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Effect Of Eight Weeks Yogic Practices And Yogic Diet On Selected Biomarkers Of Hypokinetic Diseases Of Working Women Of Amravati District

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Abstract

This study aimed to evaluate the effectiveness of yogic practices and a yogic diet in minimizing the risk biomarkers of hypokinetic diseases among working women in the Amravati district. The objective was to find out the effect of yogic practices and yogic diet on Body Mass Index (BMI), Fasting Blood Sugar (FBS), and Total Cholesterol of working women of Amravati district. The hypotheses were set that there is a significant difference in post-test adjusted mean scores of Body Mass Index, Fasting Blood Sugar and Total Cholesterol between the control group and the experimental group of working women of Amravati district by considering their pre-test mean scores as covariates. A total of 60 working women with BMI ≥ 30 (aged 30-40 years) were randomly assigned into the two groups. The experimental group underwent 8 weeks of yoga practices along with a yogic sattvic diet, while the control group received no intervention. Pretest-post-test randomized group design was used, with data collected for BMI, FBS, and Total Cholesterol before and after the intervention. For the collection of data, the Digital weighing scale and height measurement used for Body Mass Index (measured in kg/m²), Glucometer used for Fasting Blood Sugar (mg/dL) and Lipid Profile Test chosen for Total Cholesterol (mg/dL). The data were analysed using ANCOVA with pre-test scores as covariates, and significance was set at 0.05. Results revealed significant differences in the post-test adjusted mean scores for BMI, FBS, and Total Cholesterol between the control group and experimental group. The study concludes that 8 weeks of yogic practices and a yogic diet effectively manage the selected risk biomarkers of hypokinetic diseases in the experimental group.

Key word: Hypokinetic, BMI (Body Mass Index), FBS (Fasting Blood Sugar), Total Cholesterol, Yogic practices, Sattvic Yogic Diet, CG (Control Group), EG (Experimental Group) and Analysis of Co-Variance (ANCOVA)

Introduction

Hypokinetic diseases, characterized by insufficient physical activity, are a growing concern in today's sedentary lifestyle. These diseases, including obesity, type 2 diabetes, cardiovascular disorders, and metabolic syndromes, are responsible for significant morbidity and mortality worldwide. According to the World Health Organization (WHO), physical inactivity is identified as the fourth leading risk factor for global mortality, accounting for approximately 3.2 million deaths annually. The increasing prevalence of sedentary behavior, coupled with unhealthy dietary habits, has amplified the risk of developing these non-communicable diseases, especially in urban populations.

Body Mass Index (BMI), fasting blood sugar (FBS), and total cholesterol are critical biomarkers that reflect the risk of hypokinetic diseases. BMI, a widely recognized indicator of obesity, is directly associated with several metabolic disorders, including insulin resistance and dyslipidaemia. Studies show that individuals with a BMI of 30 or higher are at a heightened risk of cardiovascular disease and type 2 diabetes, making it an essential variable for evaluating health outcomes.

Fasting blood sugar is another crucial marker, with elevated levels serving as an early warning sign of prediabetes or type 2 diabetes. The American Diabetes Association emphasizes that an FBS level of 100 mg/dL or higher significantly increases the likelihood of metabolic complications, including impaired glucose tolerance and endothelial dysfunction. Total cholesterol, encompassing both low-density lipoprotein (LDL) and high-density lipoprotein (HDL) cholesterol, plays a pivotal role in cardiovascular health. Elevated total cholesterol levels, particularly LDL cholesterol, contribute to atherosclerosis, hypertension, and other cardiovascular complications. Alarmingly, studies suggest that high cholesterol levels are present in over 40% of adults globally, further underscoring the need for effective intervention strategies.

This study aims to evaluate the effectiveness of an 8-week yogic practices and yogic diet intervention in minimizing the risk factors of hypokinetic diseases among working women of the Amravati district. By analyzing the impact on BMI, fasting blood sugar, and total cholesterol, this research provides evidence-based insights into the role of lifestyle modifications in managing non-communicable diseases and improving overall health.

Objectives

The objective was to find out the effect of yogic practices and yogic diet on Body Mass Index (BMI), Fasting Blood Sugar (FBS), and Total Cholesterol of working women of Amravati district.

Hypotheses

There is a significant difference in the post-test adjusted mean scores of Body Mass Index (BMI), Fasting Blood Sugar (FBS) and Total Cholesterol between the experimental group (yogic practices and yogic diet intervention) and the control group, considering their pre-test scores as covariates.

