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Assessment of Diabetes Knowledge Among The Government Employees of Tamil Nadu

Dr. N. R Ramkumar[1], Dr. R. Mohanakrishnan[2], Dr. V. Veeran[3]

[1]Director of Physical Education, AMET University, Chennai.
Email ID: ram.sportive@gmail.com

[2]Director- Sports, SRMIST, Kattankullathur.
Email ID: mohanakr@srmist.edu.in

[3]Director of Physical Education, Dr. Ambedkar Government Arts College, Vyasarpadi, Chennai.
Email ID: veeranvv@gmail.com

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ABSTRACT

The active management of type 2 diabetes, a metabolic disorder, entails not only the use of supplements but also patient awareness of the need to make significant lifestyle changes. It's expected that those who understand hypoglycemia better would continue to control their blood sugar amounts. Diabetes awareness among Tamil Nadu government employees was assessed using the Diabetes awareness Questionnaire (DKQ). A cross-sectional research of Tamil Nadu government workers was carried out. Both sexes of subjects who were able to comprehend and finish interviews and were between the ages of 32 and 60 were recruited. Subjects who were unable of comprehending and filling out the forms and who were unwilling to participate were excluded. The investigation found that the population's understanding of diabetes was mediocre. A healthy diet and adequate exercise were not being followed by the majority of people. About 40% of parents in the population have diabetes. It may be possible to improve glycaemic management by increasing the understanding of diabetics. If a clinical pharmacist is involved with vigorous exercise and eating properly, this goal of increasing people's understanding of diabetes may be accomplished over time.

Keywords: *Diabetes awareness Questionnaire; Type 2 diabetes; monitoring; pharmacist; glycaemic management.*

1. INTRODUCTION

According to statistics and figures, diabetes is becoming a bigger global issue for individuals, communities, and countries. 10.5% of adults aged 20 to 79 have diabetes, according to the IDF Diabetes Atlas (2021), and nearly half are unaware that they have the disease.

One in eight adults, or over 783 million people, will have diabetes by 2045, according to IDF projections, a 46% increase. Type 2 diabetes affects more than 90% of diabetics and is influenced by biological, socioeconomic, and economic factors. Hyperglycemia is a hallmark of diabetes, a set of metabolic diseases that cause both micro and macrovascular problems in the body. Shorter life expectancy and a lower quality of life are the results of these issues. The World Health Organization (WHO) estimates that 422 million people worldwide suffer from diabetes mellitus (DM), a condition that has grown from 4.7 percent to 8.5 percent since 1980.3. In Asian countries, particularly India and Pakistan, the prevalence of diabetes was 8.5% and 6.7%, respectively [1, 2]. In addition to medication, diabetes management requires self-care practices and a comprehensive understanding of the disease. One serious non-communicable disease (NCD) that seriously jeopardizes public health globally is diabetes mellitus (DM). Diabetes typically progresses into a chronic illness that lowers a patient's quality of life, raises morbidity and mortality, and places a heavy financial strain on the federal budget and medical sector.

A key element of health literacy understands an illness, which can reduce the morbidity and mortality linked to it. Baseline data and diabetes knowledge can be used to evaluate an individual's risk for diabetes [3, 4], desire to seek appropriate medications and therapy, and support to manage their condition throughout their life. Studies have shown that a poor understanding of health and medical knowledge is partly caused by ignorance about the ailment. Because of this, management strategies are only partially implemented, which ultimately affects health outcomes negatively. Socioeconomic position, gender, and schooling levels have all been found to influence knowledge capabilities.

Genetics

Nature versus nurture is the term used to describe how genetic advancements interact with an organism's surroundings and involvements to influence behavior and development. Gene transcription can be altered by a living cell's or organisms intracellular or external environment.

Physical activity and Diabetes

For those with prediabetes or diabetes, accepting and maintaining physical activity is crucial for blood glucose control and general health.

Thus, raising public awareness regarding diabetes and other non-communicable diseases (NCDs), particularly among children and adolescents, is imperative. It is necessary to develop knowledge-sharing strategies that take into account the population's social and cultural background. The National Programme for Detection & Control of Cancer, Diabetes, Cardiovascular Disease, & Stroke (NPCDCS) was introduced in 2008 by the Ministry of Health & Family Welfare [5], Government of India, with the goal of improving the standard of medical services in the country's current structure. This scheme has been put into place in 21 Indian states. An additional five nodal institutions were chosen to carry out the initiative, including the India Diabetes Research Foundation (IDRF). The NPCDCS program also includes school-based health promotion initiatives. Teachers may be able to educate students about healthy lifestyle choices, diabetes prevention, and combating obesity by teaching them about dietary and physical activity-related behaviors and lifestyle modifications.

