

## Knowledge and Awareness About Natural Anti Diabetic Herbs and its Usage Among General Public

G.Swetha<sup>1</sup> and R.V.Geetha<sup>2</sup>

<sup>1</sup>Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Saveetha University ,Chennai - 600077, Tamil Nadu, India

<sup>2</sup>Associate Professor, Department of Microbiology, Saveetha Dental College and Hospitals, Saveetha Institute of Medical And Technical Sciences, Saveetha University ,Chennai - 600077, Tamil Nadu, India

### ABSTRACT

Diabetes mellitus , regularly known as diabetes, is a group of metabolic issues described by hyperglycemia over a prolonged period coming about because of deformities in insulin secretion, insulin activity, or both. India has about 33 million diabetic subjects today, which is quickly contributed by the urban populace. People try various remedies to prevent and cure it , But drugs are not only the option of choice .Over the most recent couple of years there has been an exponential development in the field of herbal medicine and these medications are picking up fame both in developing and developed countries in view of their common inception and less side effects . The current study says the people's knowledge of natural anti diabetic herbs and made them aware of the same. The present study was conducted in Chennai among randomly selected people using a questionnaire. The question was related to knowledge and awareness on natural Anti diabetic herbs and it's usage among. A total of 20 close ended questions were included. The results were being analyzed using statistical software. On analyzing the results obtained from the present study, it is clear that People are fairly aware and have knowledge about Diabetes , its symptoms, Use of anti diabetic herbs and about its benefits as well.

**KEY WORDS:** ANTI DIABETIC HERBS; AWARENESS; DIABETES; FENUGREEK; NATURAL REMEDY.

### INTRODUCTION

Diabetes mellitus, regularly known as diabetes, is a group of metabolic issues described by hyperglycemia over a prolonged period (Gandhi et al., 2017) coming about because of deformities in insulin secretion, insulin activity, or both. The chronic hyperglycemia of diabetes is related with long term harm ('Diagnosis and Classification of diabetes mellitus', 2014), like diabetic ketoacidosis,

hyperosmolar hyperglycemic state, or death. A (Kitabchi et al., 2009) few pathogenic procedures are associated with the advancement of diabetes. These range from immune system obliteration of the  $\beta$ -cells of the pancreas with subsequent insulin lack to irregularities that result in protection from insulin activity. The premise of the variations from the norm in sugar, fat, and protein digestion in diabetes is inadequate activity of insulin on target tissues.

Insufficient insulin activity results from deficient insulin emission or potentially reduced tissue reactions to insulin at least one focuses on the (Gheena, Chandrasekhar and Ramani, 2011) perplexing pathways of hormone activity ('Diagnosis and Classification of diabetes mellitus', 2014) Salivary parameters can go about as extras in evaluating the general metabolic status of the patient.

### ARTICLE INFORMATION

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(Gheena, Chandrasekhar and Ramani, 2011) Control of BP, keeping up appropriate foot care, and eye care are significant for individuals with the disease (Diabetes, 2020). Type 1 diabetes must be made with insulin injections (Diabetes, 2020). Type 2 diabetes might be treated with prescriptions with or without insulin. (Vizcaino, 2014) Insulin and some oral meds can cause low blood sugar. (Irwin et al., 2012).

Weight misfortune medical procedure in those with stoutness is once in a while a compelling measure in those with type 2 diabetes ('The clinical effectiveness and cost-effectiveness of bariatric (weight loss) surgery for obesity: a systematic review and economic evaluation', 2010) Gestational diabetes normally settles after the introduction of the baby. India has about 33 million diabetic subjects today, which is quickly contributed by the urban populace (Ramachandran, 2005) The situation is changing quickly due to financial progress happening in the rustic regions too. Accessibility of improved methods of transport, and less strenuously as in the region have brought about diminished physical exercises. Better monetary conditions have delivered changes in diet propensities (Ramachandran, 2005) The conditions are increasingly good for articulation of diabetes in the populace, which as of now has a racial and hereditary defenselessness of the ailment. Later epidemiological information show that the circumstances are comparative all through the nation. (Chin and Smith, 2009)

But drugs are not only the option of choice. Over the most recent couple of years there has been an exponential development in the field of herbal medicine and these medications are picking up fame both in developing and developed countries in view of their common inception and less side effects. Numerous conventional meds being used are obtained from medicinal plants, minerals and natural issues (Grover, Yadav and Vats, 2002) Various medicinal plants, generally utilized for more than 1000 years named rasayana are available in natural arrangements of Indian customary social insurance frameworks (Scartezzini and Speroni, 2000; Grover, Yadav and Vats, 2002) In Indian frameworks of medication most experts define and apportion their very own plans (Grover, Yadav and Vats, 2002).

