A Study to Assess the Effectiveness of Fenugreek Powder in Control of Blood Sugar Level among Diabetic Mellitus Patient in Selected Area of Moradabad

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Abstract: *<u>Background of the study</u>: Diabetes Mellitus is a disease condition that affect majority of population worldwide. The progressions of chronic hyperglycaemia cause complications like cardiovascular, renal, neurological, ocular or others inter current infections. It is not possible to convert heredity, it is difficult to modify environment, but easy to change dietary pattern. <u>Objectives</u>: The main objective of the study is to assess the effectiveness of fenugreek powder in control of blood sugar level among diabetic mellitus patient in selected area of Moradabad. <u>Setting and design</u>: Quasi experimental design was adopted. The study was conducted among 80 diabetic mellitus patient who were suffering with type-2 diabetes mellitus 40 in each group. Purposive sampling technique was used to select the samples.5gram fenugreek powder was given to the patient for 5 days in the experimental group and assess the random blood sugar. <u>Results</u>: The data was analysed by using descriptive and inferential statistics .The analysis revealed that, in control group there was significant association found between post -test blood sugar level with their selected demographical variable like gender ,restricting sweet intake (p>0.05). Hence hypothesis H3 was accepted. And in the experimental group there was no significant association found between post-test blood sugar level with their selected demographical variable (p>0.05). Hence hypothesis H3 was not accepted <u>Conclusion</u>: It was identified that fenugreek powder was efficiently reducing blood sugar level, so it is important to implement measures to prevent the diabetes and reduce the occurrence of diabetes complications.*

Keywords: Diabetes mellitus, Random blood sugar, Frequency, Research hypothesis, Percentage

1. Introduction

Diabetes Mellitus is a disease condition that occurs when body does not regulating the amount of (glucose) in the blood stream. Human diseases happen due to the result of heredity, environment and food. It is impossible to convert genes, it is hard to modify environment, or easy to modify dietary pattern.[8] The occurrence is high in city (10.8%) whereas (7.2%) in village areas, (10.4%) in high-income and (4.0%) in low-income nation. The occurrence rate of diabetes mellitus or impaired blood sugar level was about 7.5% in 2019 and reach to 8.0% in 2030 and 8.6% in 2045.[8]

Objective
1) To assess the level of blood sugar of diabetic mellitus patient in selected area of Moradabad .
2) To evaluate the effectiveness of fenugreek powder to control the level of blood sugar among diabetic mellitus patient in selected area of Moradabad .
3) To find the association between post test score of level of blood sugar with their selected demographic variables among diabetes mellitus patient at selected area of Moradabad

2. Methodology

Research approach: In this study a quantitative research approach was used.

Research design: Non- randomized control group design.
Sample: Type-2 diabetes mellitus patient.
Sample size: 80 diabetes mellitus patient (40 in each group).
Sampling Technique: In this study the researcher adopt the non-probability purposive sampling technique .

Description of tool
The tool was prepared by the investigator to assess the effectiveness of fenugreek powder in control of blood sugar level among diabetic mellitus patient which are as follows:
Tool 1: Demographic Performa
Tool 2: Clinical Performa
Tool 3: Standardized glucometer

Data collection
Before conducting the study the researcher taking permission from gram pradhan of Pakbara village in Moradabad, Researcher give self introduction and provide participant consent form for the signature of the participant & the adequate data information was collected. In an average it took 20 minutes to collect the responses for tool random blood sugar level has been checked through glucometer of each type -2 diabetic patient the same procedure was followed to obtain data from the entire sample . The data was collected within the given duration (four week).

Statistical analysis

Both descriptive and inferential statistics was done for analysis of data, with the help of SPSS 16 version. Descriptive statistics was done for analysis of demographic characteristics of the diabetic patient in terms of frequency and percentage. Frequency, percentage, mean were used to assess the level of blood sugar; chi-square value was used to associate level of blood sugar with selected demographic variable.

