A Survey on the Knowledge in General Population about Diabetes and Lifestyle

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Abstract:-Diabetes mellitus is one of the major health challenges in the recent years which is characterized by chronic hyperglycemia caused by deficiency in the secretion of insulin or insulin inaction. Diabetes can lead to complications such as diabetic foot ulcer, stroke and peripheral artery diseases etc. Since diabetes has a complicated physiology and needs various methods of interventions for treatment. Maintaining a balanced diet, consistent physical activities, medications and regular screening can help prevent diabetes and it'd effects. Hence an online based cross sectional study was done among the general population to evaluate their existing knowledge about diabetes and how lifestyle choices influence it utilising Google forms.

I. INTRODUCTION

Over the past 50 years, significant changes in lifestyle and globalization have had a profound impact on politics, the environment, society and human behaviour. Both in developed and developing nations there are significantly more persons with diabetes[1]. Diabetes along with other non communicable diseases such as cardiovascular disease especially type 2 diabetes has emerged as one of the greatest health challenges of twenty first century[2]. The worldwide health agenda proposes diabetes as a global pandemic and a danger to human health and global economies.[3] Although certain cases of diabetes are challenging to categorize, majority of cases can be roughly divided into two categories: type1 diabetes and type 2 diabetes. Data from the 1999–2004 NHANES was used to determine the most frequent complications associated with type 2 diabetes. These results show that microvascular complications, such as chronic kidney disease, foot issues, and eye damage, are much more common than macrovascular complications, such as heart attacks, chest pain, coronary heart disease, congestive heart failure, and stroke [4, 5, 6].

Diabetes has always been a major healthcare issue in India. Diabetes is the root cause, trigger factor and the reason why a human becomes more susceptible to infections. The body's immunity and healing is compromised and health declines. Slowly but surely. Taking the recent pandemic into account , various studies have revealed that people with diabetes have twofold increased risk to covid-19. and this diabetes is considered a risk factor for covid-19. Diabetes is very common in middle aged people but now is affecting young adults too and the number of diabetic people is increasing alarmingly, day by day. It is estimated that soon India will be the diabetes capital of the world. The health-care professionals are really concerned looking at the steady increase in diabetes becoming the new normal. But on the brighter side, diabetes is a lifestyle disorder and can be controlled and prevented. Thus as health-care givers it is our duty to educate people and spread awareness. Why let lack of awareness cost someone their life? And it is our belief that every big change starts with a small effort. And thus we are conducting this survey on the knowledge in general population about diabetes and lifestyle.

II. MATERIALS AND METHODS

A cross-sectional online based questionnaire survey was circulated among the general population across Chennai, Tamil Nadu using Google forms through various social media platforms to evaluate their existing knowledge on Diabetes and their awareness on how lifestyle choices influence it. All participants were informed about the purpose of the study and their consent was obtained. Twenty questions relevant to diabetes excluding the prerequisite questions were collected based on various aspects like diet, physical activity and deleterious habits. A questionnaire based survey was conducted to assess the knowledge of general population on concept of balanced meal and its planning, relation of physical activity, workout and lastly co-relation of habits like drinking , smoking with diabetes and lastly its effect on the over-all health of an individual. The data was obtained, descriptive and analytical statistics (chi square test) was performed for the obtained results using SPSS software version 20.

III. RESULTS AND ANALYSIS

The analysis of the collected data revealed that among the study population of 100 with 75 % of volunteers were below the age of 30, 4% comprising of age of 30-40, 9% of age 40-50 and 12 % above the age 50 with a female prevalence of 67% and 31% males and the remaining 2% of other gender. 64% of the study population has a monthly Income of below 20,000. Among the study participants 77% of the participants believe that dietary changes has an influence on diabetes ($p<0.001***$) with 42% of the population accepting that their meals are not balanced diet($p<0.001***$) (Figure 1) 81% of the participants believe that Low fat diary products and whole grains should be included in meals to help with diabetes ($p<0.001***$) and 75% believe that Baked goods must be avoided

(p<0.001***) with 17% believing that milk and lactose free milk should be avoided too(p<0.001***). 36% accepted that even though they know that strictly planned meal times is important but choose to not to follow (p<0.001***) .