Methodology

For the purpose of the study, sixty working women participants (BMI ≥ 30), aged 30–40 years, from the Amravati district were randomly assigned and divided into two group namely experimental group (n=30) and control group (n=30). The independent variable were the yogic practices and yogic diet, while dependent variables were BMI, FBS and Total Cholesterol. For the collection of data Digital weighing scale and height measurement used for Body Mass Index (measured in kg/m²), Glucometer used for Fasting Blood Sugar (mg/dL) and Lipid Profile Test chosen for Total Cholesterol (mg/dL). The intervention included 60-minute yogic practices sessions (asanas, pranayama, and relaxation techniques) five days a week in morning from 6.00 am to 7.00 am and a sattvic yogic diet focusing on natural, plant-based foods while excluding processed and high-fat items. Baseline measurements of BMI, FBS, and Total Cholesterol were recorded for both groups before the intervention, and post-intervention measurements were taken after 8 weeks. The study used a pretest-posttest randomized group design to examine the effects of an 8-week yogic practices and yogic diet intervention on Body Mass Index (BMI), Fasting Blood Sugar (FBS), and Total Cholesterol. The data were analyzed using ANCOVA with pre-test scores as covariates, and significance was set at 0.05.

Analysis of Data

The data was analyzed by applying the Analysis of Co-Variance (ANCOVA) Technique to find out the effect of Eight Weeks Yogic Practices and Yogic Diet on Body Mass Index, Fasting Blood Sugar and Total Cholesterol. The level of significance was set at 0.05 to test the hypothesis.

Table-1

Summary of One-Way ANCOVA of Body Mass Index of Control Group and Experimental Group.

Test	Groups		One Way Analysis of Covariance (ANCOVA)						
	Control	Experimental	Sources of Variance	SS	df	MSS	F	Sig.	Partial Eta Squared
Pre – Mean	31.62	31.43	B	0.547	1	0.166	0.174	.678	.638
			W	182.06	58	3.139			
Post – Mean	31.16	27.77	B	173.18	1	173.18	43.578	.000	
			W	230.49	58	3.97			
Adjusted Post – Mean	31.07[a]	27.75[a]	B	155.93	1	155.93	100.51	.000	
			W	88.42	57	1.551			

**= Significant at 0.05 Level

From Table 1 it can be seen the adjusted F-value is 100.51 which is statistically significant at 0.05 level with df=1/57. It indicates that there is significant difference of adjusted post-test mean scores of Body Mass Index (BMI) between Control group and Experimental group, by considering their Pre-test mean scores of Body Mass Index (BMI) as covariates. Further the adjusted mean scores of Body Mass Index (BMI) of Experimental Group is 27.85[a] which is significantly lower than those Control Group whose adjusted mean scores of Body Mass Index (BMI) is 31.07[a]. Hence, it indicates that 8 weeks of yogic practices and a yogic diet effectively reduce the Body Mass Index (BMI) of experimental group. The difference of means has been shown graphically in fig. 1.

Fig 1: Graphical representation of Body Mass Index (BMI) of control group and experimental group.

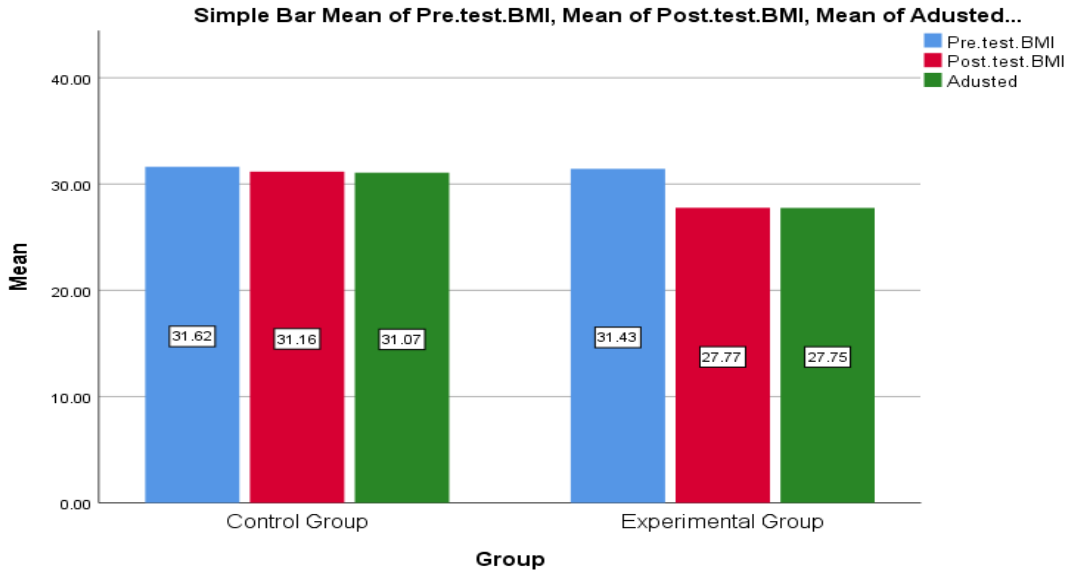

Table-2

Summary of One-Way ANCOVA of Fasting Blood Sugar of Control Group and Experimental Group.

