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A Study to Assess the Effectiveness of Fenugreek Water to Reduce Blood Glucose Levels among Clients with Diabetes Mellitus

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ABSTRACT

The present study aim was A Study to assess the effectiveness of fenugreek water to reduce blood glucose levels among clients with diabetes mellitus at Nerkundram-II UPHC, Chennai. **Materials and Methods:** A quantitative research approach and Experimental group research design was adopted for the present study. 60 Diabetes mellitus clients selected was simple random sampling technique. Structured questionnaire was used to collect the demographic variables of exercises, how often do you check your blood glucose status, how regular are you in taking medication, state the hours of sleep per day, body mass index, Glucose level of before and after intervention among Diabetes mellitus clients. **Results:** The study outcome results identify that, the demographic variables exercise **(χ^2=6.119, p=0.047)** and how regular are you in taking medication **(χ^2=6.484, p=0.039)** had shown statistically significant association with post-test level of FBS among clients with diabetes mellitus at p<0.05 level and the other demographic variables had shown statistically significant association with post-test level of FBS among clients with diabetes mellitus. the pre-test mean score of FBS among clients with diabetes mellitus was 149.18±55.46 and the post-test mean score was 104.45±17.20. The mean difference score was 44.73. The calculated paired 't' test value of t = 5.763 was found to be statistically significant at p<0.001 level which clearly infers that there was reduction in the level of FBS after the administration of fenugreek water among clients with diabetes mellitus. **CONCLUSION:** Which clearly infers that the intervention of blood glucose level with diabetes mellitus was found to be effective in improving the blood glucose level among the Diabetes mellitus.

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KEYWORDS: *Fenugreek water, Blood glucose level, Meditation, body mass index*

INTRODUCTION

Diabetes Mellitus (DM), also termed as "sugar," is a chronic, non-communicable disease (NCD) which has emerged as one of the leading global health problem associated with the pancreas in the production of insulin leading to hyperglycemia **(World Health Organization (WHO), 2014 & Cho N. H., Shaw J. E., Karuranga S., et al, 2018).** Type 2 diabetes mellitus is associated with a combination of resistance to insulin action and inadequate compensatory insulin secretory response **(American Diabetes Association (ADA), 2019)**. Diabetes mellitus is a global epidemic in the new millennium. According to the International Diabetes Federation (IDF), the number of people globally with type 2 diabetes mellitus (T2DM) will increase to 552 million by 2030, over twice the number in 2000 **(IDF Diabetes Atlas - International Diabetes Federation, 2011)**. Nearly 21% of these new cases will be from India, which has the highest number of cases in any country.1 India currently has 61.3 million diabetics, a figure that is projected to increase to 103 million by 2030 **(WHO, 2018)**.Diabetes mellitus (DM) is a major risk factor for heart disease and stroke. Diabetes mellitus is one of the most serious worldwide health crises of the twenty-first century. Type 2 diabetes is the most common, accounting for 90–95 percent of all diagnosed instances of the disease. T2D affects 8–9% of the world's population, with rates rising faster in middle and low-income countries. Type 2 diabetes affects both adults

and children, and it is strongly linked to morbidity, death, and a high health-care cost for individuals, families, and countries **(Nwaokoro J.C., Okokon B.E., Nwaokoro, A.A. et al., 2014)..** It was discovered to impact 382 million (7.7%) in 2013 and is expected to reach 483 million (8.3%) by 2030. More than half of patients with type 2 diabetes mellitus in developed countries are over the age of 65, with only 8% being under the age of 44. 75 percent of diabetic patients in developing nations are 45years old or older, while 25% of persons with diabetes mellitus are under 44 years old**(World Health Organization (WHO), 2014).** According to current research, low-income countries in Sub-Saharan Africa, such as Uganda, have the fastest growing rates of population. Diabetes may result in a wide range of physiological as well as psychological problems including sexual disorder. The lower sexual functions or dysfunctions termed as loss of libido may be observed in both females and males as a consequence of DM. In addition, severe vision loss, acute renal diseases which may require dialysis or kidney transplant, myocardial infarction otherwise known as heart attack, cerebrovascular diseases like stroke, and hypertension are markedly observed. Due to the intensity of the adverse effects of diabetes, it is important to find out the determinants to address the issue in order to contribute to improving country health situation. (**Ashis Talukder & Md. Zobayer Hossain, 2020).**