We gave school teachers brief training on diabetes and other NCD knowledge and suggested that they inform their students about these topics. We evaluated how it affected them and the other pupils. Teachers were chosen from two distinct areas in Tamil Nadu, Southern India: Chennai (peri-urban and rural) and Chennai (urban) [6]. In both urban and rural areas of Tamil Nadu, this initiative aims to raise school teachers' and students' awareness and understanding of hypertension, diabetes, and cardiovascular illnesses.

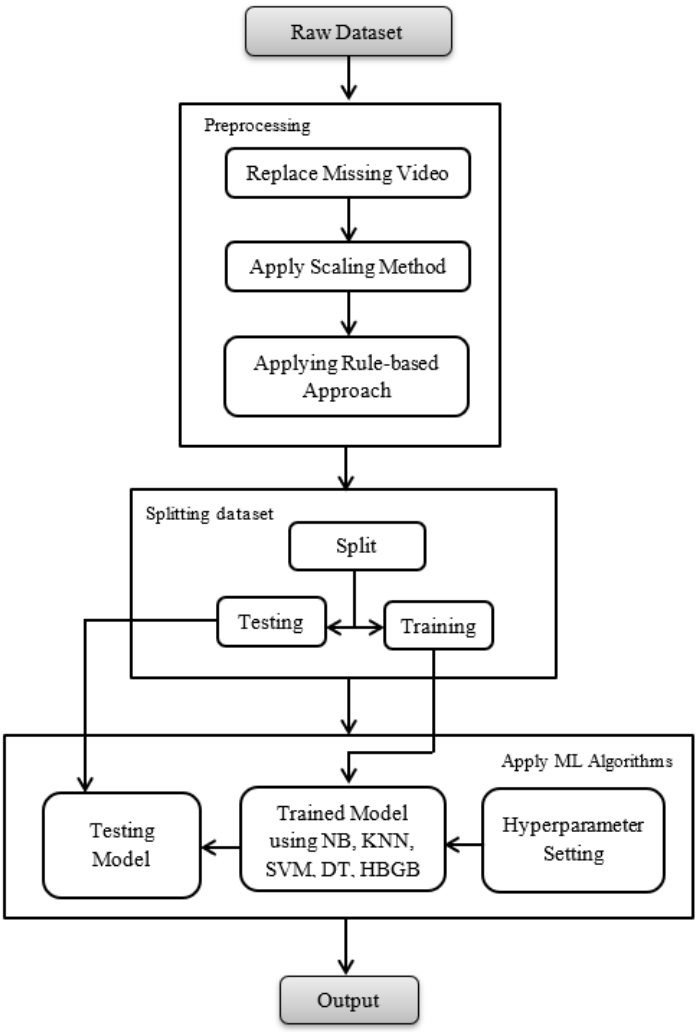


Figure 1.1 Block diagram of diabetes prediction system

Figure 1.1 depicts the suggested system. Since our model operates in two phases, the first stage, is referred to as the prediction system and represents the model architecture of the user interface. In this stage, the user can enter the necessary values to receive some decision support and comparative analysis, both of which are covered in detail in the results section. The first stage of the predictive model was gathering the dataset, as seen in the block diagram.

The present research made use of the 768-sample PID dataset. The prediction model diagram indicates that the dataset needs to be processed before moving on to the splitting and ML algorithm application phase since it contains missing values. The preprocessing portion of this design mostly involved eliminating missing values, performing various scale techniques, and applying rules to the dataset. Following that, the dataset was divided into training and testing sets. However, following the preprocessing step, the entire procedure proceeded to the next stage, where machine learning algorithms were applied to the training dataset in order to obtain the algorithm's output from the testing dataset. Ultimately, the output result was either "yes" or "no." The suggested CDSS will be developed using the user input-based prediction system result, as illustrated. By comparing the results, the user can receive analytics if they do not have diabetes or recommendations if they have.