Test	Groups		One Way Analysis of Covariance (ANCOVA)						
	Control	Experimental	Sources of Variance	SS	df	MSS	F	Sig.	Partial Eta Squared
Pre – Mean	119.32	118.63	B	7.025	1	0.166	0.174	.156	.765
			W	2610.82	58	45.01			
Post – Mean	119.48	93.82	B	9875.83	1	9875.83	160.577	0.000	
			W	3567.13	58	61.50			
Adjusted Post – Mean	119.31[a]	93.99[a]	B	9593.76	1	9593.76	185.92	0.000	
			W	2941.2	57	51.6			

**= Significant at 0.05 Level

From Table 2 it can be seen the adjusted F-value is 185.92 which is statistically significant at 0.05 level with df=1/57. It indicates that there is significant difference of adjusted post-test mean scores of Fasting Blood Sugar (FBS) between Control group and Experimental group, by considering their Pre-test mean scores of Fasting Blood Sugar (FBS) as covariates. Further the adjusted mean scores of Fasting Blood Sugar (FBS) of Experimental Group is 93.99[a] which is significantly lower than those Control Group whose adjusted mean scores of Fasting Blood Sugar (FBS) is 119.31[a]. Hence, it indicates that 8 weeks of yogic practices and yogic diet effectively reduce the Fasting Blood Sugar (FBS) of experimental group. The difference of means has been shown graphically in fig. 2.

Fig 2: Graphical representation of Fasting Blood Sugar (FBS) of control group and experimental group.

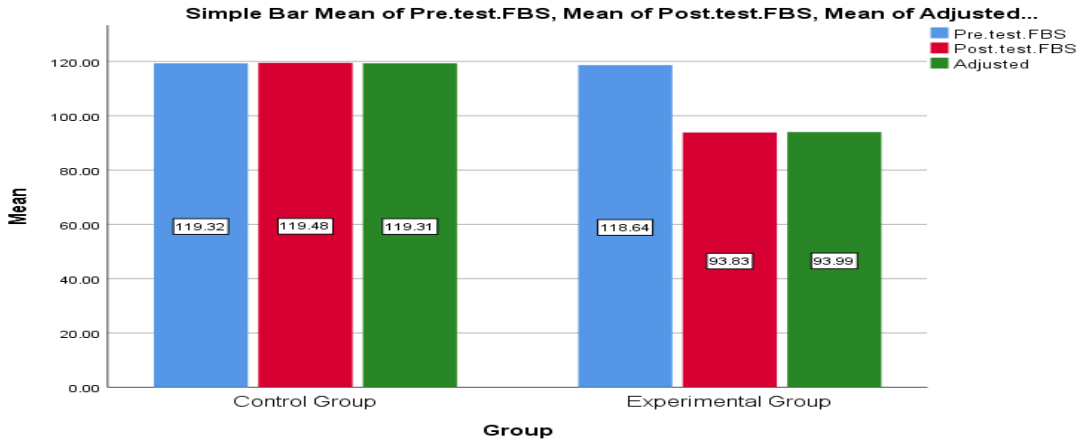

Table-3

Summary of One-Way ANCOVA of Total Cholesterol of Control Group and Experimental Group.

Test	Groups		One Way Analysis of Covariance (ANCOVA)						
	Control	Experimental	Sources of Variance	SS	df	MSS	F	Sig.	Partial Eta Squared
Pre – Mean	216.89	218.04	B	18.50	1	18.50	0.62	.804	.698
			W	17212.13	58	296.76			
Post – Mean	217.84	183.30	B	17894.93	1	17894.93	80.09	.000	
			W	12958.46	58	223.42			
Adjusted Post – Mean	218.14[a]	183.01[a]	B	18497.64	1	18497.64	131.66	.000	
			W	8007.95	57	140.49			

**= Significant at 0.05 Level

From Table 3 it can be seen the adjusted F-value is 131.66 which is statistically significant at 0.05 level with df=1/57. It indicates that there is significant difference of adjusted post-test mean scores of Total Cholesterol between Control group and Experimental group, by considering their Pre-test mean scores of Total Cholesterol as covariates. Further the adjusted mean scores of Total Cholesterol of Experimental Group is 183.01[a] which is significantly lower than those Control Group whose adjusted mean scores of Total Cholesterol is 218.14[a]. Hence, it indicates that 8 weeks of yogic practices and a yogic diet effectively reduce the Total Cholesterol level of experimental group. The difference of means has been shown graphically in fig. 3.