METHODS AND MATERIALS:

Study design: Quantitative research approach was adopted by the investigators to a study assess the effectiveness of fenugreek water reduce to blood glucose level among with diabetes mellitus. **Study setting:** The study was conducted for the duration of 1month from 8th June 2022 till 3rd July in the nerkundram-II UPHC, chennai. **Ethical approval:** After obtaining the ethical clearance from the institutional Ethical Committee (IEC) of Nerkundram-II UPHC, Chennai and a formal permission from the department of community health nursing the study was conducted. One group pre and posttest research design was adapted for the study. The samples who met the inclusion criteria were selected by using simple random sampling techniques. The inclusion criteria included client with aged between 31-60 years. 60 samples out of which 30 were chosen for the pre experimental and 30 were chosen for the post experimental group. Data was collected using structured questionnaire to assess demographic variables which include age, sex, occupation, marital status, dietary pattern, how strict are you restricting roots and tubers intake, exercises. clinical variables to blood glucose level of before and after intervention. The data were analyzed using descriptive and inferential statistics.

RESULTS AND DISCUSSION:

SECTION A:DESCRIPTION OF THE DEMOGRAPHIC VARIABLES OF CLIENTS WITH TYPE 2 DIABETES MELLITUS.

The table 1 shows that most of the clients with diabetes mellitus, 27(45%) were aged between 41 – 50 years, 41(68.3%) were male, 33(55%) had primary education, 42(70%) were private employees, 41(68.4%) had an income of Rs.10001 – 20,000, 43(71.7%) were not applicable for family for family history of DM, 41(68.3%) were non-vegetarian, 43(71.7%) were having non-vegetarian food twice in a week, 42(70%) included green leafy vegetables in their diet twice in a week, 37(61.7%) had fully restricted to roots and fibers intake, 47(78.3%) were fully restricted to sweets intake, 41(68.3%) had two or less servings of Tea/Coffee per day, 35(58.3%) had exercised regularly, 28(46.6%) had checked their blood glucose status once in a month, 53(88.3%) had taken medication regularly, 29(48.3%) had <8 hours of sleep per day and 37(61.7%) had BMI in the range of 18.50 – 24.99.

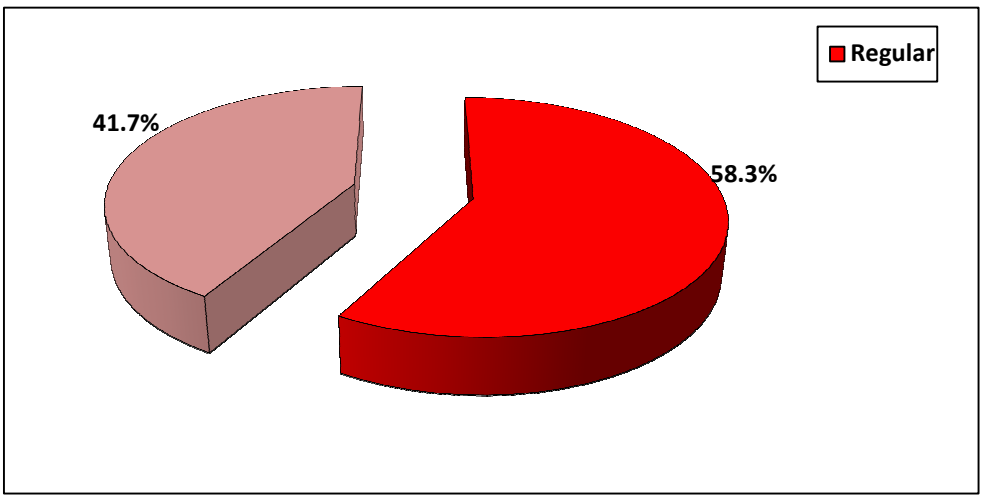

Figure 1: Percentage distribution of exercise among clients with diabetes mellitus