Among the volunteered participants 70% are aware that lack of physical activity can lead to type-II diabetes (p<0.003***), 37% do some sort of physical activity 1-3 days per week (p<0.001***) with 60% believing that at least 30 mins of workout, five days a week is the appropriate amount of physical activity (p<0.002***) and 24% think that exercise can increase both glucose and insulin sensitivity (p<0.001***). 10% believe that high intensity workout is effective against diabetes (p<0.001***) with 89% believe that both aerobic exercise and resistance training are helpful at reducing HbA1c levels in people with type-II diabetes (p<0.000***). More than half of0⁰⁰ the study population (75%) are aware that working out is important in diabetes because it Improves the effectiveness of insulin, regulates blood sugar levels and it builds strength and agility(p<0.001***).

Out of the 100 participants 46% know that increase in the intake of alcohol increases the risk of diabetes due to decrease in insulin (p<0.002***) and 39% believe that increased stress is harmful to diabetes patient because it makes cells resistant to insulin (p<0.000***). Out of 100 participants 24% are aware that Steroids can cause increase in blood sugar(p<0.001***) and that more than half the volunteers (81%) know that balanced diet does not have a negative impact on diabetic patients(p<0.000***) and 56% believe that smokers are more likely to develop diabetes because Cells don't respond to insulin(13%), increase in belly fat(9%) and Nicotine(22%)(p<0.002***). Among the participants 51% believe that Idle lifestyle leads to Type-2 diabetes while 18% think it leads to Type-1 diabetes 3% believing it will lead to Type-3 diabetics with 28% believing it will lead to None of above mentioned conditions (p<0.000***)
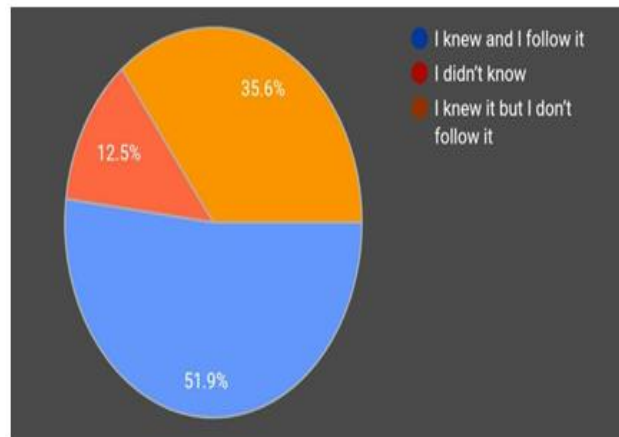

Fig 2 Pie chart showing differences in percentage about the concept of strictly planned meal time regarding to diabetes patients
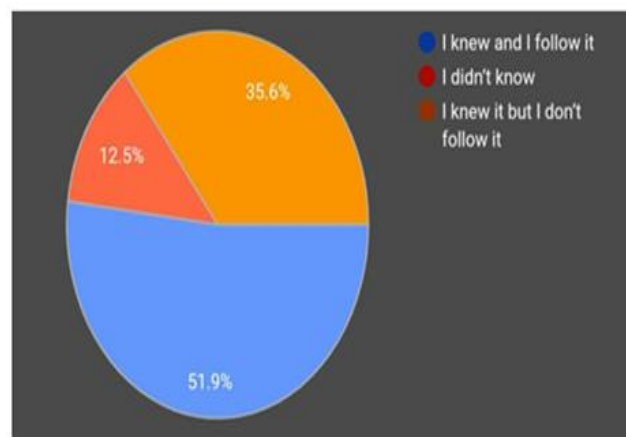

