

**A COMMUNITY BASED CROSS-SECTIONAL STUDY TO ASSESS THE
PREVALENCE OF UNDIAGNOSED TYPE 2 DIABETES MELLITUS IN
THE CITY OF VIJAYAPURA**

DR SANKETH C M

**DISSERTATION SUBMITTED TO
BLDE DEEMED UNIVERSITY VIJAYAPURA**



**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF DOCTOR OF MEDICINE**

IN GENERAL MEDICINE

UNDER THE GUIDANCE OF

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**BLDE DEEMED TO BE UNIVERSITY, SHRI B.M. PATIL MEDICAL
COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPURA,**

KARNATAKA 2025

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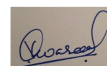
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ACKNOWLEDGEMENT

I have no words to express my deep sense of gratitude and regard to my guide, **Dr VIJAYKUMAR G WARAD**, M.D, Professor of Medicine, Department of General Medicine, under whose inspiring guidance & supervision I am studying and continuing to learn the art of medicine. His deep knowledge, devotion to work and zeal for scientific research make him a source of inspiration for me and others. His generous help, expert and vigilant supervision have guided& helped me to bring out this work in the present form.

I wish to acknowledge and express my gratitude to **Dr. SANJEEV KUMAR.N. BENTOOR**, MD, Professor, Head of the Department of General Medicine, for his expert and vigilant supervision and timely advice, who has enriched me with his knowledge and experience.

I sincerely thank **Dr ARAVIND V PATIL**, Principal, Shri B.M. Patil Medical College and Research Centre, Vijayapura, for permitting me to conduct this study.

I sincerely thank all the staff members of GENERAL MEDICINE, Shri B M Patil Medical College and Hospital, who helped me complete my dissertation. I would fail in my duty if I did not acknowledge my patients and attendees who were kind enough to help with the study.

I would also like to thank my father, **Sri. C D MALLESHAPPA**, my mother **Smt. S A UMADEVI**: without their constant encouragement and moral support, my studies would have been a distant dream.

I would also like to express my appreciation to my beloved friends, co-postgraduates of the Department of GENERAL MEDICINE, who spent time and were always present for support and encouragement during the study.

Finally, I thank **ALMIGHTY** for making all these wonderful people happen to me for continued benison and fruition.

Dr. SANKETH C M

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ABSTRACT

Background: This study aims to determine the prevalence of undiagnosed diabetes among adults in Vijayapura city and assess associated symptoms.

Methods: A community-based cross-sectional study was conducted from May 2023 to December 2024. A total of 1,195 randomly selected adults aged 35 years and above, with no prior diabetes diagnosis, were screened across six areas in Vijayapura city. Data collection included demographic details, glucometer random blood sugar (GRBS) measurements, and assessment of diabetes-related symptoms. Participants with GRBS ≥ 200 mg/dL or diabetes symptoms underwent HbA1c testing for confirmation.

Results: Among the 1,195 participants, 67 (5.61%) were newly diagnosed with diabetes, 24 (2.01%) were prediabetic, and 1,104 (92.38%) were non-diabetic. The prevalence of undiagnosed diabetes was 2.93% in women and 2.68% in men. Blurred vision (77.3%), fatigue and weakness (70.7%), and frequent urination (66.9%) were the most commonly reported symptoms among newly diagnosed diabetics.

Conclusion: The study highlights a significant burden of undiagnosed diabetes (5.61%) in Vijayapura city. A substantial proportion of individuals exhibited diabetes-related symptoms despite glucose levels below diagnostic thresholds. Routine screening, lifestyle interventions, and public health initiatives are crucial to prevent complications and reduce the growing impact of diabetes in the community.

Keywords: Undiagnosed Diabetes, Burden of undiagnosed Diabetes, Type 2 Diabetes Mellitus, symptoms of diabetes, prevalence of undiagnosed Diabetes, Diabetes in Vijayapura, Diabetes in India, Screening for Type 2 Diabetes, Iceberg phenomenon of type 2 diabetes.

INTRODUCTION

Diabetes Mellitus is a chronic illness brought on by either an inadequate insulin produced by the pancreas or a genetic and/or acquired insufficiency in insulin production. Between 1980 and 2017, the percentage of persons over 18 who have diabetes increased from 4.7% to 8.8% worldwide.^[1-3] Diabetes was expected to be the direct cause of 4.0 million deaths in 2015.^[1] Before the age of 70, about half of all deaths linked to high blood sugar occur. By 2030, diabetes will rank as the seventh most common cause of death, according to World Health Organization (WHO) projections. It is estimated that 628.6 million people globally would have diabetes by 2045.^[4] In low- and middle-income nations, the prevalence of diabetes has been increasing more quickly. More than 79% of diabetics reside in low- and middle-income nations, according to the 2017 IDF data.^[1,5]

People with diabetes are becoming more and more prevalent. According to the IDF, there were 381.80 million diabetics in 2013. By 2035, that number is expected to have increased by 55% to 591.9 million.^[6] A number of factors, such as poor health systems, a lack of public and professional awareness, and the frequently gradual onset of symptoms or progression of type 2 diabetes, can cause the condition to go undiagnosed for years, during which time complications may arise. The foundation for calculating undiagnosed diabetes (UDM) is provided by population-based studies that actively screen for diabetes using the oral glucose tolerance test (OGTT) or fasting blood glucose. Participants in these studies who claim not to have been diagnosed with diabetes may turn out to have it after blood glucose testing, in which case they would be labelled as having UDM, or "previously undiagnosed" or "newly diagnosed" diabetes. Although undetected type 1 diabetes is feasible, it usually lasts just a short time because of how quickly symptoms appear, and it is unlikely to be measured in the population-based research required to estimate undiagnosed diabetes. It is impossible to isolate any estimate of undiagnosed diabetes since so few studies that assess the prevalence of diabetes distinguish between type 1 and type 2 diabetes.