2. LITERATURE REVIEW

Diabetes mellitus is one of the etiological factors of male infertility in young generation. Recently it has been reported that diabetic men have significantly higher levels of DNA fragmentation than normal control discovered ageing and becoming stigmatized by the media, depression, believing like one's standard of life was compromised, and becoming self-employed have both have a detrimental influence on physical health; while on the other side, getting aged, showing the signs and effects of diabetes, or an extended period of time that people consider when one is unemployed have a beneficial impact on quality of life

Compared to the general population, diabetics are more likely to experience a stroke or coronary heart disease. Patients who have poor glycemic control frequently develop complications such diabetic kidney disease, diabetic retinal damage [7], and diabetic nerve damage, which lower their quality of life. Roughly 57% of these people do not have a diagnosis. Multi-organ problems from type 2 diabetes mellitus, which makes up the majority of cases, can be roughly classified as microvascular and macrovascular complications. When the feedback loops between insulin production and action are malfunctioning, blood glucose levels often rise.

The research was qualitative and used a triangulation of data sources and methodologies, including interviews with HCPs and pregnant women as well as observations at medical facilities.

This method sought to increase validity and lower the possibility of bias while offering a comprehensive picture of the phenomenon under investigation. The two health centers were observed for about 120 hours by the lead author [8], KKN, who concentrated on verbal and nonverbal interactions, activity patterns, and the screening procedure. Careful notes were taken. Contextual information regarding the health institution and service organization was provided by observations, which also brought to light difficulties from a third-party viewpoint that informants—service providers and users—take for granted and hence fail to bring up in interviews.

To understand the effects of efforts made to stop the rising burden of diabetes, the response of health systems, and the population's health-seeking habits, solid empirical data on diabetes prevalence, awareness, treatment, control, and adherence are required. For focused health interventions, it is crucial to comprehend where diabetes fall in the care cascade. Furthermore, to track how the health system's performance in managing diabetes has changed over time. Because they necessitate long-term adherence to prevention, treatment, or managing associated problems, chronic illnesses like diabetes create care challenges [9]. This calls for continuous involvement of health systems in the duration of care at all levels. Diabetes therapy needs to be coordinated at all levels of the healthcare system. Above all, the patient's knowledge, attitudes, and opinions about awareness, therapy, and heeding the advice all matter.

3. METHODS AND MATERIALS

In Tamil Nadu, India's Erode district, the rural community was the subject of a prospective cross-sectional study [10]. 974 individuals who were 18 years of age or older and gave written informed consent to participate in the study were chosen at random using a convenient sampling technique. The study's participants required to be free of cognitive impairment and mental disease. Data from the diabetic community in Tamil Nadu's rural Erode district was gathered using convenience sampling. Following a comprehensive description of the goals and objectives of the study project before data collection, participants signed a written informed permission form. The data was gathered through an in-person interview. The duration of each interview ranged from fifteen to twenty minutes. After the interview, they were given the opportunity to provide their further opinions on the topic.

The following are the main causes of the increase of type 2 diabetes:

- Urbanization
- An elderly populace

- A degeneration in physical activity levels
- Growing prevalence of overweight and obesity

However, by preventing type 2 diabetes and ensuring early diagnosis and appropriate treatment for all forms of diabetes [11, 12], it is likely to lessen its effects. People with the disease may be able to avoid or postpone issues by taking these steps.

It is necessary to formally assess the subjects' knowledge about diabetes and how to manage it. Thus, the objective of our research was to gauge the target population's knowledge about diabetes using the Diabetes Information Survey (DIS).

Table 1: Modified DIS comprise following domains

Demographic information	Illness information
Age	Diet references
Gender	Assistances of exercise
Diabetes tutoring	Life style alteration
Physical activity	Genetic antiquity

Government employees in Tamil Nadu did a cross-sectional study. Both male and female subjects who were able to comprehend and complete questionnaires and were between the ages of 32 and 60 were included. We searched for a validated questionnaire that would be suitable and user-friendly for Indian investigative settings with an overview of diabetes.

Table 2 shows the information of the target population in Tamil Nadu as measured by the modified diabetes information survey. The full survey, which is available to Tamil Nadu government employees, includes ten questions about their knowledge [13, 14], self-care habits, and demographics (Table 1). After that, DIS was translated into both Tamil and English. It was assumed that both literate and illiterate individuals could provide objective answers to the study's questions.

