

## **The awareness of using fenugreek in the treatment of diabetes among the population group of Malaysia**

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**Abstract:** *The objective of the study was to determine the level of awareness and knowledge on fenugreek towards the treatment of diabetes among the general population in Johor Bahru, Malaysia. 80 respondents were randomly selected by quota sampling and the questionnaires were distributed with emphasis laid on the level of awareness and knowledge on fenugreek towards the treatment of diabetes among genders and races which has to be solved in 1 hour. Females (16.25%) were more aware of the use of fenugreek and were also knowledgeable compared to males (2.5%). Based on race, it was observed that Indians (10%) were more aware of its medicinal value compared to Chinese (3.75%) and last races were Malay and others forming 2.5% of the group. This study observed that most of the residents of Johor Bahru, Malaysia had adequate knowledge of diabetes but less awareness on the usage of fenugreek in the treatment of diabetes. Indian females had a better awareness and knowledge in using fenugreek in the treatment of diabetes.*

**Keywords:** *Awareness & Knowledge, Diabetes, Fenugreek, Gender, Races.*

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### **I. Introduction**

Diabetes is one of the most common chronic diseases in the world. The number of people with diabetes is increasing dramatically due to population growth, aging and urbanization, increasing prevalence of obesity and physical inactivity that is finally associated with major health and socioeconomic problems. Malaysia has one of the world's highest numbers of diabetes cases among its population with 2.6 million registered patients [1]. Herbal treatment for diabetes has been a part of traditional medicine for thousands of years [2]. Even today, about 80% of the population in developing countries depends on traditional medicine, a fact that resulted in a recommendation by World Health Organization to include traditional medicine at the primary health care level in these countries [3].

One of those plant sources that have been used traditionally to treat diabetes is fenugreek (*Trigonella foenum-graecum*) which is a self-pollinating crop and also a native plant of the Indian subcontinent and Eastern Mediterranean region [4]. Fenugreek is well known for its traditional use as an anti-diabetic plant. It contains several hypoglycaemic and hypolipidemic constituents and has been the object of clinical trials confirming its beneficial action in diabetes. 4-hydroxyisoleucine, an atypical branched-chain amino acid derived from fenugreek is responsible for the effects of this plant on glucose and lipid metabolism [5]. The more worrying fact is that an equal number of adults are facing the risk of being diabetic without even knowing about the disease or its treatment. So the objective of the study was to determine the level of awareness and knowledge of using fenugreek in treating diabetes among the general population in Johor Bahru, Malaysia.

### **II. Materials And Methods**

It was a cross-sectional study and was carried out in the population of Johor Bahru, Malaysia in 2015. The study protocol was approved by the research committee and ethics committee of the institution. A total number of 80 respondents were selected and divided equally into 2 groups of males and females. From each group, they were subdivided equally according to their races - Indians, Malays, Chinese and others. The designed questionnaires were distributed in different locations within Johor Bahru and to be answered in 1 hour.

Before distributing the questionnaires, respondents were confirmed to be able to understand, read and write Basic English or Bahasa Malaysia. This was important so as to make sure the respondent answers correctly and well understand the questions prepared in questionnaires in order to reduce bias in the study conducted. The question in the questionnaire form measured socio-demographic information, understanding of diabetes, information on use of fenugreek and knowledge regarding the usage of fenugreek in treating diabetes. Each respondent were given the set of questionnaires which contained instructions on how to complete the questionnaires. The participants were ensured confidentiality as well as anonymity of the information. The questionnaires contained both close-ended and open-ended type of questions.

The data collected was analysed using descriptive statistical principles with SPSS 20 package and Chi square test.

### **III. Results**

#### **3.1 Knowledge about diabetes -**

In our study, 44 respondents defined diabetes correctly as an increase in blood glucose level. 23 pointed out that it was an increase in blood pressure followed by 13 felt it was by defect in pancreas (Table - 1). In the present study, considering the causes of diabetes, 44 respondents were aware that diabetes was due to improper production of insulin by the human body and 28 respondents pointed out that it was due to impaired insulin secretion. 66 respondents believed that the cause of diabetes was due to an unhealthy diet. 49 respondents felt that it was caused by genetics. While 12 of them believed that smoking was attributed to diabetes and 9 were of the opinion that it was caused by a bacterial infection (Fig 1). Further on questioning about relation of diabetes to death, 51 (63.7%) of them favoured that diabetes can cause death. Rest of them, around 7 respondents (8.8%) were not in favour and the remaining 22 respondents (27.5%) were not aware of the relation (Table-1). Regarding the types of diabetes, most of the respondents (70) were aware that there are two common types of diabetes which are type-1 and type-2 diabetes followed by only one type by 7 respondents, three types by 2 respondents and lastly 1 favouring 4 types.