Many years may pass during the protracted asymptomatic phase of type 2 diabetes,^[7] during which uncontrolled high blood glucose causes major and irreversible micro- and macro-vascular complications such as peripheral vascular disease, neuropathy, nephropathy, retinopathy, coronary artery disease, and stroke.^[8,9] It has been demonstrated that compared to those who are normoglycemic, those who

have UDM have higher rates of problems. Chronic kidney disease affects up to 41.7% of persons in the USA who have diabetes but have not yet been identified.^[10] In China, more than 30% of those with UDM have some kind of diabetic retinopathy,^[11] and a recent assessment discovered that more than 15% of all populations studied had diabetic retinopathy.^[12]

Additionally, a cohort of individuals with coronary artery disease and UDM had considerably higher BMI, blood pressure, and other cardiovascular and metabolic markers than those with diagnosed diabetes; this was probably because they were more conscious of the problem and made dietary changes as a result.^[13] Undiagnosed diabetes has been linked to a 1.5–3.0 times higher risk of death than people with normoglycemia and has been found to carry a risk of death comparable to that of diagnosed diabetes.^[14,15]

A person with diabetes might not be diagnosed until complications have started if the systems and tools required for early identification are not in place. It has been demonstrated that prompt lifestyle and medication changes can lower hyperglycemia and the risk of complications in individuals with diabetes,^[16-18] but this potential advantage is lost in those with UDM.^[14] Diabetes-related medical expenses have a significant financial impact on people, health systems, and governments in addition to the health burden; in 2013, it was projected that global health expenditures totaled at least 548.5 billion USD.^[19] This estimate may be significantly impacted by the expense of undiagnosed diabetes. An additional 2864 USD, or 18 billion USD, were spent annually on direct and indirect expenditures per individual with UDM, according to a study conducted in the USA.^[20] The expense of diagnosing and treating diabetes is high, but it is greatly surpassed by the expense of treating complications from diabetes that may be avoided.^[21,22] To comprehend the global and regional burden of UDM, its causes, and possible ramifications for practice and policy, it is critical to generate regional and global estimations of UDM.

Although the existence of UDM has long been acknowledged, there is a lack of widespread public, medical, and policymaker awareness, as well as a dearth of trustworthy and comparative data on the topic. The gold standard for determining the prevalence of diabetes and measuring undiagnosed diabetes is OGTT-based, nationally representative population-based studies.^[23] The availability of these research varies, though, and may be constrained for the same reasons why diabetes remains undiagnosed: that good diabetes screening is expensive, time-consuming, and,

in many nations, not a top priority. However, the expenses and health impact related to UDM should be taken into account.

IDF initially generated UDM estimates in 2011,^[24] which quantified this burden on a global basis. Because diabetes has significant financial and health-related consequences, it is imperative to accurately estimate the burden of UDM.

Both infectious and non-communicable diseases have recently become a danger to India, a developing nation. Among these, type 2 diabetes mellitus has been one of the most prevalent conditions in the majority of urban people worldwide.

There are 77 million diabetics in India, and 57% of them do not have a diagnosis.^[25]

Untreated Diabetes mellitus always results in serious consequences that impact several organs, increasing morbidity and mortality. People don't realize they have the illness until a problem arises. Therefore, the key to avoiding problems is early detection and action.

The purpose of this study was to highlight the need for diabetes screening programs in Vijayapura, given the high burden and lack of knowledge around UDM.

REVIEW OF LITERATURE

Hyperglycemia is a hallmark of type 2 diabetes mellitus, a collection of dysfunctions brought on by a combination of insufficient insulin production, excessive or incorrect glucagon secretion, and resistance to the effect of insulin. Numerous neuropathy, macro-vascular, and micro-vascular problems are linked to poorly managed type 2 diabetes.

Retinal, renal, and perhaps neuropathic diseases are examples of micro-vascular consequences of diabetes. Peripheral vascular disease and coronary artery disease are examples of macro-vascular problems. Peripheral and autonomic nerves are impacted by diabetic neuropathy.

Patients with type 2 diabetes are not lifelong insulin dependant, in contrast to those with type 1 diabetes. The earlier names for types 1 and 2 of diabetes-insulin-dependent and non-insulin-dependent-were based on this differential.

Nonetheless, insulin is the last treatment for a large number of type 2 diabetic patients. They are seen as needing insulin but not being dependent on it as they are

still able to secrete some endogenous insulin. However, the older terms have been dropped due to the possibility of confusion caused by classification based on treatment rather than aetiology.^[26] Adult-onset diabetes was another previous name for type 2 diabetes mellitus. Type 2 diabetes mellitus is currently developing in youngsters at younger and younger ages due to the obesity and inactivity epidemic. Type 2 diabetes mellitus has been identified in children as young as 2 years old who have a family history of the disease, despite the fact that it usually affects people over 40. Children with newly diagnosed diabetes currently have more type 2 diabetes than type 1 in many communities.