Table 2 Population in Tamil Nadu

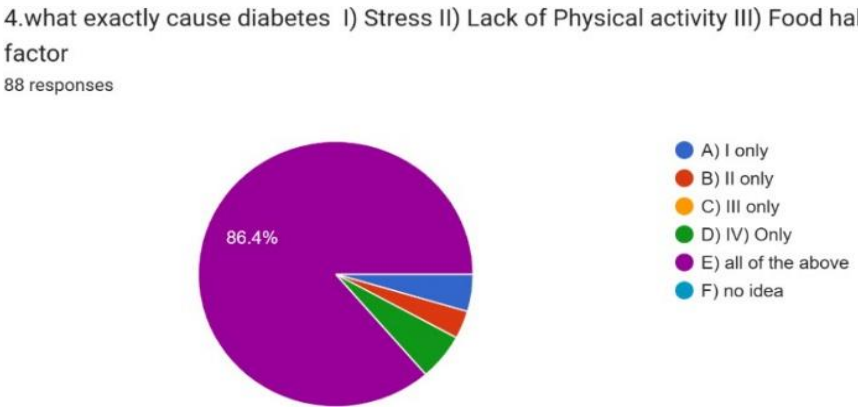
Description	Details
Study Type	Cross-sectional study
Participants	Employees of the Tamil Nadu Government, both genders, aged 32 to 60
Study Purpose	To measure knowledge of target population in Tamil Nadu regarding diabetes
Questionnaire Used	Modified diabetes information survey with 10 questions
Questionnaire Language	Bilingual Tamil and English
Target Population	Educated individuals capable of understanding the questionnaire

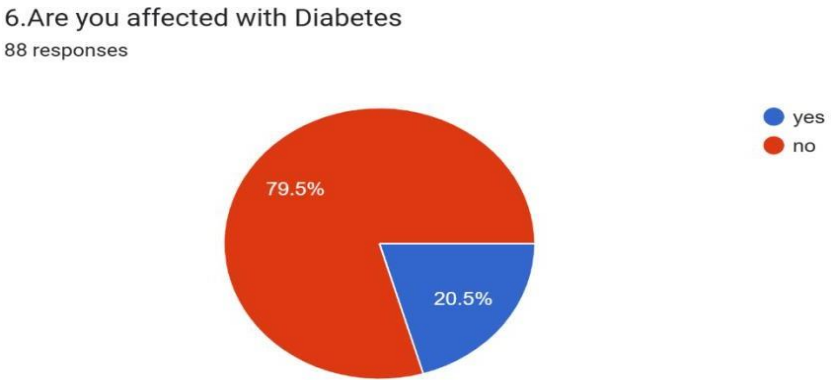
Data analysis

Statistics were tabulated and analysed using descriptive statistical methods.

4. RESULTS

The mean age of individuals was 47.22 years, with a range of 32 to 60 years. With 40.9% of the population being female and 59.1% being male, 84.6% of respondents thought that stress, a lack of physical activity, and a lack of parental guidance and a balanced diet were the main causes of diabetes [15, 16]. Twenty-five percent had diabetes, and 84.6% of their parents had the disease as well. 31.2% of the target population did not eat a balanced diet, 37.7% did not engage in any form of physical activity, and 61.1% claimed they did not have the time for it. Diabetes affects 54.5% of parents.





Percentage of parents affected by diabetes

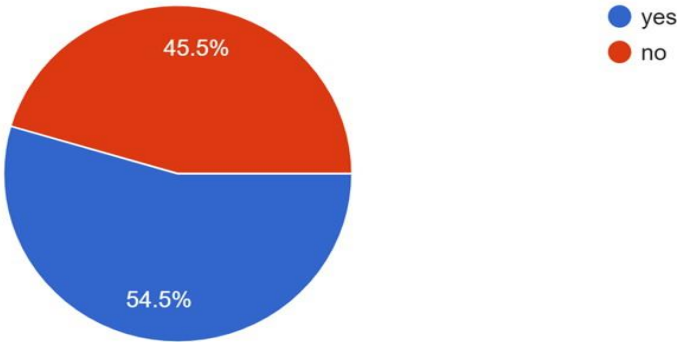


Figure 4.2 84.6% of the participants (affected with Diabetes) indicated that their parents were also affected by diabetes

5. CONCLUSION

Our results show that 84% of parents with diabetes also have the disease. This demonstrates the significance of genetics. Numerous variables contribute to diabetes, but the primary ones are:

Genetics your risk of developing diabetes is increased if you have a personal history of the disease.

