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EFFECT OF YOGIC PRACTICES ON SELECTED BIOCHEMICAL VARIABLES AMONG OBESE ADULT WOMEN

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ABSTRACT

The purpose of the random group experimental study was to find out the effect of yogic practices on selected risk factors among obese adult women. Thirty (30) Obese Adult women residing in Chennai aged between 25 and 35 years were selected randomly by using a random sampling design into two groups. Experimental group-1 and Group-2 had fifteen (15) subjects each. The training period for this study was eight weeks. The experimental group-A underwent yoga practices in the morning six days a week for up to one and half hours. The Group B was kept in active rest. The pre-test and post-test were conducted before and after the training for both groups. To analyse the data, Analysis of Co-variance (ANCOVA) was used to find out the significant difference between the groups. The test of significance was fixed at 0.05 level of confidence. The results proved that there were significant differences due to yogic practices between group-1 and group-2 biochemical variables such as fasting blood sugar and HbA1c than Group B among obese adult women. It was concluded that there was a positive impact on yogic practices when compared to Group B on biochemical variables such as fasting blood sugar, HbA1c (decreased) among obese adult women. Hence the above hypothesis was accepted at 0.05 level of confidence.

Key words: Yogic practices, fasting blood sugar, HbA1c, Obesity.

MOTIVATION FOR RESEARCH

Women playing a very important role in the society, She becoming ill and inefficient not only impact her as an individual but also impact the Family and as a whole the Society. Hence Women being healthy is of utmost important. As Obesity is one of the primary reasons which induces lot of other complication in a Women, curbing the root cause of the women health issue is the motivation for this research

Women have always played an important role in family life. The role of the woman in the household is positively irreplaceable. The mother, or the mother figure in the family plays the undeniably important role of ensuring that the child grows into a well-rounded human being. mother is responsible for not juts feeding and clothing the child, but also for developing them emotionally and psychologically sound.

Today, women are seen in every workplace across the world, irrespective of the nature of the job. Equal opportunities are provided to women in the workplace, at least theoretically. The role of women is providing for the family, both financially and emotionally, has become even more prominent.

For the Women who is playing the prominent role in the Family and the societal life, the maintenance of Health becomes a crucial factor. One of the major issues faced by the women in the current era is the Obesity. Obesity negatively impacts the health of women in many ways. Being overweight or obese increases the relative risk of diabetes and coronary artery disease in women. Women who are obese have a higher risk of low back pain and knee osteoarthritis. Obesity negatively affects both contraception and fertility as well. Maternal obesity is linked with higher rates of caesarean section as well as higher rates of high-risk obstetrical conditions such as diabetes and hypertension. Pregnancy outcomes are negatively affected by maternal obesity (increased risk of neonatal mortality and malformations). Maternal obesity is associated with a decreased intention to breastfeed, decreased initiation of breastfeeding, and decreased duration of breastfeeding. There seems to be an association between obesity and depression in women, though cultural factors may influence this association. Obese women are at higher risk for multiple cancers, including endometrial cancer, cervical cancer, breast cancer, and perhaps ovarian cancer.

Symptoms of Adult Obesity

Although gaining a few extra pounds may seem insignificant as far as a person's overall health is concerned, weight gain can quickly escalate to a serious medical condition. Impact in the quality of life style, Insomnia, Excessive Sweeting, Respiratory issue, Fatigue, Skin problems, Psychological issues and body Pain are the main symptoms.

Adult Obesity's Causes and Complication

Causes:-

- **Life style** – A Healthy behaviours with regular physical activity and healthy eating needs to be practised. The sedentary life style and the junk food invasion has contributed to a great extent on the increase in obesity
- **Genetics** - Genes give the body instructions for responding to changes in its environment. Variants in several genes may contribute to obesity by increasing hunger and food intake.
- **Diseases and Drugs** - Some illnesses like Harmone issues may lead to obesity or weight gain. Drugs such as steroids and some antidepressants may also cause weight gain.