Diabetes mellitus is a chronic condition that necessitates ongoing medical care to prevent its debilitating complications and to treat them when they do arise. Diabetes is a condition that is disproportionately costly; according to the American Diabetes Association, the annual cost of diabetes in the US was \$412.9 billion in 2022, of which \$306.6 billion was related to direct medical expenses and \$106.3 billion to indirect costs. The average medical cost for individuals with diabetes was 2.6 times higher than what would have been predicted if they had not been diagnosed with the disease.^[27]

Diabetes ranks among the top 10 causes of death, along with cancer, respiratory conditions, and cardiovascular disease (CVD), making it one of the biggest global health emergencies of this century.^[28,29] According to the World Health Organization (WHO), noncommunicable diseases (NCDs) were responsible for 74% of deaths worldwide in 2019. Diabetes was the tenth greatest cause of death worldwide, accounting for 1.6 million deaths.^[29] It is estimated that diabetes would claim the lives of approximately 592 million people by 2035.^[30] Once thought to be a condition exclusive to wealthy "Western" nations, type 2 diabetes, which accounts for 90% of all instances of the disease, has expanded throughout the world and is now a leading cause of disability and mortality, especially among younger people.^[1] In many emerging nations, including China and India, diabetes has become a pandemic.^[1] The WHO reports that low- and middle-income nations are seeing the fastest increases in diabetes prevalence.^[31] The primary causes of the global rise in the diabetes epidemic are urbanization, industrialization, and rapid socioeconomic change; other risk factors like population growth, poor eating habits, and a sedentary lifestyle also play a significant role.^[32]

Diabetes is a chronic illness that can cause major problems that raise expenses for the family, community, and healthcare system. Uncontrolled diabetes raises the risk of vascular disease, and macro-vascular (cardiovascular (CV), cerebrovascular, and peripheral artery disease) and micro-vascular (diabetic retinopathy, nephropathy, and neuropathy) consequences account for a large portion of type 2 diabetes's burden.^[33,34]

Global Burden of Diabetes

Susceptibility to type 2 diabetes varies greatly around the world, with Native Americans, Asian Indians, and Pacific Islanders having a markedly increased risk of the condition. Globally, the number of persons with type 2 diabetes started to climb in the 1990s, and since 2000, the number of people with diabetes has dramatically increased.^[35] The International Diabetes Federation (IDF) reports that 8.8% of adults have diabetes, with slightly higher rates among men (9.6%) than among women (9.0%).^[28] Diabetes and impaired glucose tolerance (IGT), a prediabetic condition, affect 463 million and 374 million people worldwide, according to current figures. These figures are projected to rise by 51% from 2019 to 2045, reaching 700 million individuals with diabetes and 548 million with IGT.^[28]

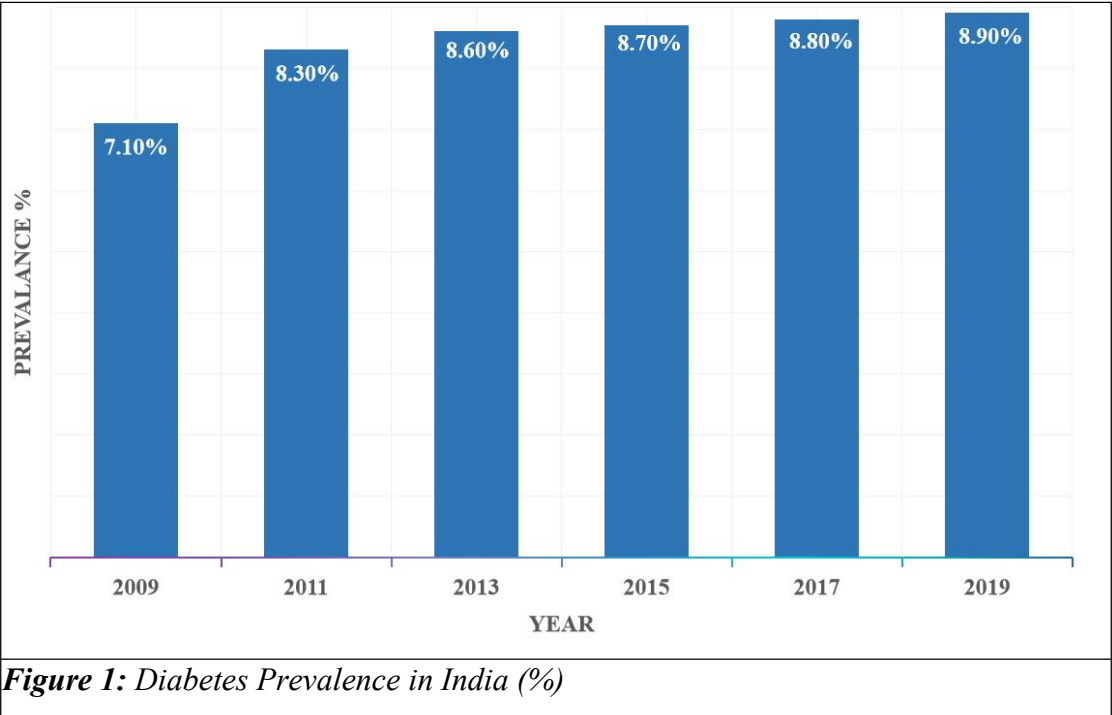
China (116.4 million), India (77.0 million), and the United States of America (31.0 million) had the greatest figures of people with diabetes, according to the IDF in 2019. China (140.5 and 147.2 million) and India (101.0 and 134.2 million) are predicted to continue to have the highest rates of diabetes in 2030 and 2045, respectively.^[28] The Global Burden of Disease Study supports this, stating that the absolute rise in the number of diabetics is being driven by population growth and ageing in the world's major nations, including China and India.^[35] The IDF has estimated that the number of people with diabetes is increasing more quickly in low- and middle-income countries (367.8 million) than in high-income nations (95.2 million).^[28] A thorough summary of the prevalence, rates, and increasing trends of diabetes between 1990 and 2025 was given by the Global Burden of Disease study, which was carried out in 195 nations and territories.^[36] Additionally, this study found that the burden of diabetes was lower in high income regions and higher in low and middle income regions. According to this study, the incidence of diabetes increased by 109.2% and the prevalence of diabetes increased by 129.7% between 1990 and 2017. The study also highlighted the main risk factors for the burden of diabetes were behavioral,