Stress additionally, a lot of stress can alter hormones and impact blood sugar levels.

Absence of exercise Increased insulin resistance and weight gain can result from inactivity. A diet that is balanced: Controlling blood sugar levels can be challenging if you don't eat a balanced diet. Diabetes can be controlled by taking these things into account.

REFERENCES

[1] Muath Fahad Al Wahbi and Noor Mohammed Al-fahhad (2023) “Type 2 diabetes mellitus risk assessment among Alrass city employees, Qassim, Saudi Arabia”Journal of Family Medicine and Primary Care, 12(4); Page: 722–726.

[2] Harrison, T. R., & Fauci, A. (1998). Harrison's principles of internal medicine: companion handbook. (No Title).

[3] Stratton IM, Adler AI, Neil HA, Matthews DR, Manley SE, Cull CA, et al. Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): Prospective observational study. BMJ 2000;321:405-12.

[4] Diabetes Control and Complications Trial Research Group. (1993). The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. New England journal of medicine, 329(14), 977-986.

[5] UK Prospective Diabetes Study (UKPDS) Group. (1998). Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with type 2 diabetes (UKPDS 33). The lancet, 352(9131), 837-853.

[6] Potluri R, Purmah Y, Dowlut M, Sewpaul N, Lavu D. Microvascular diabetic complications are more prevalent in India compared to Mauritius and the UK due to poorer diabetic control. Diabetes Res Clin Pract 2009;86(2):e39-40.

[7] Suleiman A, Fadeke OF, Okubanjo OO. Pharmacoeconomic evaluation of anti-diabetic therapy in a Nigerian tertiary health institution. Ann Afr Med 2006;5(3):132-7.

[8] Bolin K, Gip C, Mörk AC, Lindgren B. Diabetes, healthcare cost and loss of productivity in Sweden 1987 and 2005 – A register-based approach. Diabet Med 2009;26(9):928-34.

[9] Theivasigamani, K., & Palaniappan, S. (2022). Assessment of Knowledge of Diabetes Mellitus among the Rural Population of Erode District of Tamil Nadu, South India. Journal of Young Pharmacists, 15(1), 174-181.

[10] Selvam, S., Murugesan, N., Snehalatha, C., Nanditha, A., Raghavan, A., Simon, M., ... & Ramachandran, A. (2017). Health education on diabetes and other non-communicable diseases imparted to teachers shows a cascading effect. A study from Southern India. Diabetes research and clinical practice, 125, 20-28.

[11] Williams, H., & Ranganathan, S. (2024). A cross-sectional study on knowledge, attitude, and practice among type 2 diabetes mellitus patients attending a primary health care center in the rural region of Tamil Nadu.

[12] Nielsen, K. K., Rheinländer, T., Kapur, A., Damm, P., Seshiah, V., & Bygbjerg, I. C. (2017). Factors influencing timely initiation and completion of gestational diabetes mellitus screening and diagnosis-a qualitative study from Tamil Nadu, India. BMC pregnancy and childbirth, 17, 1-13.

[13] Panuganti, P., Mehreen, T. S., Anjana, R. M., Mohan, V., Mayer-Davis, E., & Ranjani, H. (2017). Influence of socioeconomic status on knowledge of obesity and diabetes among adolescents in Chennai, South India. Children, 4(8), 61.

[14] Panuganti, P., Mehreen, T. S., Anjana, R. M., Mohan, V., Mayer-Davis, E., & Ranjani, H. (2017). Influence of socioeconomic status on knowledge of obesity and diabetes among adolescents in Chennai, South India. Children, 4(8), 61.

[15] Thiagesan, R., Soundari, H., & Gopichandran, V. (2022). “Medicines is all that I can sometimes offer them”: challenges of providing primary diabetes care to persons with disabilities in Tamil Nadu. BMC Health Services Research, 22(1), 861.

[16] Daivadanam, M., Absetz, P., Sathish, T., Thankappan, K. R., Fisher, E. B., Philip, N. E., ... & Oldenburg, B. (2013). Lifestyle change in Kerala, India: needs assessment and planning for a community-based diabetes prevention trial. BMC Public Health, 13, 1-16.