Complications

People who have obesity, compared to those with a healthy weight, are at increased risk for many serious diseases and health conditions

- Reduced Life span, Lesser quality of Life
- High blood pressure (hypertension)
- Type 2 diabetes
- High LDL cholesterol, low HDL cholesterol
- Heart disease, Stroke, Gallbladder disease

- Osteoarthritis (a breakdown of cartilage and bone within a joint)
- Sleep apnea and breathing problems
- Psychological issues such as clinical depression, anxiety, and other mental disorders
- Body pain and difficulty with physical functioning

Remedies for Obesity

There is no single or simple solution to the obesity epidemic. It's a complex problem and there has to be a multifaceted approach. Policy makers, state and local organizations, business and community leaders, school, childcare and healthcare professionals, and individuals must work together to create an environment that supports a healthy lifestyle.

- The key to achieving and maintaining a healthy weight isn't short-term dietary changes; it's about a lifestyle that includes healthy eating and regular physical activity.
- Regular exercise like running, swimming etc
- Regular practice of Yoga and controlled life style reduces obesity.
- Yoga has different effect on obesity, which is permanent in nature than other techniques for obesity reduction Excess accumulation of fats

THE STATEMENT OF THE PROBLEM

The purpose of the study was to determine the effect of yogic practises among obese adult women on selected biochemical variables.

HYPOTHESES

It was hypothesize that there would be significant differences on selected biochemical variables such as Fasting blood sugar and HbA1c for group-1 than in the control group-2 due to yogic practices among obese adult women.

SIGNIFICANCE OF THE STUDY

Important differences in selected biochemical variables among obese adult women, such as fasting blood sugar, HbA1c, were believed to be linked to control group II due to yogic activity in group I.

EXPERIMENTAL DESIGN

The study was formulated as a true random group experimental design, consisting of a pre-test and post-test.

OBJECTIVES OF STUDY

The goal of the research was to determine if there would be any substantial difference among obese adult women in selected biochemical variables such as fasting blood sugar, HbA1c.

DELIMITATIONS

- The study was confined to obese adult women only.
- Subjects were selected from Chennai city only.
- The subjects were only between 25 and 35 years of age.
- The study was confined to yogic practices as independent variable only.
- The study was delimited to Fasting blood sugar and HbA1c as dependent variables only.

LIMITATIONS

- There was little care for the other procedures taken by the participants.
- The subject's way of life style was not considered.
- During the training period, subject's occupation and their daily activities were not considered.
- External factors like diet habits, life styles, socio-economic status and motivation were not taken into consideration.
- Medications taken by the subjects were not taken into account.

REVIEW OF RELATED LITERATURE

Yadav Rashmi et.al., (2016) performed short-term yoga-based lifestyle intervention on health-related quality of life (HRQOL) in overweight and obese persons. Nonrandomized, single-arm interventional study conducted from August 2012 to March 2015 at Integral Health Clinic, Department of Physiology, All India Institute of Medical Sciences, New Delhi, India. Overweight (body-mass index [BMI], 23-24.9 kg/m(2)) and obese (BMI, ≥25 kg/m(2)) persons (n = 279) aged 20-60 years. Pretested yoga-based lifestyle intervention, including asanas (postures), pranayama (breathing exercises), relaxation techniques, lectures, group support, nutrition awareness program, and individualized advice. Primary outcome measure was HRQOL, measured by using short version of World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. Secondary outcome measures were anthropometric variables, systolic and diastolic blood pressure, pulse rate, lipid profile, and fasting glucose. A subgroup analysis according to sex was also performed. The overall quality of life and health improved after short-term yoga-based lifestyle intervention in overweight and obese persons. Physical, psychological and environmental domain scores significantly increased from baseline to day 10, and efficacy was noted in both male and female subgroups. After 10 days of intervention, the following also decreased significantly: body weight, BMI, total body fat, waist and hip circumference, waist-to-hip ratio, systolic and diastolic blood pressure, total cholesterol, low-density lipoprotein, triglycerides, and fasting glucose, and it was concluded.

