

Original Research Article

Influence of Pranayama and Selected Yoga-Asanas on Quality of Life and Certain Biochemical Parameters among Subjects with Type-2 Diabetes Mellitus

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Abstract

To assess the pre-test level of quality of life (QOL) and blood glucose among the patients with type -2 diabetes mellitus and to compare and find out the effectiveness of Pranayama and selected yoga asanas on blood sugar and quality of life among patients with type-2 diabetes mellitus. The post-test values of blood sugar and QOL of patients with type-2 diabetes mellitus in experimental group had shown statistically significant improvement at P<0.001 level. It inferred that Pranayama and selected yoga asanas were effective in the management of type-2 diabetes mellitus. Hence, yoga asanas and Pranayama were effective complementary method to improve the health of the patients with type-2 diabetes mellitus.

Key words

Blood Glucose, Diabetes mellitus, Effectiveness, Quality of Life, Pranayama, Yoga asanas.

Introduction

Diabetes is a group of metabolic diseases in which a person has high blood glucose, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced [1, 5]. It is estimated that there are about 20 crore people affected with type-2 diabetes in the world around and that their number has been rising by 70 lakhs yearly. The WHO expert committee has endorsed the importance of non-pharmacological methods of controlling diabetes mellitus. The non-pharmacological approaches like complementary therapies help in achieving this ultimate purpose. The non-pharmacological approach like yoga therapy and pranayama is becoming very popular therapy in India [2, 4].

Need and significance of the study

India is a land with unique culture and tradition. It is also a developing nation with lot of binding practices of culture and tradition. The quality of life for an average Indian is just survival for today with no relevance to the future. Quality of life is threatened when all the dimensions of health care [3, 6]. The rise in the prevalence of diabetes mellitus and the negative consequences it has on the individual and community served as an impetus for the researcher to undertake the study on the Influence of pranayama and selected yoga-asanas on quality of life and blood glucose among subjects with type-2 diabetes mellitus.

Objectives of the Study

- To assess the pre-test level of quality of life and blood glucose among the patients with type -2 diabetes mellitus in experimental group and control group.
- To find out the effectiveness of pranayama and selected yoga asanas on quality of life and blood glucose among subjects with type-2 diabetes mellitus in the experimental and control group.

- To find out the association between posttest findings of experimental and control group.

Materials and methods

A quantitative approach, quasi experimental design was adopted in this study. The study was conducted in the Diabetic out Patient Department of Rajah Muthiah Medical College and Hospital, Chidambaram. The sample size of the study was 100 subjects with type-2 diabetes mellitus. The experimental group consisted of 50 subjects and control group consisted of 50 subjects. The samples were selected by using convenient random sample technique. The following Parameters were studied: Quality of life and Blood Sugar

Statistical Analysis

Data were expressed as mean and standard deviation. Descriptive and inferential statistical method was used to analyses data. Paired and unpaired t test were applied to compare inter and intragroup comparison by using Instat graph pad software. P value was ≤ 0.05 considered as statistical significance.

Results

Table - 1 shows that there was no significant difference between the pretest and posttest blood sugar values of control group but, in the experimental group there was a significant difference between the pretest and post-test blood sugar values, which was significant at $P < 0.05$.

Table - 2 denotes that there was significant improvement found between domain wise pretest and post-test level of QOL score among subjects with type-2 diabetes mellitus in experimental group whereas in the control group there was no improvement found between domain wise pre and posttest level of QOL score.

Table – 1: Comparison of Pretest and Posttest Mean Blood Glucose Value of Control and Experimental Group.

Group	Pre-test	Post-test	't' value	'P' value
	Mean± SD	Mean ± SD		
Control Group	160.86 ± 23.95	185.26 ± 25.38	3.047	0.05*
Experimental Group	153.93± 26.24	120.65 ± 23.45	10.062	

S- Significant at P <0.05 level

Table - 2: Domain Wise Comparison Of Pretest And Posttest Level Of Quality Of Life Scores Among Subjects With Type-2 Diabetes Mellitus In Experimental And Control Group.

Domains	Experimental group			Control group		
	Pretest	Posttest	Gainscore	Pretest	Posttest	Gain score
Physical	45.65	62.04	16.39	50.06	51.02	0.96
Psychological	50.20	69.09	18.89	49.85	49.95	0.1
Social relationships	55.62	73.89	18.27	54.31	54.33	0.02
Environment	55.87	62.07	6.2	52.10	52.80	0.7
Level of Independence	47.65	60.12	12.47	47.89	48.01	0.12

Discussion

In the experimental group 17 were in the age group of 35 – 40 years, 10 were in the age group of 41-45 years, 11 were in the age group of 46-50 years and 12 were in the age group of 51-55 years. This age distribution was matched with a similar number of subjects with type-2 diabetes mellitus in control group. In accordance with religion, 30 were Hindus, 11 were Christian and 9 were Muslims. This distribution also matched with similar number in control group.

In control group there was no significant association found between the posttest findings of quality of life and blood sugar among the subjects with type-2 diabetes mellitus with selected demographic variables.

There was a significant association found between the posttest findings of quality of life among the subjects with type-2 diabetes mellitus in experimental group with selected demographic variables. Subjects between the age group of 41-45 years, with no family history of diabetes, those who are doing regular exercise, male subjects, more educated subjects were found to have significant improvement in various domains of quality of life score [7, 9] and reduction of

blood sugar level when compare to the pretest score [8, 10].

Limitation

- The study was limited to subjects with type-2 diabetes mellitus having the disease for five years and less than 5 years, taking oral anti diabetic agents without any complications, and attending the out-patient department at RMMCH, Annamalai University, during the data collection period.
- Yoga therapy was limited to selected yogasanas.

Recommendation

Based on the findings of this study, the following recommendations are made:

- All the health personnel at grass root level should be properly trained in yoga and diabetes mellitus to provide yoga training to the subjects with diabetes mellitus.
- Providing yoga training for diabetics should be made mandatory in hospitals and evaluate the effectiveness of the programme periodically.
- A study can be done to assess the effectiveness of yoga training

programme in children with juvenile diabetes mellitus and gestational diabetes mellitus.

- A comparative study can be conducted between subjects with associated illness (complications) and without associated illness (without complications).
- Automatic telephone messages to be provided in the diabetic clients if the clients are in need of it (Toll free call).
- Health services including yoga should be placed as close to the people as possible in order to ensure the maximum benefit to the community.

Conclusion

Yoga therapy and pranayama can be used as add on therapy to control type-2 diabetes mellitus. Yoga therapy along with other self-care activities such as diet control, regular exercise, regular intake of medication, regular follows up will provide beneficial effect in terms of improved QOL, good control of glycemic index [7]. Yoga therapy is a simple and cost effective method to control diabetes mellitus and it is one of the ways to reduce the economic burden of the Government of India with regard to diabetic management [9].

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