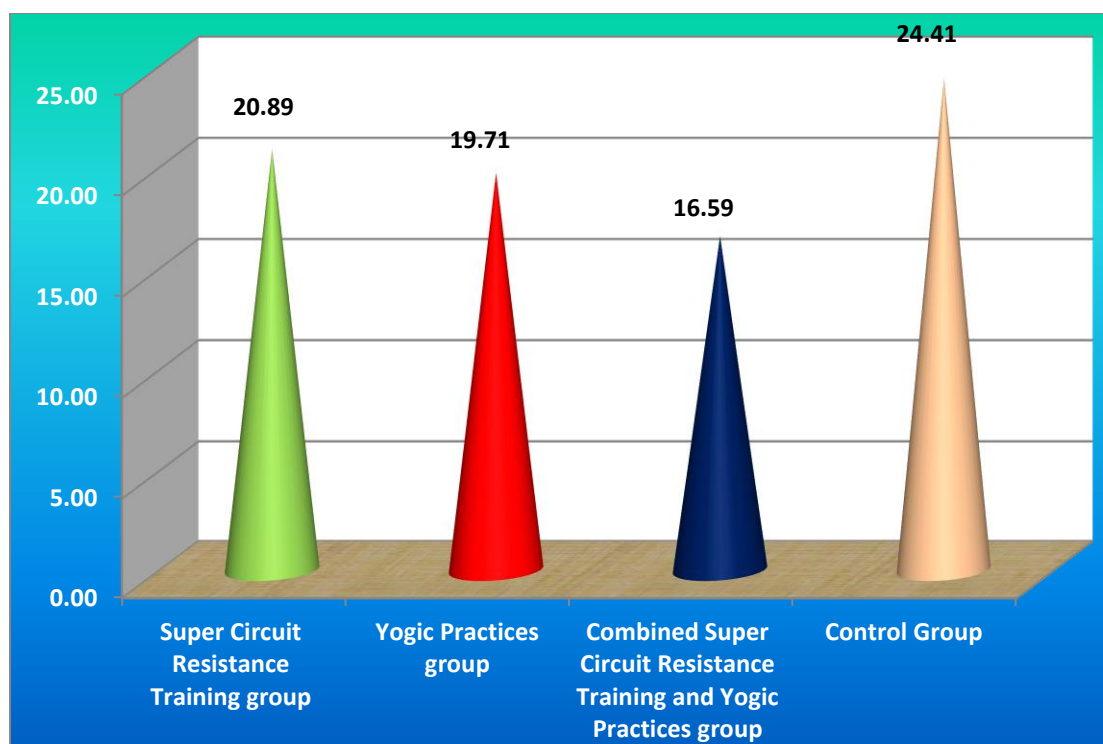


Fig-1: Diagram on ordered pre and post test means of Anxiety (Units in Numbers)**Fig-2: Diagram on ordered adjusted means of Anxiety (Units in Numbers)**

4. Conclusions

Significant differences in achievement were found between Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and control group in Anxiety. The experimental groups namely, Pilate's exercises group, yogic practices group, combined Pilate's exercises and yogic practices group and control group had significantly decreased in Anxiety.

The combined Pilate's exercises and yogic practices group was found to be better than the Pilate's exercises group, yogic practices group and control group in decreasing Anxiety.

5. References

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