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EFFECTIVENESS OF YOGA THERAPY IN RURAL WOMEN WITH TYPE II DIABETES MELLITUS (T2DM)

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Abstract

Background: *Diabetes mellitus is chronic condition due to impaired functions of pancreas and leads to less insulin production or no insulin production. Insulin is a hormone that regulates blood sugar. Increased blood sugar is a common effect of uncontrolled diabetes. It requires medical as well as lifestyle modifications for the management. With the increasing prevalence of sedentary lifestyles and declining treatment efficacy, regular exercise, particularly "yoga," appears to be an economically feasible as well as beneficial adjunct in the management of Type 2 diabetes mellitus (T2DM).* ***Method:*** *Random sampling method approach is adopted to identify forty samples. 40 samples between 35 to 45 years were taken from rural area of Mehasana district and randomly assigned to control (n=20) and experimental (n=20) group. The experimental group participated in a 12-week yoga therapy class, with sessions held 5 days a week. Both groups' HbA1c blood glucose level measured.* ***Results:*** *Paired t-test was used to estimate difference in means calculated before and after yoga therapy in a same group. A p-value of <0.05 was considered as statistically significant. Result of HbA1c of experimental group was very statistically significant (at p<0.05) but in control group there was not statically significant (at p =0.382) among rural women.* ***Conclusion:*** *The results of the present study demonstrated that the yoga therapy is effective in reducing the blood glucose levels in patients with T2DM. A comprehensive yoga therapy program has the potential to enhance the beneficial effects of standard medical management of Diabetes Mellitus and can be used as an integrative therapy for controlling the blood glucose level.*

Keywords: *Type 2 diabetes mellitus (T2DM), HbA1c, Yoga therapy, blood glucose level.*

INTRODUCTION

Diabetes mellitus (DM) is a class of metabolic illnesses distinguished by persistent hyperglycemia caused by relative insulin insufficiency, resistance, or both. India has the world's most type 2 diabetics, with an expected 31 million in 2000 and 79 million by 2030. Although people with DM might live a pretty normal lifestyle, its late consequences result in shortened life expectancy and significant use of health resourcesAn essential and crucial component of care is the patient and doctor's ongoing monitoring, as well as the supporting education provided(Chimkode et al., 2015).Patients with type 2 diabetes as well as other lifestyle illnesses including obesity, hypertension, and dyslipidemia might benefit from well-established therapy modalities such as dietary restriction and exercise. The possibility that patients with diabetes would adhere to diet control and exercise as a management option is decreased by urbanisation, calorie-rich food consumption, machine usage, a busy modern lifestyle, and a lack of desire. Furthermore, because of their weight, physical inadequacy, sedentary lifestyle, restricted joint mobility, and other diabetes-related complications like peripheral neuropathy, cardiovascular disease, and diabetic foot issues, people with diabetes have a decreased capacity to exercise. Numerous studies have demonstrated that severe implementation barriers were inadequate adherence to diet and exercise regimens(Raveendran et al., 2018).

In recent years, there has been a significant growth in the scientific investigation of yoga and its many physiological impacts, such as the physical postures known as asanas, the regulated breathing techniques known as pranayama, and

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meditation Yoga is a discipline that seeks to bring the body, mind, and spirit into harmony. Numerous illnesses can be prevented and treated using pranayama and certain asanas. Yoga is also used to heal a variety of illnesses and promote excellent health. Pranayama and yoga are good for the body's many systems. It lengthens life and restores bodily equilibrium between the psychological and somatic domains. Yoga has no negative physiological impacts, including reduced blood pressure, cholesterol, blood glucose, or weight gain. It also boosts immunity and has a positive psychological impact(Mahajan & Mahajan, 2023).