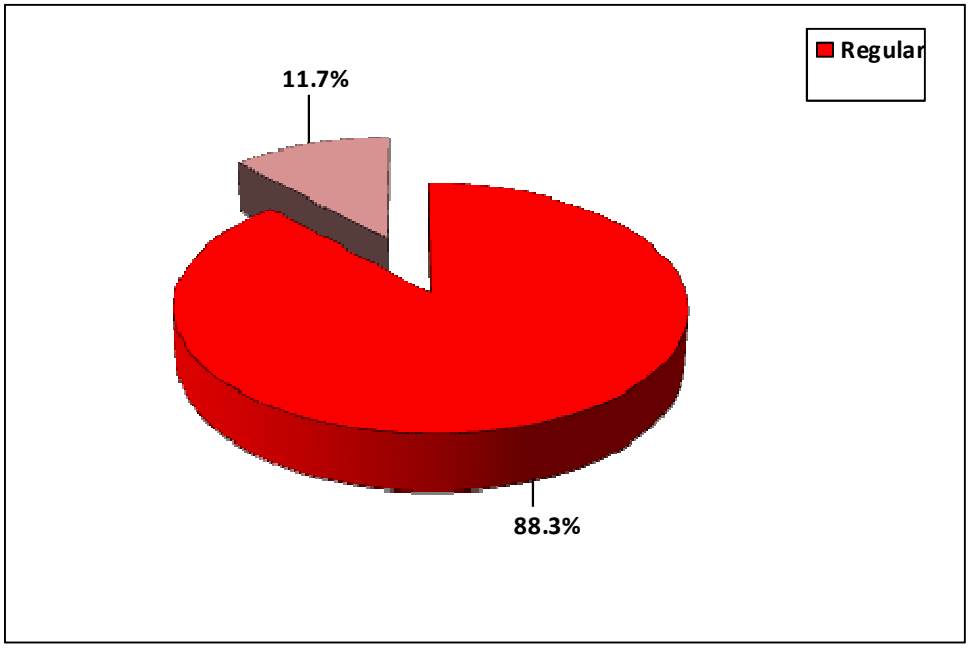

Figure 2: Percentage distribution of how regular are you in taking medication among clients with diabetes mellitus