Thind Herpreet et.al., (2017) conducted study of this meta-analysis was to examine the effects of yoga for glycaemic control among adults with type 2 diabetes (T2DM). Comprehensive electronic databases searches located 2559 unique studies with relevant key terms. Studies were included if they (1) evaluated a yoga intervention to promote T2DM management, (2) used a comparison group, (3) reported an objective measure of glycaemic control at post-intervention, and (4) had follow-up length or post-test of at least 8weeks from

baseline. Independent raters coded participant, design and methodological characteristics and intervention content. Summary effect sizes and 95% confidence intervals (CI) were calculated. Twenty-three studies with 2473 participants (mean age=53years; 43% women) met eligibility criteria. Compared with controls, yoga participants were successful in improving their HbA1c (d+=0.36, 95% CI=0.16, 0.56; k=16), FBG (d+=0.58, 95% CI=0.40, 0.76; k=20), and PPBG (d+=0.40, 95% CI=0.23, 0.56; k=14). Yoga was also associated with significant improvements in lipid profile, blood pressure, body mass index, waist/hip ratio and cortisol levels. Overall, studies satisfied an average of 41% of the methodological quality (MQ) criteria; MQ score was not associated with any outcome (Ps >0.05). Yoga improved glycaemic outcomes and other risk factors for complications in adults with T2DM relative to a control condition. Additional studies with longer follow-ups are needed to determine the long-term efficacy of yoga for adults with T2DM

METHODOLOGY

To achieve the purpose of the random group experimental study, 90 were submitted, 50 were scanned, and 30 obese adult women residing in Chennai City between the ages of 25 and 35 were randomly selected for the purpose of the random group experimental analysis using the random group sampling system in two categories, namely group 1 and group 2 of 15 subjects each. The preparation time for this research was eight weeks.

Experimental group-1 spent an hour performing yoga six days a week. Group-2 regulation was on active rest. The yogic practices given to group I subjects are Kapalbhati, SukshmaViyayama, Surya Namaskar, ParsvaUttanasana, Pada Hasthasana, Trikonasana, Utkatasana, Uthanapadasana, JatharaParivritti, Navasana, Halasana, Chakrasana, Dhanurasana, Bhujangasana, Yogamudra, Pachimotasana, ArdhaMatsyendrasana, Pavanatmuktasana, Savasana, NadiSodhana, Bhastrika, Suryabhedhana, Ujjaye and Meditation.

The differences between initial and final results on fasting blood sugar, HbA1c were considered as the effect of yogic practices among selected subjects. To measure fasting blood sugar, HbA1c, Lab Test was used.

For all the participants, the pre-test and post-test were done before and after the testing. The Study of Co-Variance (ANCOVA) test was used to evaluate the results. The significance test was set as a degree of trust of 0.05.

RESULTS AND DISCUSSIONS

Data on variables obtained from the two groups before and after the training period were statistically analysed to assess the relevant difference using Analysis of Covariance (ANCOVA) and evaluated at a confidence level of 0.05. These are shown in the Tables below.

RESULTS ON FASTING BLOOD SUGAR

The data pertaining to the variables collected from two groups before and after the training period were statistically analysed by using Analysis of Co-Variance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance. The analysis of Covariance (ANCOVA) on fasting blood sugar of Yogic Practices on and Control Group was analysed and presented in Table I.

Table – I

ANALYSIS OF CORRELATION COEFFICIENTS OF THE MEANS OF TWO RESEARCH GROUPS AND THE FASTING BLOOD SUGAR (Scores in mg/dl)

	Group 1	Group 2	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	Obtained F ratio
Pre Test Mean	117.93	118.93	Between	7.50	1	7.50	11.49
			Within	2413.87	28	86.21	
Post Test Mean	95.33	115.80	Between	3141.63	1	3141.63	52.87*
			Within	1663.73	28	59.42	
Adjusted Post Test Mean	95.70	115.43	Between	2908.80	1	2908.80	235.71*
			Within	333.20	27	12.34	
Mean difference	22.60	3.13					