Medicinal plants are being gazed up once again for treatment of diabetes. Numerous customary medications have been gotten from prototypic atoms in medicinal plants. Metformin embodies an effective oral glucose-bringing down operator. Its advancement depended on the utilization of *Galega officinalis* to treat diabetes. Prevention and treatment of diabetes include keeping up a sound eating routine, standard physical exercise, an ordinary body weight, and maintaining a strategic distance from utilization of tobacco (Diabetes, 2020) along with which consumption of Indian natural herbs maybe considered, which has a very good effect as anti diabetic herbs. The current study says the people's knowledge of natural anti diabetic herbs and made them aware of the same

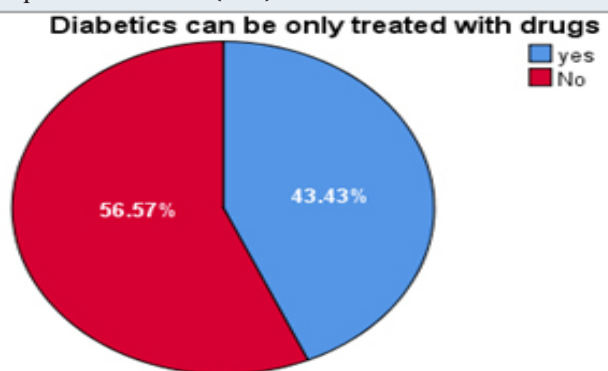
## MATERIAL AND METHODS

A cross-sectional questionnaire survey was conducted among the general public in Chennai, Tamil Nadu, India during December 2019. This was a poll based examination utilising an online review entry called "Google forms." A total of 100 people were assessed using a structured questionnaire comprising of 10 closed-ended questions regarding the participants' demographic details (age, gender, and place), natural antidiabetic herbs related knowledge, awareness, and side effects. After distributing the questionnaire, awareness on side effects of the natural antidiabetic herbs were given. All the collected data were then analysed through SPSS software and pie charts and bar graphs were plotted.

## RESULTS AND DISCUSSION

People are very well knowledgeable about diabetes mellitus (Mirghani et al., 2017) and its related complications and medications. Diabetes management focuses on keeping blood glucose levels as close to normal, without causing low glucose. This can usually be accomplished with dietary changes, work out, weight loss, and utilization of suitable prescriptions (insulin, oral drugs) and also herbs (Kahleova and Pelikanova, 2015) The participants of the survey were asked if drugs were only treatment for diabetes, 57% answered no while 43% yes. [Figure 1], In the following question, They were asked if they are aware that Indian herbs have anti diabetic properties 58% yes while 42% answered no [Figure 2]

Figure 1. Pie chart depicts the awareness level participants believing that diabetics can be only treated by drugs. Majority (57%) of the respondents said that drugs are not the only option (red), while 43% said drugs are the only option for diabetics (blue).



Diabetes is widely treated with medication like insulin secretagogues (sulfonylureas, meglitinides), thiazolidinediones, some newer drugs like GLP1 analog (Exenatide), SGLT 2 inhibitors (Dapagliflozin) (RSSDI Textbook of Diabetes Mellitus, 2012). Most drugs used to treat diabetes act by bringing down glucose levels through various mechanisms. There is an expansive agreement that when individuals with diabetes keep up tight glucose control—keeping the glucose levels in their blood within normal ranges—that they

experience less complications like kidney issues and eye issues (Rosberger, 2013). But it is not the only way to treat diabetes. Participants were inquired if the herbs that we see and use daily like neem, onion, amla, holy basil, fenugreek has anti-diabetic properties. 56% answered yes, while 44% answered no [Figure 3]. Anti-diabetic herbs like Babul (*Acacia arabica*), bael (*Aegle marmelos*), church steeples (*Agrimonia eupatoria*), onion (*Allium cepa*), garlic (*Allium sativum*), ghrita kumara (*Aloe vera*), neem (*Azadirachta indica*), ash gourd (*Benincasa hispida*) and etc can also treat diabetics and also is inexpensive (RSSDI Textbook of Diabetes Mellitus, 2012).

Figure 2: Pie chart depicts the knowledge of participants about Indian herbs and its antidiabetic property. Majority (58%) of the respondents said that Indian herbs have anti-diabetic property (blue), while 42% said no (red).