The goal of yoga, which has its roots in India and dates back over 5,000 years, is to harmonise and balance the body, mind, and emotions(Liu et al., 2014). A growing body of research indicates that practicing yoga can help manage diabetes and its complications by addressing the pathophysiologic causes of the disease. Based on data from several clinical trials, we provide a brief overview of the function of different yoga techniques in the treatment of diabetes in this brief study. Despite being practised for thousands of years, yoga as treatment is still a relatively new and developing trend in the medical industry. Numerous studies have examined how yoga practice affects biochemical, electrophysiological, cellular, genetic, neuromuscular, and radiological parameters. This has made it easier to apply yoga practically to a variety of illnesses, and it is currently acknowledged globally as a clinically effective treatment. Yoga, a mind-body discipline that traditionally aims for spiritual enlightenment, is a science of health management as opposed to a therapeutic approach to treating particular illnesses(Jyotsna, 2014).

OBJECTIVES

- To evaluate the effect of yoga therapy on the blood glucose levels in patients with T2DMin rural women

LITERATURE REVIEWS

(McDermott et al., 2014)studied on a yoga intervention for type 2 diabetes risk reduction: a pilot randomized controlled trial. This study was feasible in terms of recruitment, retention and adherence. In addition, yoga participants had significantly greater reductions in weight, waist circumference and BMI versus control (weight −0.8 ± 2.1 vs. 1.4 ± 3.6, p = 0.02; waist circumference −4.2 ± 4.8 vs. 0.7 ± 4.2, p < 0.01; BMI −0.2 ± 0.8 vs. 0.6 ± 1.6, p = 0.05). There werein a randomized controlled study, it was found that participation in a two-month yoga intervention was feasible and resulted in greater weight loss and reduction in waist circumference when compared to controls assigned walking.

(Chimkode et al., 2015) Studied on Effect of Yoga on Blood Glucose Levels in Patients with Type 2 Diabetes Mellitus. In their study subjects consisted of 30 male diabetic patients attending diabetic clinic and 30 non-diabetic male volunteers constituted control group and the patients in the age group of 36 to 55 years with T2DM. The reduction in mean values of FBS and PPBS at the end of six months was highly significant (p <0.001) in both the groups when compared with the mean values before and during (three months) yoga practice. The reduction in these values at three months during yoga was highly significant in T2DM group when compared with mean values before yoga (p <0.001), but it was insignificant (p>0.05) in control group. The study concluded that yoga was effective in reducing the blood glucose levels in patients with T2DM.

(Mahajan & Mahajan, 2023) studied on Role of yoga in type 2 diabetes mellitus. In this study they were taken a total of 100 T2DM diabetic patients in age group 30-60 years. Effect of Yoga on fasting Blood glucose (FBG), Post prandial blood glucose (PPBG), HbA1c levels and serum insulin were assessed. Anthropometric parameters like BMI and waist hip ratio were also assessed. Result of this study was shown that there was significant decrease in FBG, PPBG and HbA1c levels with p value<0.001 after doing yoga. There was also significant improvement in serum insulin levels and decrease in BMI & waist hip ratio. The study concluded thata significant improvement in the blood glucose levels occurred in subjects who practiced Yoga. There was also lowering of the drug requirement.

METHODOLOGY

The study included 40 Type 2 female diabetic patients in age group 35-45 yearswere taken from rural area of Mehasana district and randomly assigned to control (n=20) and experimental (n=20) group by using concealed methods.

Inclusion criteria:Type 2 diabetic female patients.

Exclusion criteria: Patients with complications like nephropathy, retinopathy and neuropathy. People with liver, pulmonary diseases, thyroid disorder, alcoholics, kidney disease and who were non cooperative and had hepatic, lung, thyroid, renal, or alcohol problems.

The purpose of the investigations was communicated to the patients, and their agreement was obtained. Patients were instructed to continue taking the same medications, but they were also

sugary beverages and junk food. For a span of 12 weeks (three months), HbA1c were examined before and after intervention.

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They performed Yoga for 60 minutes, which included prayer for 5 minute,sukshmvyayam for 15 minutes, Yogic Asanas for other 20 min, pranayama andsavasana for 15min, omkar and closing prayer for 5 minutes five days a week. Patients performed Yoga in the Yoga centre under the guidance of researcher.