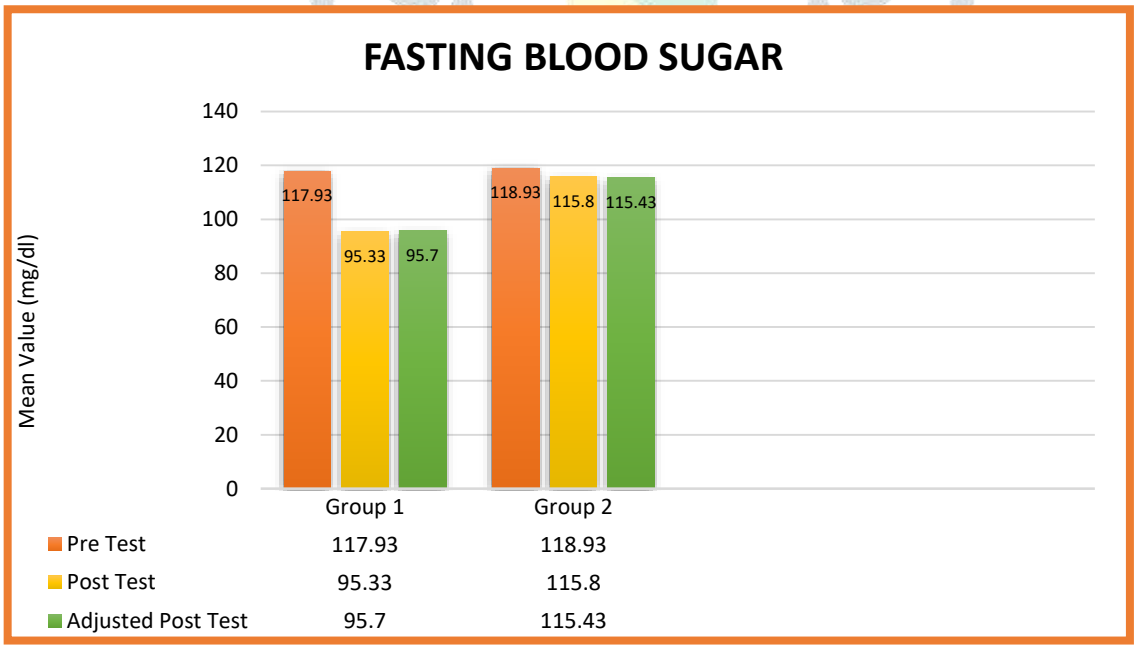
***Significant at 0.05 level of confidence. (Table F ratio of trust at 0.05 stage for df 1 and 28= 4.20, 1 and 27= 4.21)**

The obtained F – ratio 52.87* value for fasting blood sugar was greater than the table value 4.20. This indicates that there was a significant difference among the post-test and adjusted post-test means of yogic practices group than the control group on fasting blood sugar. The above findings can also be substantiated by the observations of experts **Yadav Rashmi et al., (2016).**

In order to help explain the effects of this analysis, the ordered modified means on fasting blood sugar, was introduced via the bar diagram in Figure - 1.

Figure -1

BAR DIAGRAM SHOWING THE MEAN DIFFERENCES AMONG THE GROUPS ON FASTING BLOOD SUGAR (Scores in mg/dl)



***Significant at 0.05 level of confidence. (Table F ratio of trust at 0.05 stage for df 1 and 28= 4.20, 1 and 27= 4.21)**

RESULTS ON HbA1c

The data pertaining to the variables collected from two groups before and after the training period were statistically analysed by using Analysis of Co-Variance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance. The analysis of Covariance (ANCOVA) on HbA1c of Yogic Practices on and Control Group was analysed and presented in Table I.