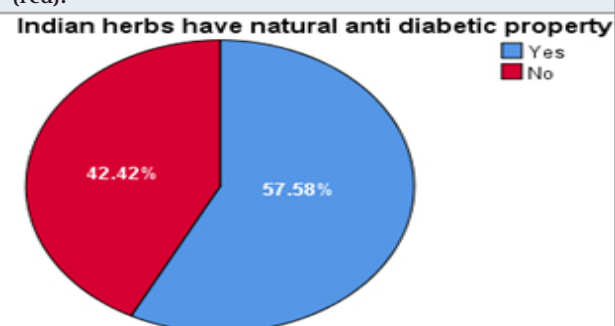
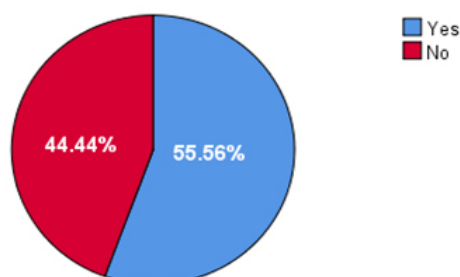


Figure 3: Pie chart depicts the knowledge of participants in knowing herbs that have anti-diabetic properties. Majority (56%) of the respondents knew about herbs that have anti-diabetic properties (blue), while 44% didn't know (red).

**The herbs that we see and use daily like neem, onion, amla, holy basil, fenugreek has anti diabetic properties**



Most of the participants were aware of that fact. And also yoga has a big impact on blood sugar level, a study says that Impact of the Kapalbhathi Pranayama on the glucose level of borderline diabetic patients is significant. Additionally, the examination also infers that regular act of Kapalbhathi Pranayama by borderline diabetics can decrease the glucose level (Pal et al., 2016). (Azima Hanin, Vishnu Priya2 and Gayathri, 2018)

The participants were inquired beneficial effects of herbs, 33% answered less side effects, 27% regulate blood sugar level, 18% hypoglycaemia, 8% had no idea [Figure 4]. In the following question participants of the survey

were asked if herbs were better than drugs, 56% said yes while 44% said no [Figure 5]. Alternative drugs are getting progressively famous for the treatment of chronic illness, essentially on account of individuals' perception that plant-based prescriptions are less toxic and have less side effects (American Chemical Society, 2019). All medical products leave side effects, which may be short term or long term, but the side effects caused by natural anti-diabetic herbs are less than that of the drugs and quite effective as the drugs (Azima Hanin, Vishnu Priya2\* and Gayathri, 2018).

Figure 4: Pie chart depicts participants' knowledge on the benefits of using anti-diabetic herbs. Majority (33%) of the respondents said less side effects (blue), 27% said drugs regulate blood glucose level (red), 18% said leads to hyperglycemia (green), 13% said acts same as drug (orange) and 8% had no idea about the benefits of using anti-diabetic herbs (yellow).

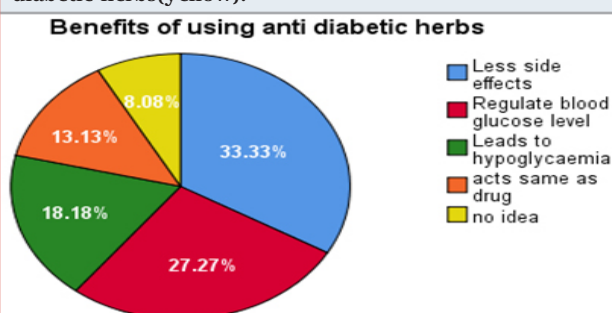


Figure 5: Pie chart depicts the participants' opinion on natural antidiabetic herbs are better than drugs. Majority (56%) of the respondents said yes (blue), while 44% said no (red).

**Natural anti diabetic herbs are better than the drug**

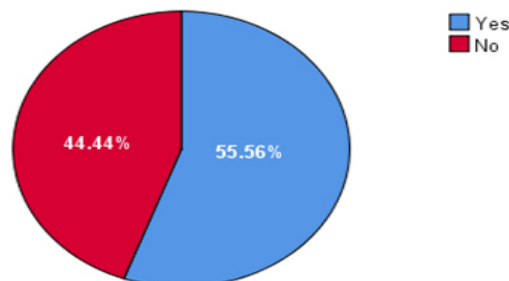
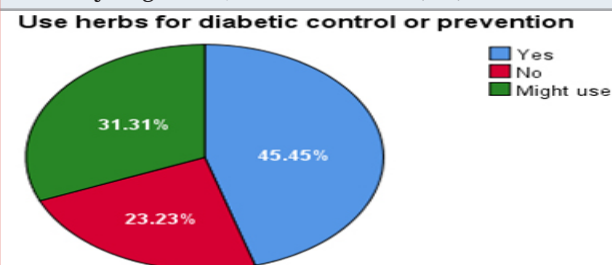


Figure 6: Pie chart depicts the participants' response to use of herbs as a preventive measure for diabetes. Majority (45%) of the respondents said yes (blue), 31% said they might use, and 23% said no (red).



The participants of the survey were asked if they would use it for diabetic control or prevention, 45% responded yes, 23% no and 31% might use [Figure 6]. Most of the participants have planned to take anti diabetic herbs as a prevention measure for diabetes or to take diabetic control Which is a good sign.