environmental, and metabolic variables that could be changed. The enormous number of people with undiagnosed diabetes—currently over 50%—is another reason for concern. Because of their less developed health care systems, developing economies are where this is most noticeable. Globally, an estimated 231.9 million adults with diabetes—or one in two—do not have a diagnosis.^[28] The percentage and total number of people with undiagnosed diabetes in each IDF region are shown in Fig. 1.^[28] Reports indicate that about 59.7% of diabetics in Africa do not know they have the condition, which is the largest percentage in any region. In contrast, just 37.8% of diabetics in North America and the Caribbean do not know they have the disease, which is the lowest percentage of any region. Africa and South and Central America have fewer people with undiagnosed diabetes (11.6 and 13.3 million, respectively) than other IDF regions.^[28] These estimations indicate that better diabetes screening is desperately needed. They also stress how critical it is to detect undiagnosed diabetes and offer prompt, appropriate care because undiagnosed diabetes can have detrimental effects such as an elevated risk of complications related to the disease, higher healthcare utilization, and related expenses.^[37]

Burden of Diabetes in India

Diabetes has become more common in India and around the world over the last three decades, with India bearing a disproportionate share of the global burden. India's disease patterns have changed as a result of epidemiological transition: mortality from communicable, maternal, neonatal, and nutritional disorders (CMNNDs) has dramatically dropped, whilst the contribution of NCDs and injuries to overall disease burden and mortality has grown.^[38] Of all disability-adjusted life years (DALYs) in India in 1990, CMNNDs accounted for 61%, followed by NCDs (30%) and injuries (9%). Despite epidemiological shifts in India, causing a decrease in DALYs from communicable, maternal, neonatal, and nutritional diseases (CMNNDs) to 33% by 2016, non-communicable diseases (NCDs) and injuries accounted for 55% and 12%, respectively [Fig. 2]. Among leading causes of disability-adjusted life years (DALYs) in India, most non-communicable diseases (NCDs) have risen in rank since 1990. Notably, diabetes climbed from 35th to 13th place by 2016, exhibiting a four-fold increase in disease burden.^[38]

The incidence of diabetes has been rising gradually in India since 1990, but it skyrocketed and accelerated in 2000. According to IDF, Fig. 1 demonstrates the rising trend in diabetes prevalence in India over the preceding ten years.^[39-43]



According to the state-level disease burden report, diabetes prevalence in India increased by 64.3% across all age groups between 1990 and 2016, significantly higher than the 29.3% increase in age-standardized prevalence. According to data from the India State Level Disease Burden Initiative Diabetes study collaborators,^[44] the country's diabetes prevalence and population grew from 5.5% and 26.0 million in 1990 to 7.7% and 65.0 million in 2016. In 2016, Tamil Nadu exhibited the highest diabetes prevalence, followed by Karnataka, Kerala, Delhi, Punjab, and Goa.

One of the main causes of death is diabetes and its consequences. With 1.2 million deaths in 2019, the South East Asian region ranks second among IDF regions for adult diabetes-related death. India bears the largest burden, accounting for over 1 million estimated deaths from diabetes and its complications.^[28] According to the Prospective Urban Rural Epidemiology study, which compared the rates of cardiovascular events, all cause mortality, and cardiovascular mortality among 143,567 adults with and without diabetes in 21 different income-level countries, including India, the rates of cardiovascular disease, all cause mortality, and cardiovascular mortality were significantly higher among diabetics in low-income

countries than among those in middle- and high-income countries.^[44] According to the India State Level Disease Burden Initiative Diabetes study, diabetes accounted for 3.1% of all fatalities in India, and the number of deaths from the disease increased by 131% between 1990 and 2016.^[38]

A significant gap exists in large-scale Indian mortality data for type 2 diabetes, with the limited available studies, primarily from clinical settings, showing inconsistent finding. In a retrospective study of 234,776 inpatient admissions, 16,690 people died, with diabetes accounting for 4.4% of the deaths.^[45] Among common causes of death, infections were the leading cause at 41.0%, followed by chronic renal failure (33.60%), coronary artery disease (CAD) (16.90%), cerebrovascular disease (13.20%), and chronic obstructive pulmonary disease (COPD) (6.90%). Analysis of the CURES cohort follow-up indicated that the overall mortality rate was approximately four times greater among individuals with diabetes than those without. The study also showed that ischemic heart disease and diabetes had the highest population attributable risk for all cause mortality in the entire study cohort.^[46]

