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Original Article

A Quasi Experimental Study to Assess the Effectiveness of Sprouted Fenugreek Seeds On Reduction of Blood Glucose Level Among Clients with Type Ii Diabetes Mellitus at Selected Urban Area Community Health Centre in Morena

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Abstract

Diabetes mellitus is a common non communicable disorder of the developing countries. The worldwide prevalence of Diabetes mellitus has arisen dramatically over the past two decades, Diabetes Mellitus is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced. All forms of diabetes increase the risk of long-term complications. These typically develop after many years, but may be the first symptom in those who have otherwise not received a diagnosis before that time. The research approach selected for the study is Quasi experimental research design [one group pre and post test with control group]. 60 patients were selected through Nonprobability - Convenient Sampling Technique. In that 30 were assigned as experimental and 30 were assigned as control group. The tool developed and used for data collection was structured interview and observation schedule. First data was collected from experimental group and then followed by control group. Pre test fasting and post prandial blood sugar was measured in experimental and control group before intervention. 25 gm of sprouted fenugreek seeds was administered in early morning before breakfast for clients in experimental group for 28 days. The conceptual framework based on modified J.M.Kenny's open system model. The collected data were analysed based on the above mentioned objectives using descriptive and inferential statistics. The findings of the study showed that there was a significant ($P<0.001$) reduction in blood glucose level after administering sprouted fenugreek seeds in experimental group.

Keyword: Quasi Experimental; Assess; Effectiveness; Blood Glucose Level

Introduction

Diabetes mellitus is a multi-system disease related to abnormal insulin production, impaired insulin utilization, or both. Diabetes mellitus is serious problem throughout the world. About one third of the people with diabetes mellitus are not diagnosed, and these individuals are unaware that they have the disease. Although Type II was previously called non-insulin dependent diabetes mellitus, patients with Type II diabetes mellitus may require insulin as a part of their management plans, either initially or later the course of disease. The sprouted (germinated) seeds of the fenugreek

contain many of the effective compounds with their medicinal, therapeutic and pharmaceutical applications. The chemical and medicinal components of fenugreek seed include vitamin A, vitamin B1, vitamin C&E, phosphates, flavonoids, saponins, trigonelline, alkaloids, flavonoids, steroids, saponins, polyphenolic substances, carbohydrates, flavonoids (apigenin, luteolin, orientin, quercetin, vitexin and isovitexin) free amino acids, such as 4- hydroxyisoleucine, arginine, histidine and lysine, saponins, glycosides etc. Fenugreek seed also known as Trigonella foenum-graecum is commonly used in India in kitchens. It has been commonly used as herbal preparation for diabetes treatment. Multiple mechanisms are suggested for its efficacy in diabetes population. Soluble fibers in fenugreek including glucomannan fiber delays intestinal absorption of ingested sugars and alkaloids such as fenugrecin and trigonelline have demonstrated to possess hypoglycemic action, and 4 hydroxyisoleucine (4-OH Ile) amino acids act on pancreas to release insulin. The present study evaluated antidiabetic properties of this medication on diabetes control in tertiary care hospital based in rural India in Telangana region.

OBJECTIVES:

1. To assess the levels on reduction of blood glucose level among clients with type 2 diabetes mellitus.
2. To evaluate the effectiveness of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus.
3. To associate the effectiveness of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus with the selected demographic variables.

HYPOTHESES:

H_1: There will be a significant difference between pre and post test scores of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus in experimental group.

H_2: There will be a significant difference between pre and post test scores of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus in experimental group and control group.

H_3: There will be a significant association between the effectiveness of sprouted fenugreek seeds on reduction of blood glucose level among clients with type 2 diabetes mellitus with the selected demographic variables.

MATERIALS AND METHODS:

The study was Quasi Experimental Design (Pre and Post test with control group). Random sampling technique was used to select 60 subjects and their blood glucose levels the researcher allotted 30 subjects to experimental group and 30 subjects to control group. On the same day the researcher assessed demographic data of each subjects both experimental and control groups. The tool used for the data collection was a standardized Indian diabetic risk score, clinical variables, and bio physiological measurement. After obtaining informed consent, data was collected through that standardized tool. After the data was collected both descriptive and inferential statistics were used to analyse the data. The descriptive statistics used were mean, standard deviation, frequency and percentage. Inferential statistics such as chi square was used to find out the association among the demographic variables among blood glucose levels.

SAMPLING CRITERIA:

Inclusion sampling criteria:

- Clients who had diabetes mellitus.
- Clients who were available during the time of data collection.
- Clients who were both males and females.
- Diabetes mellitus clients who were willing to participate in the study.

Exclusion sampling criteria:

- The age group who were below 20years and above 60years.
- Clients with diabetes mellitus who were taking oral hypoglycemic agents.
- Clients who were pregnant and lactating mothers.hroughput, output and feedbacks in open system theory.

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RESULT AND FINDINGS:

The study findings revealed that, post test of experimental group means score was 153.6 with standard deviation 28.66 was higher when comparing to pretest mean score of 172.83 with standard deviation 33.18 and it was statistically significant at the level of $p<0.001$. The study concluded that roasted fenugreekseed powder was effective in maintaining the blood glucose level among diabetesmellitus clients in experimental group when compared to control group. Reveals that the post test level of blood glucose levels among the experimental group and control group. The post test mean score of fasting blood sugaris 153.60 and postprandial blood sugar is 183.86 in experimental group. The standard deviation is 28.66 and 27.57 and standard error mean is 5.23 and 5.03. Hence its p valueis 0.001 in experimental group. The post test mean score of fasting blood sugar is 136.56 and postprandial blood sugar is 188.33in control group and its p value is 0.025. When, comparing the experimental and control group, the experimental group is highly significant.

DISCUSSION:

The pre-test and post-test level of blood glucose level among Diabetes Mellitus client within Experimental group. The mean value of pre test fasting blood sugar level is 172.83, standard deviation is 33.18 and the mean value of post test fasting blood sugar level is 153.60, standard deviation is 28.66, standard error mean is 5.23. The mean value of pre test postprandial blood sugar level is 206.56, standard deviation is 35.98, standard error mean is 6.57 and the mean value of post test postprandial blood sugar level is 183.86, standard deviation is 27.57, standard error mean is 5.03. Hence the P value is highly significant.

CONCLUSION:

Intake of roasted fenugreek seed powder has proved its effect on reduction of fasting blood glucose level of the client with Diabetes Mellitus. Proper education regarding diet should be given to the clients to promote their health and well- being.

RECOMMENDATION:

- Same study can be done at large sample size.
- Similar study can be done for a longer period to note the changes in blood sugar level.
- A comparative study can be undertaken compare the findings of control group
- Even after identification of prediabetes, few of prediabetes, don't want to changetheir lifestyle, so level of attitude of adults with prediabetes on preventive lifecan be done.

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Conflicts of interests: There is no conflict of interest

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