They practicedsukshmavyayam (some light warm exercises),suksamavyayam, pranayama and various asanas, such as Surya Namaskar, Dhanurasana (Bow pose), Paschimottanasana (Seated-forward Bend), ViparitaKarani (Legs up the wall), Bhujangasana, and Shavasana, types of merudandasana (spine twisting) and omkar in the therapy class.

RESULTS

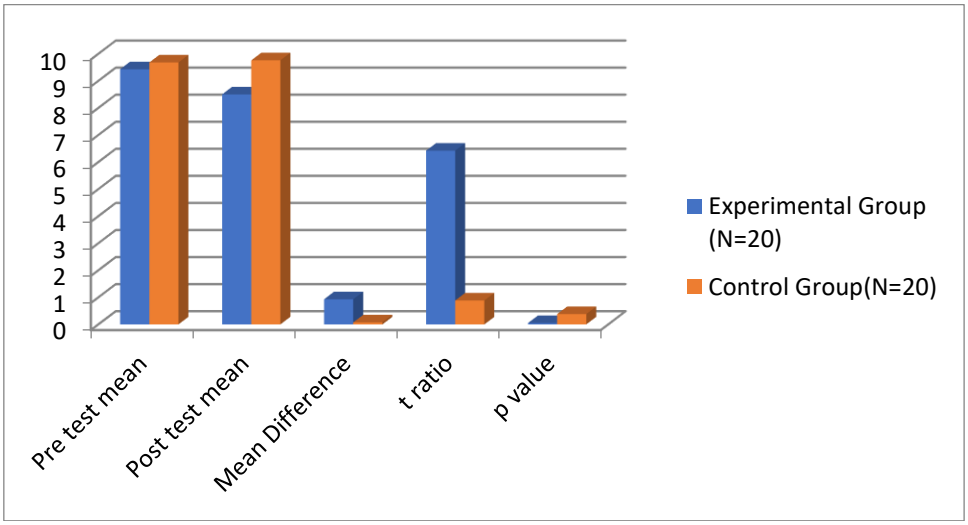
A t-test calculator graph pad was used to do statistical analysis. The dependent sample (paired) 't'-test was used to examine the collected data.

Table:1Result of HbA1c of experimental group and control group:

Group	Pre test mean	Post test mean	Mean Difference	t ratio	p value
Experimental Group (N=20)	9.43	8.5	0.93	6.42	< 0.05
Control Group(N=20)	9.68	9.76	0.075	0.883	0.382

*Significant Level at 0.05, t(19)1.729

Tabel-1 indicates that the received 't' ratio of the experimental group is6.42, which is >1.729 and considered to very statistically significant (at p<0.05), while the control group's 't' ratio was 0.88which is <1.729, which was not statistically significant (at p =0.382).



DISCUSSION

In the present study, blood glucose levels HbA1c dropped following yoga, indicating a beneficial impact of yoga on the management of Type 2 Diabetes Mellitus. Exercise can improve glucose uptake by improving insulin sensitivity and reducing body adiposity in both patients of type 1 and type 2 DM. Yoga is an ancient discipline designed to bring balance and health to the physical, mental, emotional, and spiritual dimensions of the individual(Thangasami & Chandani, 2015).

CONCLUSION

Yoga is a traditional practice that aims to improve an individual's physical, mental, emotional, and spiritual well-being. A thorough yoga therapy programme may be included into an efficient complementary or integrative therapy programme, and it may even strengthen the positive outcomes of normal medical management of diabetes mellitus. A person may lead a healthier lifestyle by practicing yoga, which can enhance several biochemical indices and reduce stress.

LIMITATION OF THE STUDY

- Major limitations include small sample size
- Short duration of the intervention

- Selecting the patients from the same locality.
- Couldn't controltemperature, humidity, or other meteorological characteristics.

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