Fig 3 Pie chart showing differences in percentage about the knowledge of physical activities in relation to type II diabetes
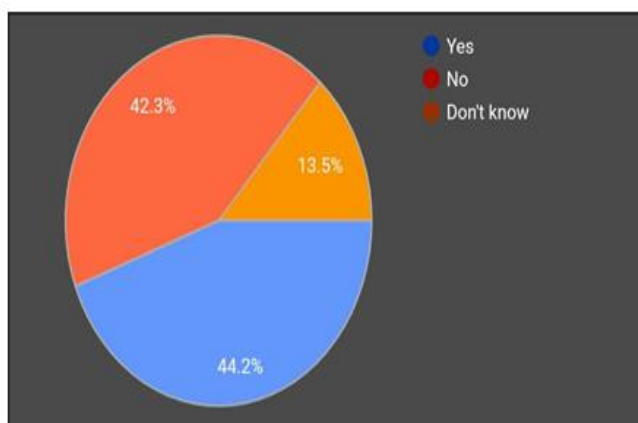

Fig 1 Pie chart showing differences in percentage about the intake of balanced diet in a meal among the participants
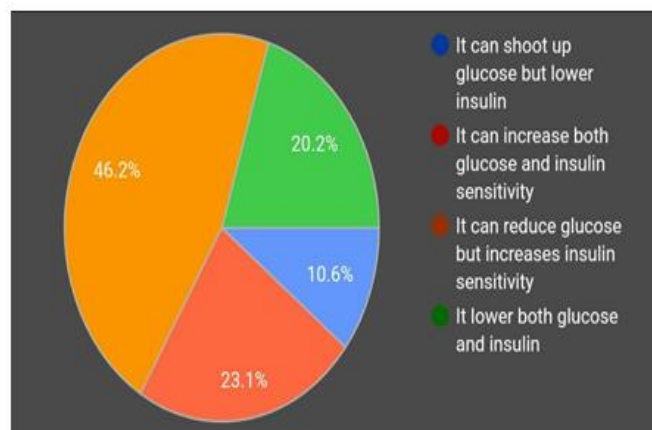

Fig 4 Pie chart showing differences in percentage about the knowledge of exercise influencing the blood glucose level and insulin sensitivity
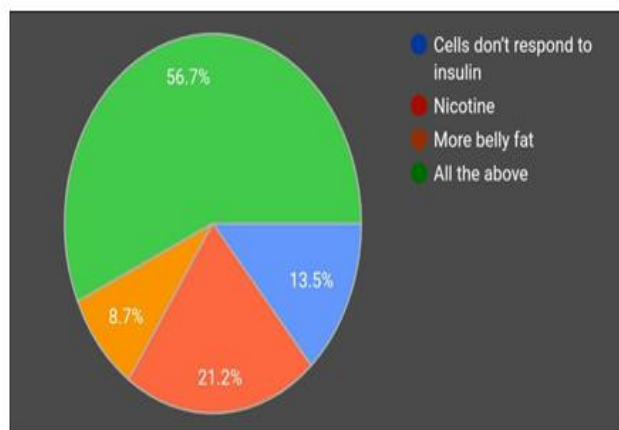
Fig 5 Pie chart showing differences in percentage about the effect of smoking on developing diabetes
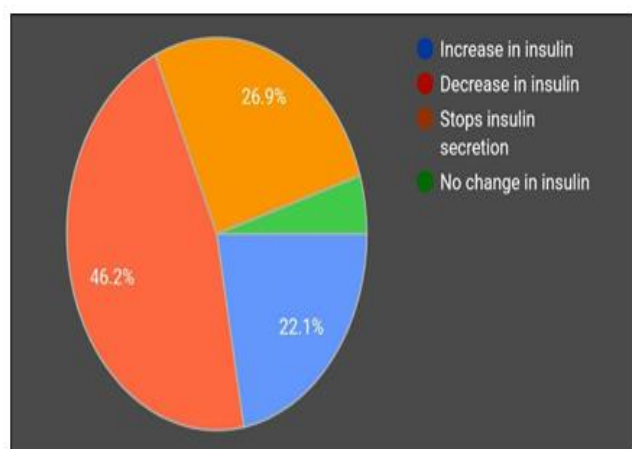

Fig 6 Pie chart showing differences in percentage about the effect of alcohol intake on pancreas that indirectly leads to diabetes

IV. DISCUSSION

According to estimates, 77 million Indians over the age of 18 have type 2 diabetes, and over 25 million are pre-diabetics (at a higher risk of developing diabetes in near future). More than 50% of people do not know they have diabetes, which can cause serious health problems if not caught early and managed[7]. In a study by Danielle M. Thiel et al. (2017) in Canada, it was discovered that physical activity and health-related quality of life, particularly physical health, are significantly correlated. [8] Similar correlation is achieved in our study as 70% of respondents were aware that a lack of physical activity can result in Type 2 diabetes. According to Hong Cai et al's (2017) comprehensive review study, aerobic exercise has a positive and safe impact on people with type 2 diabetes' quality of life.[9] 63% of our survey participants favoured low-intensity physical activity like jogging which is an aerobic exercise among other activities, correlating with Hong Cai et al's study.