Risk Factors

The aetiology of diabetes is multifaceted, with several non-modifiable individual risk factors, such as genetics, age, ethnicity, and family history, demonstrating a prospective association with type 2 diabetes. The observed increases in diabetes prevalence across populations are primarily attributed to the growing prevalence of overweight and obesity, sedentary lifestyles, sub optimal dietary habits, unhealthy behaviors, exposure to environmental pollutants, altered intrauterine environments, mental health conditions, inadequate sleep, and the nature of the built environment.[Fig. 2].

A cluster of risk factors, including an unhealthy diet, being overweight or obese, high blood pressure, blood sugar, and cholesterol, contributed to ischemic heart disease, stroke, and diabetes in 1990, accounting for a tenth of India's total disease burden, according to the country's state-level disease burden report.^[47] By 2016, this number had risen to a quarter of the country's total disease burden. Another major cause of CVD, diabetes, cancer, and a few other diseases is tobacco use, which accounted for 6% of India's overall disease burden in 2016.^[47] The most significant risk factors for DALYs and diabetes-related fatalities, according to the Global Burden

of Disease Study 2016, are tobacco use, obesity, and a diet poor in fruits, nuts, seeds, and whole grains.^[48]

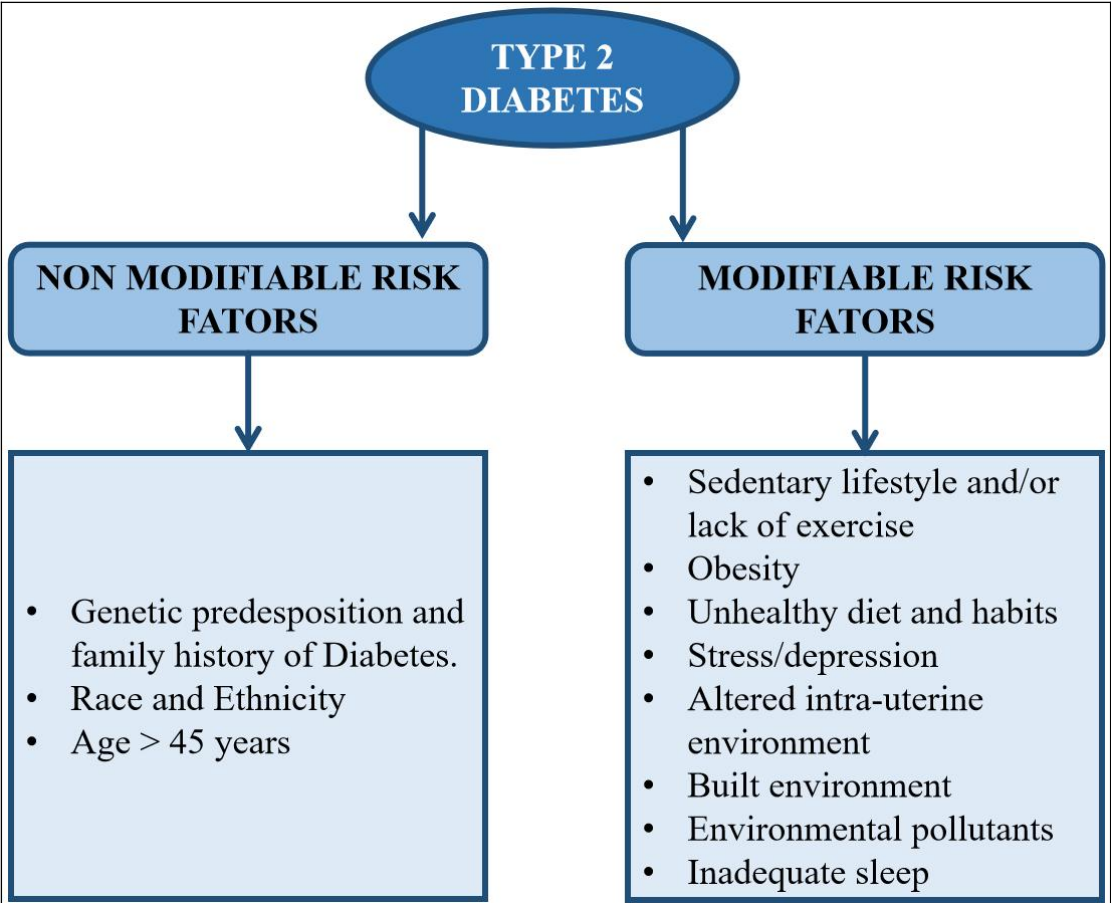


Figure 2: Type 2 Diabetes Risk Factors

Strategies to Tackle the Epidemic of Diabetes in India

India faces significant challenges in combating the growing burden of prediabetes, diabetes, and comorbidities, particularly among its youth and in both rural and urban settings. These challenges, in the world's second most populous and diverse country, include weak national collaborations, data gaps, low public awareness, limited access to affordable healthcare, unequal funding, staffing shortages, and poor community coordination. Effectively combating the diabetes epidemic requires a fundamental shift from a biomedical to a public health strategy, moving from isolated risk factor treatment to integrated management. A multifaceted approach is crucial, encompassing primary prevention and health promotion to reduce lifestyle risk factors, early detection and

prompt treatment, and surveillance to monitor trends. Mitigating India's escalating diabetes incidence necessitates strong multisectoral collaboration and commitment. Key policy recommendations include prioritizing national food policies that ensure the availability and affordability of nutritious foods, enforcing strict food safety standards, and supporting healthy food production; implementing health policies to reduce harmful behaviors; enhancing public awareness through prevention policies; and lowering medication costs and ensuring healthcare access. Success hinges on a robust partnership between the Ministries of Agriculture, Health, Information, and Education to promote widespread awareness and healthy lifestyles across India.

