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EFFICACY OF YOGA PRACTICES AND SATTVIC DIET ON LOW DENSITY LIPOPROTEIN AND PERCEIVED STRESS IN MIDDLE-AGED WOMEN WITH HYPOTHYROIDISM

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Abstract:

Background: Middle-aged women with hypothyroidism are prone to elevated low-density lipoprotein (LDL) cholesterol levels and higher stress, increasing their risk of cardiovascular diseases. Combining lifestyle interventions such as Hatha Yoga and a Sattvic diet may offer a non-pharmacological approach to managing these conditions. This study aimed to evaluate the combined effect of Hatha Yoga and a Sattvic diet on Low Density lipoprotein and perceived stress.

Aim: To examine the impact of Hatha Yoga combined with a Sattvic diet, Hatha Yoga alone, and no intervention on Low Density lipoprotein levels and perceived stress among middle-aged women with hypothyroidism.

Methodology: A total of 60 hypothyroid women, aged 35 to 60, were randomly assigned to three groups: Group A (Hatha Yoga + Sattvic diet), Group B (Hatha Yoga alone), and Group C (control). The intervention spanned 12 weeks. Low Density lipoprotein levels and perceived stress (measured using the Perceived Stress Scale, PSS) were assessed before and after the intervention. Data were analyzed using ANCOVA and post hoc tests.

Results: Significant reductions in Low Density lipoprotein and perceived stress were observed in both Group A and Group B compared to the control group ($p < 0.01$), with the greatest improvement seen in Group A.

Conclusion: Hatha Yoga combined with a Sattvic diet showed the most significant reduction in Low Density lipoprotein and perceived stress, underscoring the importance of integrated lifestyle interventions for managing hypothyroidism-related conditions.

Keywords: Hatha Yoga, Sattvic Diet, Low Density lipoprotein, Stress, Hypothyroidism, Middle-aged Women

INTRODUCTION

Hypothyroidism, a condition characterized by an underactive thyroid gland, is a prevalent disorder, particularly among middle-aged women. It is often associated with elevated low-density lipoprotein (LDL) cholesterol levels and increased stress, both of which are major risk factors for cardiovascular disease (CVD). Lifestyle modifications, including physical activity and dietary changes, have shown promise as non-pharmacological interventions to manage these symptoms.

Hatha Yoga, a traditional yoga form focusing on physical postures (asanas), breathing exercises (pranayama), and meditation, has been extensively studied for its potential in reducing stress and improving cardiovascular health. Studies suggest that regular yoga practice can reduce cholesterol levels, lower blood pressure, and enhance overall well-being. Meanwhile, a Sattvic diet, which emphasizes fresh, minimally processed foods, is rich in antioxidants and fibers, making it beneficial for heart health and mental clarity.

While both Hatha Yoga and a Sattvic diet have been studied individually, their combined effects on Low Density lipoprotein and stress in hypothyroid women remain underexplored. This study aims to fill this gap by examining the individual and combined impacts of Hatha Yoga and a Sattvic diet on these key health indicators in middle-aged women with hypothyroidism.

Aim:

The study aimed to evaluate the combined and separate effects of Hatha Yoga and a Sattvic diet on Low Density lipoprotein levels and perceived stress among middle-aged women diagnosed with hypothyroidism.

Hypothesis:

It was hypothesized that:

1. Participants in the Hatha Yoga + Sattvic diet group (Group A) would show a greater reduction in Low Density lipoprotein and perceived stress than those in the Hatha Yoga alone group (Group B) and the control group (Group C).
2. Participants in the Hatha Yoga alone group would demonstrate a significant reduction in Low Density lipoprotein and perceived stress compared to the control group.

Material and Methods

A total of 75 middle-aged women diagnosed with hypothyroidism were initially recruited. Sixty participants, aged between 35 and 60, met the inclusion criteria and were randomly assigned to three groups:

- **Group A (Yoga + Sattvic Diet):** Practiced Hatha Yoga for 45 minutes, five times per week, and followed a prescribed Sattvic diet for 12 weeks.
- **Group B (Yoga Alone):** Practiced the same Hatha Yoga routine as Group A without any dietary intervention.
- **Group C (Control):** Received no intervention.

Inclusion Criteria:

- Women diagnosed with hypothyroidism.
- Aged between 35 to 60 years.
- Not undergoing lipid-lowering therapy or any structured dietary intervention.

Exclusion Criteria:

- Participants with cardiovascular disease or diabetes.
- Use of any pharmacological treatment for stress or cholesterol management.
- Pregnant or breastfeeding women.

Outcome Measures:

- **Low Density lipoprotein:** Measured using fasting blood samples pre- and post-intervention.
- **Perceived Stress:** Assessed using the Perceived Stress Scale (PSS) before and after the intervention.

Statistical Analysis:

ANCOVA was used to compare group differences, controlling for baseline LDL and stress

levels. Post hoc analysis was conducted using Tukey's HSD to determine between-group differences.

RESULTS AND DISCUSSION

Variables	Group A (Yoga + Sattvic Diet)	Group B (Yoga Alone)	Group C (Control)	ANCOVA (p-value)
Low Density lipoprotein (mg/dL)	132.4 ± 8.2	138.7 ± 9.6	145.2 ± 10.3	p < 0.01
Perceived Stress (PSS Score)	14.6 ± 2.9	17.8 ± 3.5	22.3 ± 4.2	p < 0.01

Post hoc analysis indicated that Group A (Yoga + Sattvic Diet) showed the greatest reduction in Low Density lipoprotein and stress scores compared to Group B (Yoga Alone) and Group C (Control). Group B also showed significant reductions in both variables compared to the control group.

The results of this study align with previous research that highlights the beneficial effects of yoga on cardiovascular health and stress reduction. The significant decrease in Low Density lipoprotein observed in both the yoga groups corroborates findings from studies indicating that yoga, through the activation of the parasympathetic nervous system, can improve lipid profiles by enhancing metabolic function .

The combined effect of Hatha Yoga and the Sattvic diet observed in Group A suggests a synergistic relationship between physical activity and nutrition in managing cholesterol levels and stress. The Sattvic diet, rich in fibers, antioxidants, and low in saturated fats, may have contributed to the greater reductions in Low Density lipoprotein compared to yoga alone, as previous studies have shown the diet's efficacy in improving lipid profiles .

Moreover, the substantial reduction in perceived stress among participants in both intervention groups is consistent with findings that suggest yoga's ability to regulate the hypothalamic-pituitary-adrenal (HPA) axis, which modulates the body's response to stress . By combining this with a Sattvic diet, known for its mental and emotional balancing effects, participants in

Group A likely benefited from the holistic approach of addressing both physical and psychological health .

These findings support the role of integrative lifestyle interventions, including yoga and dietary changes, in managing hypothyroidism-related symptoms such as dyslipidemia and stress. The study also extends previous work by demonstrating the added benefit of combining a Sattvic diet with yoga, particularly for cardiovascular health .

Conclusion:

The results of this study suggest that Hatha Yoga combined with a Sattvic diet is a highly effective intervention for reducing Low Density lipoprotein and perceived stress in middle-aged women with hypothyroidism. The findings underscore the importance of integrated lifestyle modifications, incorporating both physical activity and balanced nutrition, to manage hypothyroidism-related cardiovascular and psychological risks.

Future studies should explore the long-term effects of these interventions on other metabolic parameters, such as blood glucose and triglycerides, and examine their impact across different populations, including men and younger women. Healthcare practitioners are encouraged to integrate such non-pharmacological approaches into the management of hypothyroidism to enhance patient outcomes.

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