Table – II

ANALYSIS OF COVARIANCE OF THE MEANS OF EXPERIMENTAL GROUP 1 AND THE CONTROL GROUP 2 ON HbA1c (Scores in numeric)

	Group 1	Group 2	Source of Variance	Sum of Squares	Degrees of Freedom	Mean Squares	Obtained F ratio
Pre Test Mean	7.77	7.82	Between	0.02	1	0.02	7.23
			Within	4.32	28	0.15	
Post Test Mean	6.09	7.69	Between	19.36	1	19.36	267.48*
			Within	2.03	28	0.07	
Adjusted Post Test Mean	6.10	7.68	Between	18.57	1	18.57	696.5*
			Within	0.72	27	0.03	
Mean difference	1.68	0.13					

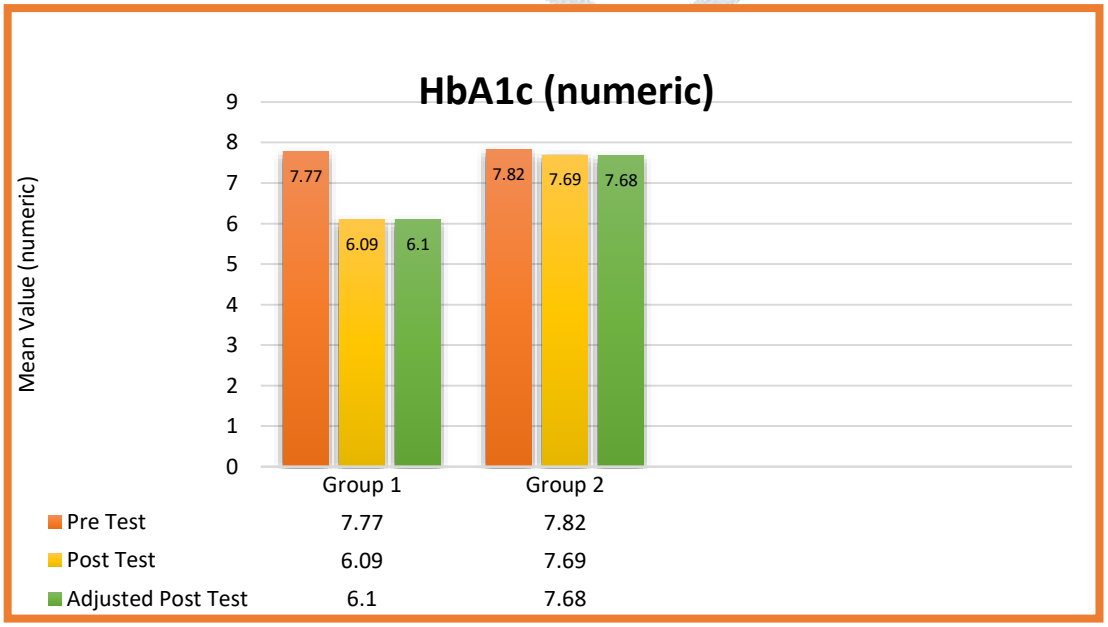
***Significant at 0.05 level of confidence. (Table F ratio of trust at 0.05 stage for df 1 and 28= 4.20, 1 and 27= 4.21)**

The obtained F – ratio 267.48* value for HbA1c was greater than the table value 4.20. This indicates that there was a significant difference among the post-test and adjusted post-test means of yogic practices group 1 than the control group 2 on HbA1c**.** The above findings can also be substantiated by the observations of experts **Thind Herpreet et al. , (2017).**

In order to help explain the effects of this analysis, the ordered modified means on **HbA1c** , was introduced via the bar diagram in Figure - 2.

Figure-2

BAR DIAGRAM SHOWING THE MEAN DIFFERENCES AMONG THE GROUPS ON HbA1c (Scores in numeric)



***Significant at 0.05 level of confidence. (Table F ratio of trust at 0.05 stage for df 1 and 28= 4.20, 1 and 27= 4.21).**

DISCUSSION ON HYPOTHESIS

It was hypothesized that there would be significant differences on selected biochemical variables such as Fasting blood sugar and HbA1c for group-1 than in the control group-2 due to yogic practices among obese adult women. The results showed that due to yogic exercises Fasting blood sugar (Decreased) and HbA1c (Decreased) were significantly different than among obese adult women in the control group.

CONCLUSION

It is concluded that yogic practices greatly decreased Fasting blood sugar and HbA1c in obese adult women. Yogic practices are also effective for obese individuals in maintaining healthy.

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