3. Result

Major Findings

- Majority of the diabetes mellitus patient were in the age group, 30 -40 years 42.5% in the experimental group and, 55% were belongs to age group 41-50 years into the control group .
- Most of the diabetes mellitus patient in gender in the experimental group 67.5% were belongs to female gender and in the control group 60% were belongs to female gender.
- Most of the distribution of marital status, were in experimental group is 77.5% were belongs to married and in the control group 70 % were belongs to married
- Most of the religion in the experimental group 67.5% were belongs to Hindu religion and in the control group 65% were belongs to Hindu religion.
- Majority of educational status in the experimental group 50% were belongs to higher secondary and in the control group 60 % were belongs to higher secondary.
- Majority of percentage and distribution of occupation in the experimental group 55% were belongs to other and in the control group, 55% were belongs to other.
- Majority of percentage and distribution of monthly income in the experimental group 42.5% were belongs to 10000 – 15000, 42.5% were belongs to above 15000 and in the control group 55% were belongs to 10000 – 15000.
- Majority percentage and distribution of practicing, regular exercise in the experimental group 100% were belongs to no in the control group 97.5 % were belongs to no.
- Majority of that percentage and distribution of family history in the experimental group 100%   were belongs to no, in the control group and 95% were belongs to no.
- Majority of percentage and distribution of restricting sweet in the experimental group 70% belongs to sometime I eat, And in the control group 50% were belongs to some time I eat.
- Majority percentage and distribution of following diabetic diet 80% were belongs to yes in the experimental group and 60% were belongs to no. in the control group.
- The frequency and percentages of participants based on blood sugar level of diabetes mellitus patient at pre- test and post- test. It revealed that in the experimental group all the participant at pre-test 22.5 % were belongs to mild 42.5 % had moderate blood sugar level and 35 % were belongs to severe where as in the post-test 5 % were belongs to mild ,95% were belongs to moderate blood sugar level and 0 % were belongs to severe in the experimental group .In majority 42.5 % of the

participants moderate blood sugar level at pre-test and 95% of the participants have moderate blood sugar level at post-test in the experimental group .

- The study revealed that there was no statistically significant difference noted in the mean values in control group (176.3) and in experimental group (178.1) of blood sugar level (p> 0.05) in the control group.
- The association between post-test blood sugar level with their selected demographic variable among diabetes mellitus patient in control group. It revealed that, in there was significant association found between post -test blood sugar level with their selected demographic variable like gender ,restricting sweet intake (p>0.05). Hence hypothesis H3 was accepted.
- The association between post-test blood sugar level with their selected demographic variable among diabetes mellitus patient in experimental group. It revealed that, in experimental group there was no significant association found between post-test level of blood sugar with their selected demographic variable (p>0.05). Hence hypothesis H3 was rejected.

4. Discussion

The present study depict that there was significant difference noted in the mean value of blood sugar level (p<0.05) between experimental group and control group during post-test. This shows that the fenugreek powder is an effective intervention to reduce the blood sugar level among diabetes mellitus patient.

A similar study conducted by Mandeepkaur, Harjinderkaur (2018). A study to assess the effectiveness of fenugreek on reducing blood sugar level among type 2 diabetes mellitus patient in community of Faridkot district . With 60 type 2 diabetes mellitus patient and in experimental group after pre assessment, mean of fasting blood sugar level is decreasing as compared to control group. There is a significant reduction in experimental group as compare to control group with (p<0.05) and which show that fenugreek effective on reducing the blood sugar level.

5. Conclusion

In type 2 diabetes mellitus patient blood sugar level was reduce as evidence by the result shown. Hence fenugreek powder is effective in the reduction of blood sugar level and it is a cost effective procedure .Therefore fenugreek powder should be used as a supportive therapy to reduce the blood sugar level.

6. Declarations

Funding: *No funding sources*
Conflict of interest: *None*

7. Future scope

Current life style, stress, and pollution have dramatically enhanced the progression of several diseases in human globally researchers are looking for therapeutic agents that can either cure or delay the onset of diseases .Herb plants from time immemorial have been used frequently in therapeutics, Catalyzing it with chemical agents make it a strong in every domain as they help in alleviating dependence on synthetic drugs as well as other expensive treatment to cure diseases . Further research and appraisal can be done to isolate the bioactive compound from crude extract for drug development as it hold a promising future in the field of natural products to cure diseases .Proper research appraisals along with planned clinical trial are the need of the hours so that the natural products from the plant can produce fruitful results for mankind.

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Frequency& percentages distribution of participants based on blood sugar level during pre- test and post -test.

Control group (n = 40)	Blood sugar level			Total
	Mild (100-140)	Moderate (140-200)	Severe (>200)	
Pre-test	8 (20%)	20 (50%)	12 (30%)	40 (100%)
Post-test	5 (12.5%)	26 (65%)	9 (22.5%)	40 (100%)

Experimental group (n = 40)	Blood sugar			Total
	Mild (100-140)	Moderate (140-200)	Severe (>200)	
Pre-test	9(22.5%)	17(42.5%)	14(35%)	40(100%)
Post-test	2(5%)	38(95%)	0(0%)	40(100%)

Comparison of pre-test mean standard deviation of participants based on blood sugar level between experimental and control group.

Pretest	Blood Sugar level		Paired 't' test	Critical value	Significance
	Mean	SD			
Control group (n =40)	176.3	26.8	0.30	1.99	P>0.05 NS
Experiment group (n = 40)	178.1	26.64			

Comparison of post-test mean standard deviation of participants based on blood sugar level of post-t test between experimental and control group.

Post -test	Blood sugar level		Paired 't' test	Critical value	Significance
	Mean	SD			
Control group	178.18	25.31	2.02	1.99	P<0.05 S
Experiment group	168.75	15.05			