#### **3.2 Awareness of fenugreek in the treatment of diabetes -**

Regarding the usage of fenugreek, 46 respondents have used fenugreek, followed by 10 respondents who have never used fenugreek and the remaining 24 were unsure if they have used it before. Further on questioning about usage of fenugreek in the treatment of diabetes, only 15 respondents knew that fenugreek can be used as a treatment option for diabetes. While 34 respondents were not sure of its use and the remaining 31 respondents were not aware whether it can be used (Fig 2).

#### **3.3 Relationship between the race / gender and the awareness of fenugreek -**

Considering the relationship between the race and gender of respondents and the awareness in usage of fenugreek in the treatment of diabetes, 8 Indian participants were clearly aware of usage of fenugreek in the treatment of diabetes. 3 Chinese participants were of the opinion that fenugreek can be used as a treatment option for diabetes followed by Malay and other races with 2 respondents each (Fig 3). 13 females compared to 2 males had the highest awareness of the usage of fenugreek in the treatment of diabetes.

### **IV. Discussion**

Diabetes is a major public health problem and along with its complications contributes a significant amount of burden on the society. Lack of awareness has resulted in an increased number of diabetics over the years. In our study 80 participants were included and separated into 2 groups according to gender and races. 50% of the respondents defined diabetes correctly as an increase in blood glucose level. This could be due to the fact that diabetes is a common disease and its information is often aired on the media and spread by the government. Most of the respondents however were aware of the causes of diabetes like unhealthy diet (82.5%), genetics (61.3%), body being unable to produce insulin (55%) and impaired insulin secretion (35%). All these are to be considered as welcome signs. This knowledge may be attributed to continuous diabetes awareness campaigns and posters, where the common causes such as the above are commonly mentioned. Despite the above facts, 11.3% of respondents thought diabetes could be caused by bacterial infections. This may not be a common knowledge to those with a non-medical background, who might think that most of the diseases are caused by bacteria or other microorganisms. However the above thought also attributes to awareness of educational posters by supporting the fact that bacterial infections are not listed as risk factors of diabetes.

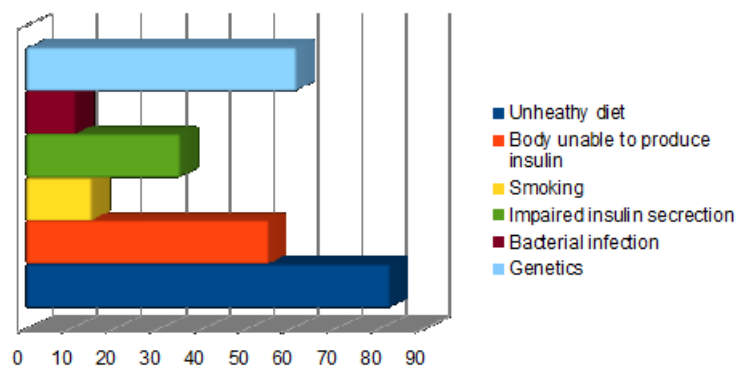
On analysis of the relationship of diabetes with death, in our study more than 2/3 of the respondents knew that diabetes can cause death. Majority of the respondents (87.5%) in our study knew that there were 2 common types of diabetes like type-1 and type-2 diabetes. From most of the facts put forth above one can possibly infer that many people get their information from awareness campaigns and posters, and we can see the success of these posters in effect here. This can be compared to a study [6] which showed that large scale multi-pronged diabetes awareness program provided by community involvement can improve the awareness of diabetes in a whole city and if similar efforts are implemented state-wise and nationwide, prevention and control of diabetes is an achievable goal.

The present study showed on an average of more than 58% respondents have used fenugreek followed by 30% of them were unsure while remaining 12% did neither use them earlier. Also the study showed that the level of knowledge of fenugreek in treating diabetes among the general population was low with only 18% of respondents had equipped with the knowledge of fenugreek. Even though most were using fenugreek, their knowledge towards its usage in diabetes was comparatively less, this is due to the fact that most of them would not be aware of the medicinal value of fenugreek apart from consuming it has one of the ingredients in food. Even among the medicine personnel this is a prevailing fact about the usage of fenugreek in diabetes. The major component that is found in fenugreek which is responsible for its hypoglycaemic effect is 4-hydroxyisoleucine.