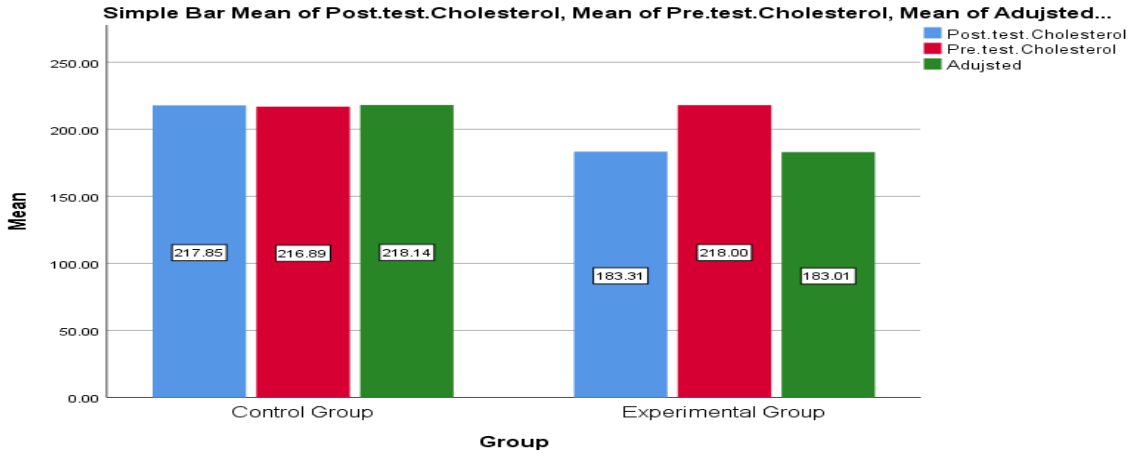

Fig 3: Graphical representation of Total Cholesterol of control group and experimental group.

Testing Hypotheses

The hypothesis stating a significant difference in the post-test adjusted mean scores of Body Mass Index (BMI), Fasting Blood Sugar (FBS), and Total Cholesterol between the experimental group (yogic practices and diet intervention) and the control group, with pre-test scores as covariates, was tested using ANCOVA. The statistical analysis revealed significant differences between the groups for all three variables, leading to the acceptance of the hypothesis, thereby confirming the effectiveness of the 8-week yogic practices and yogic diet intervention.

Findings

The study concludes that an 8-week intervention of yogic practices and a sattvic yogic diet effectively reduced Body Mass Index (BMI), Fasting Blood Sugar (FBS), and Total Cholesterol levels in working women aged 30–40 years from the Amravati district, with the experimental group showing significant improvements in these risk biomarkers compared to the control group. These findings align with similar studies, such as **Sharma et al. (2016)** highlighted sattvic diets' role in reducing inflammation and improving lipid profiles, while **Ross et al. (2010)** emphasized the synergistic effects of combining yoga and dietary changes in managing obesity and metabolic disorders. **Telles et al. (2010)**, which reported reductions in BMI and improved metabolic health through yoga; **Bijlani et al. (2005),** which demonstrated lower fasting blood sugar levels with yoga and dietary interventions.

Conclusion

The present study demonstrates that an 8-week intervention combining yogic practices and a sattvic yogic diet is a highly effective approach for improving critical health biomarkers associated with hypokinetic diseases. Specifically, this holistic intervention was found to significantly reduce Body Mass Index (BMI), Fasting Blood Sugar (FBS), and Total Cholesterol levels in working women aged 30–40 years from the Amravati district. Statistical findings reveal that the intervention achieved a 63.8% effective in reduction of BMI, a 76.5% effective in reduction of fasting blood sugar levels, and a 69.8% effective in reduction of total cholesterol levels in the experimental group compared to the control group. These outcomes highlight the

transformative potential of integrating traditional yogic practices with dietary modifications in managing and mitigating the risk factors of lifestyle diseases. This study underscores the relevance of holistic and sustainable health interventions for addressing obesity and metabolic disorders, warranting broader adoption and further research in diverse populations.

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