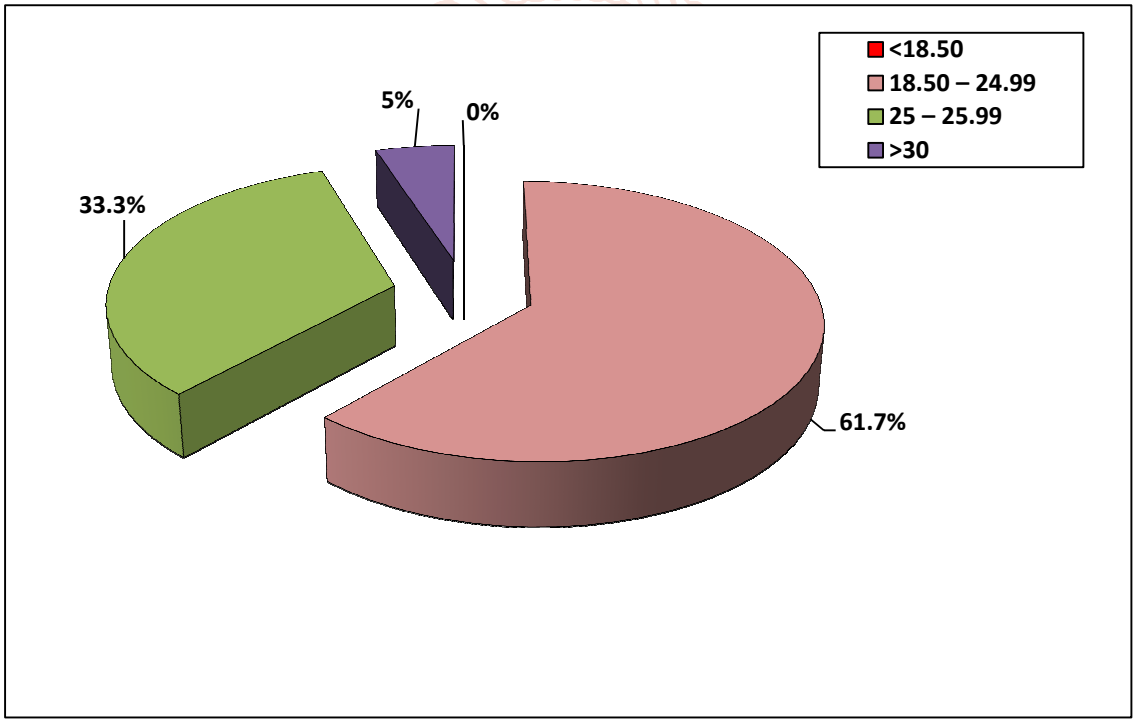

Figure 3: Percentage distribution of BMI among clients with diabetes mellitus

SECTION B: ASSESSMENT OF PRE TEST AND POST-TEST LEVEL OF BLOOD GLUCOSE AMONG CLIENTS WITH DIABETES MELLITUS.

The above table 2 shows that in the pre-test, 32(53.33%) had type 2 diabetes mellitus and 28(46.67%) had pre-diabetes mellitus whereas in the post-test, 33(55%) were normal, 23(38.33%) had pre-diabetes mellitus and 4(6.67%) had type 2 diabetes mellitus respectively.