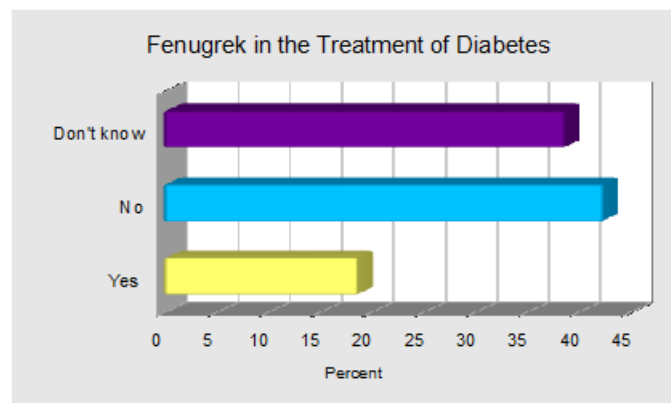
In one of the earlier studies [5, 7] they have shown that 4-hydroxyisoleucine that has been extracted and purified from fenugreek seeds, are known in traditional medicine for their anti-diabetic properties. It increases glucose-induced insulin release, in the concentration range of 100 µmol/l to 1mmol/l, through a direct effect on islets of Langerhans, in both rats and humans. The stimulating effect was strictly glucose dependent.

In our study the level of awareness towards the treatment of diabetes varies among races and genders. Majority of respondents who were highly equipped with the basic knowledge of fenugreek belonged to the Indian race. This was followed by Chinese, Malay and finally others. This could be due to the fact that Indians use herbs on a daily basis and they are the one who are most aware of its medicinal value. This can be compared to a study which reported that the Indian population uses herbs for traditional purposes almost every other day [8]. On the other hand females were generally more aware of the hypoglycaemic effects of fenugreek as compared to males. This can be explained from the fact that females are more likely to read it from a health magazine or recipe books. Some studies have shown that males and females not only differ in their preference for certain health related habits but also in their health concern or attitudes towards health with females reporting an overall better health behaviour [9].

### V. Figures And Tables

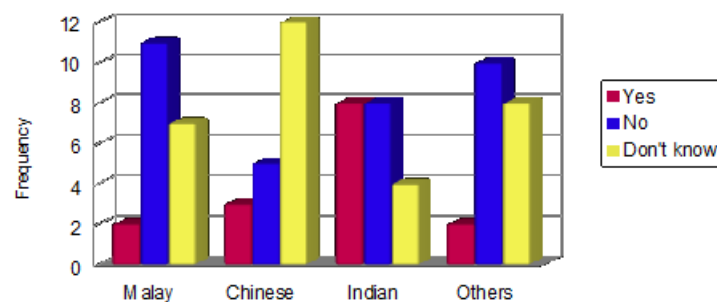


**Figure 1:** Causes of Diabetes.



**Figure 2.**

**Relationship Between the Race of Respondents and the Awareness of Fenugreek**



**Figure 3.**

**Table 1.** Definition of diabetes and relationship with death

| Number of respondents & percentage | Definition of diabetes   |          |                    | Total | Can diabetes cause death |      |            |
|------------------------------------|--------------------------|----------|--------------------|-------|--------------------------|------|------------|
|                                    | ↑ in Blood glucose level | ↑ in B.P | Defective pancreas |       | Yes                      | No   | Don't know |
| Respondents                        | 44                       | 23       | 13                 | 80    | 51                       | 7    | 22         |
| Percentage                         | 55                       | 28.7     | 16.3               | 100   | 63.7                     | 8.7  | 27.25      |
| Valid percent                      | 55                       | 28.7     | 16.3               | 100   | 63.7                     | 8.7  | 27.25      |
| Cumulative %                       | 83.7                     | 28.7     | 100                | -     | 63.7                     | 72.5 | 100        |

## VI. Conclusion

The study focused on the level of knowledge of herbs especially, fenugreek in treating diabetes among the general population in Johor Bahru, Malaysia. This study observed that most of the residents of Johor Bahru had adequate knowledge of diabetes but less awareness on the usage of fenugreek as an alternative medicament to treat diabetes. It was also noted that females are more knowledgeable in defining diabetes and particularly, Indian females had a better awareness and knowledge in using fenugreek in the treatment of diabetes.

The study is not a complete picture of fenugreek but we tried to put forth the facts of knowledge and awareness related to it. This can be used as a model for future exploration of questions associated with diabetes and fenugreek. Research concerning the advances in diabetes treatment must be developed continuously to create a better understanding of how prevention efforts may be tailored to both risk groups and the general population. The best method to educate people on the recent treatment of diabetes would be through posters and pamphlets as it would be concise and attractive.

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