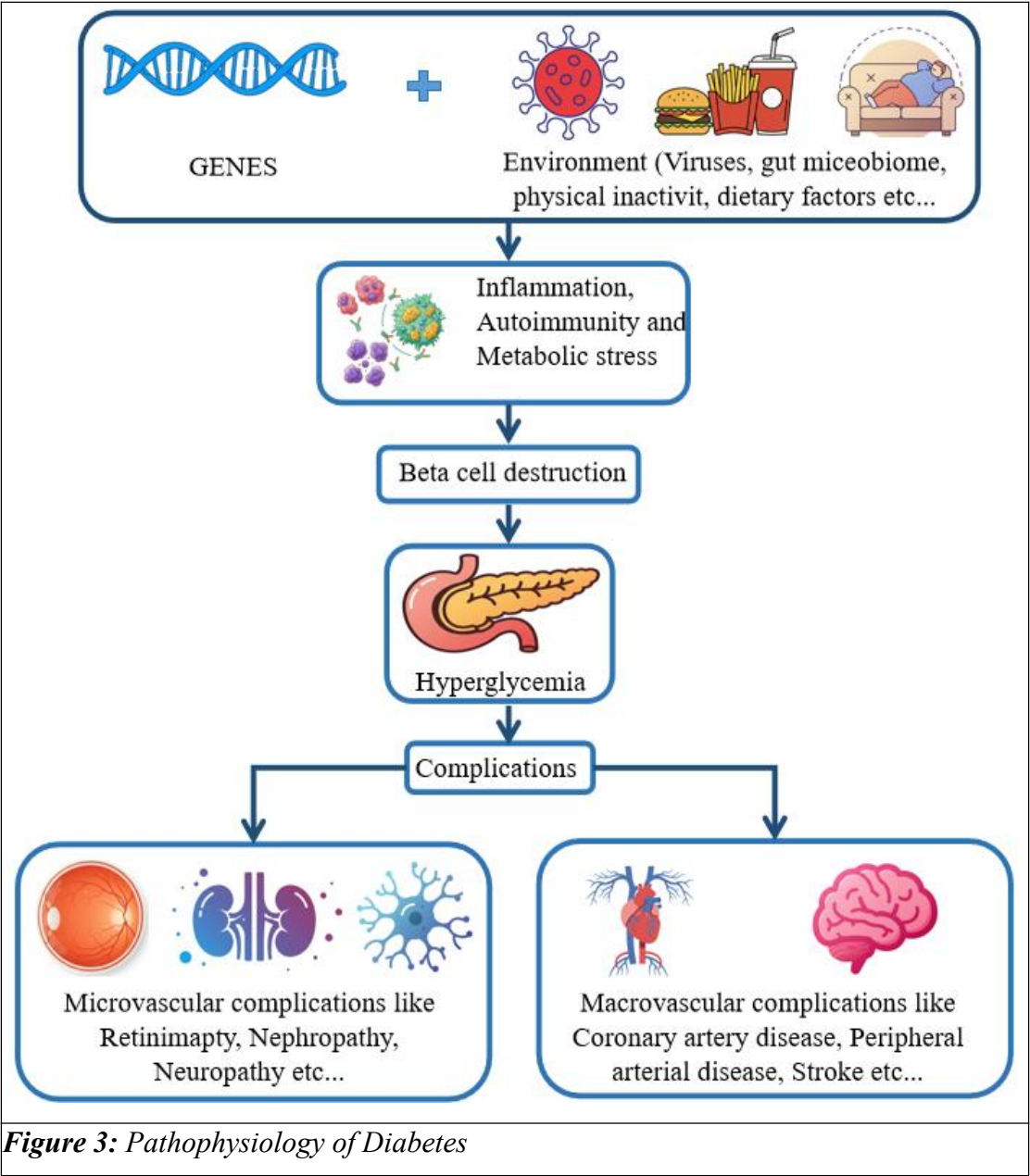
Pathophysiology of Diabetes

Diabetes is a chronic condition characterized by persistently high blood glucose levels due to impaired glucose regulation. Normally, the pancreas produces insulin, a hormone that controls blood glucose. The liver also continuously releases glucose into the bloodstream. Diabetes develops when the pancreas fails to produce sufficient insulin, or when cells become resistant to insulin, preventing glucose from being effectively transported for energy conversion. The onset of diabetes and its contributing factors involve a complex interplay of pathophysiological dysfunctions affecting various organs and systems, including pancreatic α -cells and β -cells, incretin function, inflammation, liver, muscle, adipose tissue, kidney, brain, stomach/intestine, and colon. Both genetic and environmental factors significantly influence the development of this disease. (Figure 3).^[50]