Figure 7: Bar chart showing association between gender and their knowledge on treatment options for diabetes, X-axis represents the gender and Y-axis represents the number of responses, where yes (blue) and no (red), Chi square test performed, Chi square test value = 0.554; p value = 0.457 (p value > 0.05). Statistically not significant, however females are more knowledge than males on treatment options for diabetes.

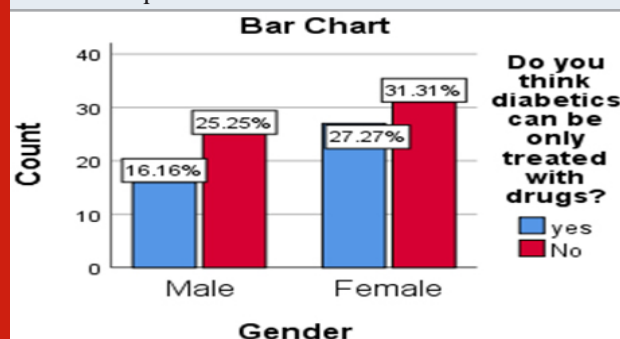
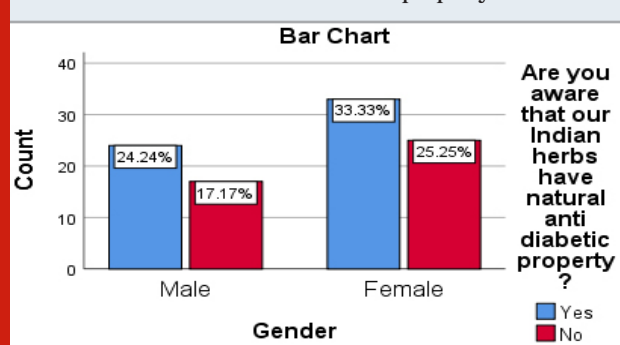


Figure 8: Bar chart showing association between gender and their awareness on indian herbs and its antidiabetic property, X-axis represents the gender and Y-axis represents the number of responses, where yes (blue) and no (red), Chi square test performed, Chi square test value = 0.026; p value = 0.871 (p value > 0.05). Statistically not significant, however females are more aware than males on indian herbs and its antidiabetic property



## CONCLUSION

On analyzing the results obtained from the present study, it is clear that People are fairly aware and have knowledge about anti diabetic drugs. Females are more aware and knowledgeable about anti diabetic herbs than males. But they still don't have a clear idea about the mechanism of action and method of use and etc which can be self taught by the people with the help of online sources.

Figure 9: Bar chart showing association between gender and their opinion on natural antidiabetic herbs, better than drugs, X-axis represents the gender and Y-axis represents the number of responses, where yes (blue) and no (red), Chi square test performed, Chi square test value = 0.008; p value = 0.927 (p value > 0.05). Statistically not significant, however, majority of females say that natural antidiabetic herbs are better than drugs

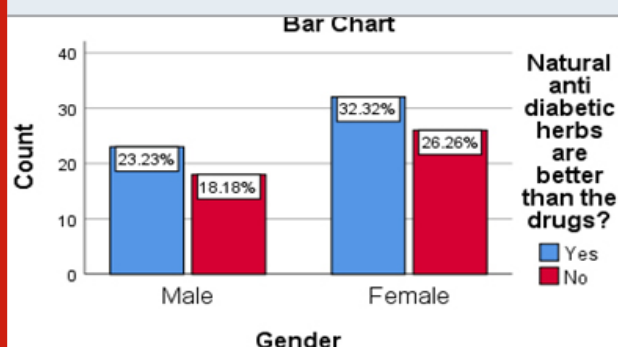
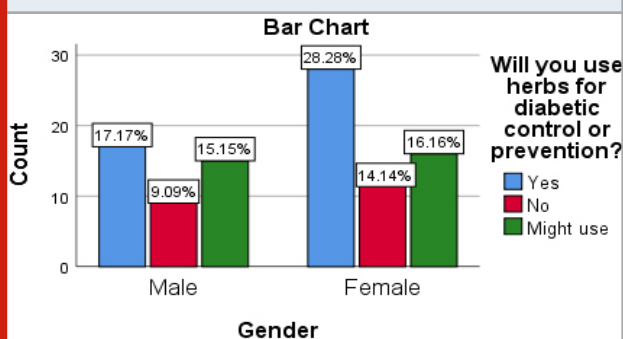


Figure 10: Bar chart showing association between gender and their response to use of herbs as a preventive measure for diabetes, X-axis represents the gender and Y-axis represents the number of responses, where yes (blue), might use (green) and no (red), Chi square test performed, Chi square test value = 0.916; p value = 0.633 (p value > 0.05). Statistically not significant, however, the majority of females responded they'll use herbs as a preventive measure for diabetes.



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**Conflict of Interest:** None to declare

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