In Ghana, the impact of 8 weeks of aerobic exercise on physiological markers and quality of life in people with Type 2 diabetes was evaluated using a randomised controlled study by Ajediran I. Bello et al. (2011). After an aerobic exercise programme of eight weeks, they demonstrated patient recovery. Patients' lipid profile, quality of life, and fasting blood sugar (FBS) all dramatically improved[10]. Likewise in our survey, 60% of respondents admitted that the suggested amount of time for exercise is at least 30 minutes per day, five days per week. According to Sylvetsky Meni et al, regardless of adiposity, consumption of soft drinks, fruit juice, sweetened milk beverages, and energy from total sweet beverages was linked to an increased risk of type 2 diabetes.[11] In our study 70% of respondents indicated that it is best to avoid energy drinks and beverages in order to prevent Type 2 diabetes, positively correlating as mentioned above.

In our study 51 respondents indicated in our survey that they were aware of the importance of strictly prepared meals in diabetes cases and that they also adhered to this advice this positively correlated with the study conducted by leonie heilbronn et al, that modulating when rather than what can improve blood glucose level.[12] In accordance with Carter P et al a statistically significant 14% decrease in the risk of type 2 diabetes was linked to increasing consumption of green leafy vegetables, or around one serving per day.[13] In our survey 7% of respondents indicated that it is best to avoid eating fruits and vegetables at meals, which is contrary to the suggested diet by Carter P et al.

Diabetes has a complicated physiology and treatment plan that necessitate numerous interventions for effective disease control. The management of diabetes depends on patient involvement and diabetic education. Patients who are able to control their diet (carbohydrate and overall calorie restriction), engage in regular exercise (greater than 150 minutes per week), and independently monitor their blood sugar have better outcomes.[14] Diet, exercise, medication, and routine screening and treatment for complications can all help treat diabetes and delay or prevent its effects. Type 2 diabetes is avoidable in around 80% of cases. Effectiveness of simple lifestyle modifications has been demonstrated by obtaining and keep a healthy body weight.Being physically active by engaging in frequent, moderate-intensity activity for at least 30 minutes most days. For weight control, more exercise is necessary. Eating a balanced diet meal and avoiding saturated fats and refined sugar can help reduce the risk factors in causing diabetes. Diabetes and cardiovascular disease risk are increased by tobacco use, including smoking and chewing so it is advised to avoid its consumption.[15]

V. CONCLUSION

Diabetes has emerged as a significant healthcare issue in India, where it is thought that 40 million people are affected, the biggest number of any nation in the world. In India, there is a pressing need for a balanced strategy to raising diabetes awareness and improving diabetes control among patients and the medical community. (16).India is the diabetes capital of the world, and diabetes, also known as sugar, is commonly referred to as "the sugar sickness" in most homes. In India, diabetes has rapidly increased in incidence across all age groups and is now more common than 10% among younger people. Diabetes is essentially a lifestyle disorder and public health officials are quite concerned about the recent surge in diabetes, particularly in younger people.

The survey conducted thus identified that individualized education is more effective compared to group education in patients, who had poorly controlled diabetes.(17) Healthcare professionals should take an active approach to educate patients with Diabetes Mellitus. It is misguided for patients to think that lifestyle changes for a limited time are appropriate, and instead, lifelong lifestyle changes may be necessary to control their Diabetes Mellitus adequately. Making a big life change is scary ..but you know what is scarier? Regret. Soo lets not wait for anyone and take a leap towards a better future with more sweetness and less diabetes! Cause every change first starts with you!

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