Numerous pathways and characteristics linked to the risk and development of type-2 diabetes have been found by genome-wide association studies (GWAS). With the addition of epigenetic fine-mapping to identify trait loci, a total of around 400 genetic variants and 140 loci of single nucleotide polymorphisms (SNPs) have been linked to type-2 diabetes to date.^[51,52] Significant variations in the gut flora between those with and without type-2 diabetes are among the other findings. By closely examining the changes in gut bacteria and their ratios, almost 60,000 genetic markers were discovered, including " β -proteus, Bacteroides, Bifidobacteria, Clostridium, Firmicutes, and Verrucomicrobium."^[53]

Diabetes is categorized into two main forms. Type 1 diabetes mellitus (T1DM), characterized by autoimmune destruction leading to insulin deficiency and

often diagnosed in younger individuals, contrasts with Type 2 diabetes mellitus (T2DM), which constitutes the majority (approximately 95%) of cases and stems from insulin resistance, disrupting effective glucose utilization.



Type 2 diabetes is increasingly being diagnosed in adolescents and teenagers, despite the fact that it is usually diagnosed in adults.^[15] Asian youth had a greater annual increase in diabetes incidence (8.5%) in an adjusted model by Mayer-Davis et al. than their African American (6.3%), Hispanic/Latino (3.1%), and Caucasian (0.6%) peers.^[17] Young people with T2DM fared worse than those with T1DM, according to a study by Dabelea et al. They were more likely to develop comorbid disorders such as kidney, eye, and nerve diseases, as well as a higher risk of hypertension and arterial

stiffness (i.e., risk factors for heart disease). They estimated that, according to age, 75% of teenagers with type 2 diabetes are likely to experience problems within 7.9 years of the commencement of their diabetes.^[54]

Despite being a relatively recent problem, beta-cell failure is a major contributing factor to the fast and harmful advancement of type 2 diabetes in young people. High blood glucose is the initial outcome of the pancreatic beta-cell's adaptation to insulin resistance. Insulin secretion is hampered by beta-cell damage that occurs over time and through a variety of processes. SLC30A8, GCK, G6PC2, and MTNR1B are risk alleles that are strongly linked to a genetic propensity to type 2 diabetes in young people. Furthermore, a number of important chromosomal genetic loci, including ADCY5, CRY2, GLIS3, PROX1, and SLC2A2. However, except from a study on TCF7L2, there aren't many studies that concentrate on genetic variations in young people.^[55]

Comorbidities, Complications, and Risk Factors

The burden of diabetes is increased by co-morbid disorders like hypertension, metabolic syndrome, prediabetes, and dyslipidaemia. Diabetes can result in serious complications. These include micro-vascular problems like kidney disease, renal failure, blindness, nerve damage, and amputations, as well as macro-vascular complications such as heart disease and stroke. High blood sugar levels can cause acute diseases that can be fatal, such as diabetic ketoacidosis and hyperosmolar coma.

Furthermore, there is ample evidence of the consequences of depression, sleep apnoea, cancer, and non-fatty liver disease.^[29,31,32] Unmanaged pregnancies can result in problems for both the mother and the unborn child, as well as congenital defects and stillbirth.^[9] A higher risk of diabetes was linked to obesity and a lack of physical exercise, especially in obese people.^[34] Other risk factors that can be changed include drinking alcohol, smoking, eating poorly, and getting too little sleep.

Diabetes Complications

The majority of complications, such as micro-vascular, macro-vascular, and neuropathic complications, are the same regardless of the type of diabetes, despite differences in the disease's pathogenesis. Micro-vascular and metabolic problems seem to be caused by hyperglycemia. Hyperglycemia may have less of an association with macro-vascular disease. There may be a correlation between the quantity and

presence of diabetic problems and telomere erosion. It is yet unknown if it is a cause or an effect of diabetes.^[56]

Cardiovascular Risk

In diabetic individuals, cardiovascular risk is linked to insulin resistance and consequent dyslipidemia, characterized by low high-density lipoprotein (HDL) cholesterol, elevated levels of small, dense low-density lipoprotein (LDL) cholesterol particles, and increased concentrations of triglyceride-rich residual lipoproteins.

Hypertension and thrombotic abnormalities (e.g., high fibrinogen, elevated type-1 plasminogen activator inhibitor [PAI-1]) are also involved. Cardiovascular risk is also influenced by other traditional atherosclerotic risk factors, such as smoking, family history, and high LDL cholesterol. Although it is not linked to increased cardiac lipid accumulation, insulin resistance is linked to increased lipid accumulation in the liver and smooth muscle. Despite evidence of the benefits of lipid-modifying medications, people with diabetes continue to have persistent lipid abnormalities. It is necessary to up-titrate the dosage of statins and add additional lipid-modifying medicines.

Presumably due to the consequences of insulin resistance, elevated cardiovascular risk seems to start before frank hyperglycemia develops. According to the "ticking clock" hypothesis of complications, which was developed by Stern in 1996^[57] and Haffner and D'Agostino in 1999,^[58] the clock for micro-vascular risk begins to tick at the onset of hyperglycemia, while the clock for macro-vascular risk begins to tick at some antecedent point, most likely with the onset of insulin resistance.