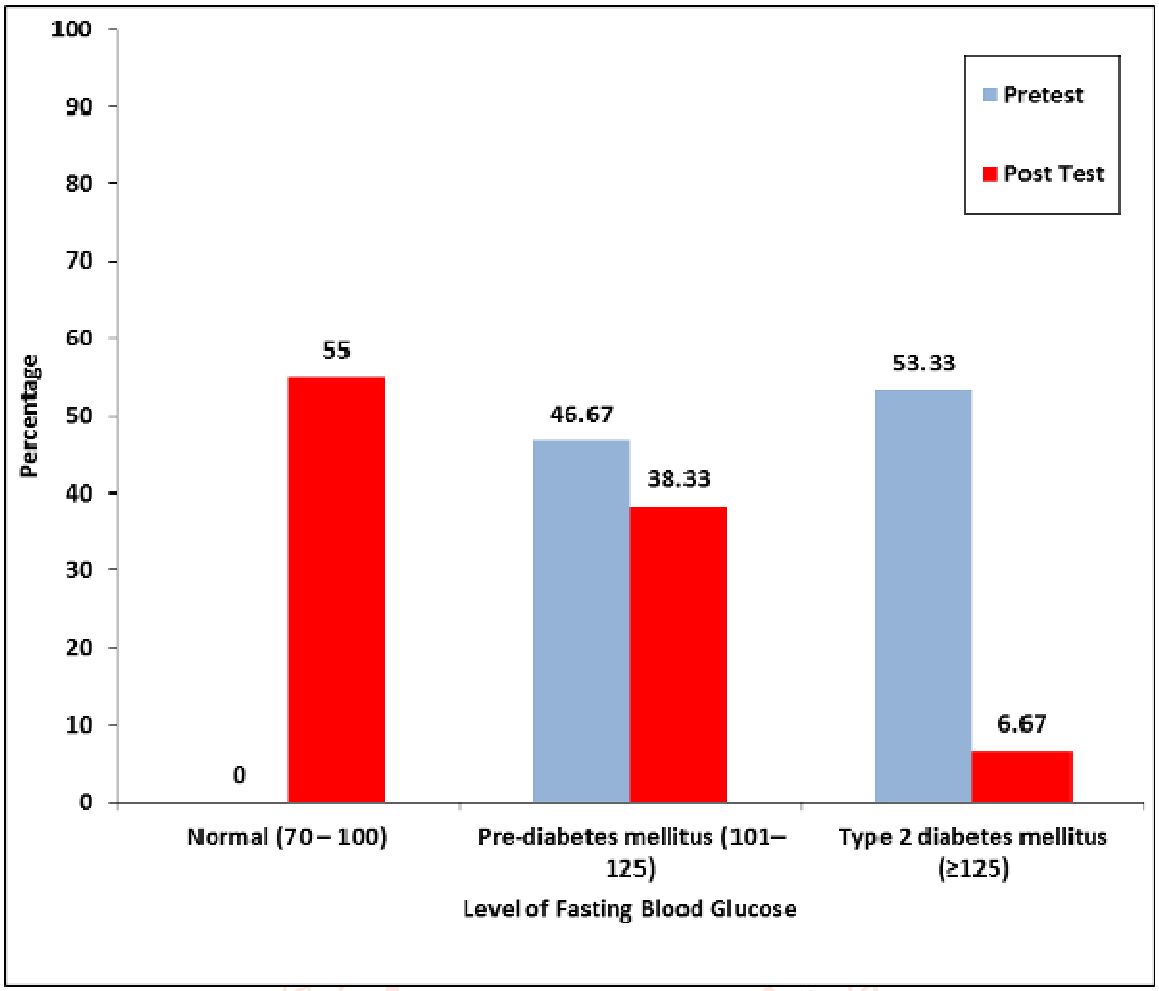

Figure 4: Percentage distribution of pre-test and post-test level of blood glucose (Fasting Blood Glucose) among clients with diabetes mellitus

SECTION C: EFFECTIVENESS OF FENUGREEK SEED WATER TO REDUCE BLOOD GLUCOSE LEVEL AMONG CLIENTS WITH DIABETES MELLITUS.

N = 60

Group	Pre-test		Post-test		Mean Difference Score	Paired 't' test value
	Mean	S.D	Mean	S.D		
Fasting Blood Glucose	149.18	55.46	104.45	17.20	**44.73**	**t = 5.763 p=0.0001 S*** **
Post Prandial Blood Glucose	215.67	54.95	184.77	54.95	**30.90**	**t = 5.989 p=0.0001 S*** **

***p<0.001, S – Significant**

The table 4 depicts that the pre-test mean score of FBS among clients with diabetes mellitus was 149.18±55.46 and the post-test mean score was 104.45±17.20. The mean difference score was 44.73. The calculated paired 't' test value of t = 5.763 was found to be statistically significant at p<0.001 level which clearly infers that there was reduction in the level of FBS after the administration of fenugreek water among clients with diabetes mellitus.The table 4 also depicts that the pre-test mean score of PPBS among clients with diabetes mellitus was 215.67±54.95 and the post-test mean score was 184.77±54.95. The mean difference score was 30.90. The calculated paired 't' test value of t = 5.989 was found to be statistically significant at p<0.001 level which clearly infers that there was reduction in the level of PPBS after the administration of fenugreek water among clients with diabetes mellitus.

SECTION D: ASSOCIATION OF POST-TEST LEVEL OF BLOOD GLUCOSE AMONG CLIENTS WITH DIABETES MELLITUS WITH SELECTED DEMOGRAPHIC VARIABLES.

The table 5 shows that the demographic variables exercise (**χ^2=6.119, p=0.047**) and how regular are you in taking medication (**χ^2=6.484, p=0.039**) had shown statistically significant association with post-test level of FBS

among clients with diabetes mellitus at p<0.05 level and the other demographic variables had shown statistically significant association with post-test level of FBS among clients with diabetes mellitus.The table 5 also shows that the demographic variables exercise **(χ^2=6.718, p=0.035)** and BMI **(χ^2=10.052, p=0.040)** had shown statistically significant association with post-test level of PPBS among clients with diabetes mellitus at p<0.05 level and the other demographic variables had shown statistically significant association with post-test level of PPBS among clients with diabetes mellitus.

Conclusion:

The research concluded that the addition of 100 g of fenugreek seeds to the daily diet of Type II diabetes mellitus clients could be effective supportive therapy for diabetes mellitus. As a results was reduce the blood glucose level of diabetes mellitus. Demonstrating that fenugreek water helps in reducing blood glucose level of individuals with diabetes mellitus, there is little evidence to support this hypothesis.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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