It is still up for debate when diabetes becomes a cardiovascular risk comparable. The idea that diabetes is a risk factor for cardiovascular disease is no longer the only point of contention. It could be wise to presume that diabetes that has been present for more than five to ten years is equivalent.

Cognitive Decline

A cross-sectional study of 363 control participants aged 60 and older without diabetes and 350 patients aged 55 and older with type 2 diabetes found that brain atrophy was more common in diabetics than cerebrovascular lesions, with patterns similar to those seen in preclinical Alzheimer disease.^[59,60] Hippocampal atrophy, frontal, limbic, and

temporal gray-matter atrophy, as well as, to a lesser degree, frontal and temporal white-matter atrophy, were all linked to type 2 diabetes.

Additionally, poorer performance on some cognitive tests was associated with type 2 diabetes. When adjusting for cerebrovascular lesions or white-matter volume, the strength of these correlations remained constant, but decreased by nearly 50% when adjusting for hippocampus and total gray-matter volumes.^[16,17] Similar to the location of cortical atrophy seen in early Alzheimer disease, patients with type 2 diabetes were more likely to show gray-matter degeneration in many bilateral cortical regions, particularly in the left hemisphere.^[16]

A 40-month investigation involving 2,977 middle-aged and older participants with type 2 diabetes demonstrated that baseline depression was associated with heightened cognitive decline. Notably, the 531 participants with baseline depression, defined as a score of 10 or greater on the Patient Health Questionnaire Depression Scale, displayed significantly poorer cognitive performance on the Digit Symbol Substitution Test (DSST), Rey Auditory Verbal Learning Test (RAVLT), and modified Stroop test. This association remained significant after accounting for confounding variables.

Pulmonary Disease

According to a British study, lung problems like pneumonia, fibrosis, and restrictive lung disease can be directly caused by elevated blood sugar in people with type 2 diabetes and prediabetes. This was corroborated by research showing that higher blood glucose levels in type 2 diabetes lower forced expiratory volume in one second (FEV1) and forced vital capacity (FVC). Lung fibrosis was shown to be more common in people with type 2 diabetes than in the general population during the coronavirus disease 2019 (COVID-19) pandemic, and between 16% and 20% of people with type 2 diabetes have restrictive lung disease.^[63]

Economic Burden and Quality of Life

In addition to its detrimental impact on health, diabetes has an annual global economic burden of \$827 billion in direct costs. In the United States, direct costs accounted for \$176 billion (72%) of the \$245 billion in health expenditures. The final estimate, which included those with prediabetes, gestational diabetes, and undiagnosed diabetes, was \$322 billion, 32% more than the initial 2012 projection.^[69]

Those with a diagnosis accounted for \$244 billion (76%) of the total costs, while those without a diagnosis accounted for \$33 billion (10%) and those with prediabetes for \$44 billion (14%). Diabetes (\$10,970), prediabetes (\$510), gestational diabetes (\$5,800), and undiagnosed diabetes (\$4,030) were anticipated to have the highest average yearly expenses per case. Specific expenses associated with undiagnosed diabetes and prediabetes rose by 82% and 74%, respectively, in comparison to earlier 2007 projections. Even after accounting for inflation, the rising prevalence is predicted to cause this cost burden to climb by more than 5% every year. The costs of undetected diabetes and prediabetes must be taken into account when calculating the overall economic burden.^[70]

Higher diabetes-related health costs^[38] and the existence of concomitant diseases have been linked to lower quality of life (QOL). Despite being a subjective metric, it captures disease burden that current biomarkers and evaluations are unable to account for. Physical Component Summary (PCS) and Mental Component Summary (MCS) measures are the two categories into which QOL metrics fall. The lowest quartiles of PCS and MCS were linked to higher expenditures of \$54.6 billion and \$14.3 billion, respectively, in comparison to the highest quartiles.^[69] Socioeconomic level (SES), age, and the duration of diabetes diagnosis are factors associated with quality of life (QOL).^[71]

Asymptomatic and Undiagnosed Diabetes

In comparison to their diagnosed counterparts, people with undiagnosed diabetes had lower levels of awareness regarding normal health-related quality of life indicators, according to a study by Venkataraman et al. The authors hypothesized that people may choose not to get screened for diabetes because they are less likely to seek medical attention due to comorbidities or specific illness symptoms, which lowers the likelihood of receiving a diabetes screening and physician intervention.^[72] In untreated, asymptomatic people, diabetes can worsen over time, resulting in serious complications and concomitant illnesses.^[73]

It is generally known that a sharp increase in blood sugar (HbA1c) within a certain time frame, usually within three to four years, is linked to the beginning of diabetes. Obese adults had the highest prevalence of diabetes, despite the fact that there was no correlation between a trend in growing BMI and the development of diabetes.^[74,75]

Undetected diabetes is significantly more common in individuals under 30 and those with normal to high non-HDL cholesterol. This is a concerning trend, as diabetes rates continue to rise. [76]

Interestingly, in Asian populations, factors typically associated with T2DM, such as BMI, waist circumference, socioeconomic status, and education level, did not significantly influence diagnosis rates. This is despite obesity being a major risk factor for the disease.[77]

Diabetes Disparities, Awareness, and Risk Perception

Racial and ethnic differences disproportionately affect vulnerable communities, with diabetes having a higher incidence and prevalence, leading to worse overall results. It is commonly known that undiagnosed Black and Hispanic individuals have a higher prevalence of diabetes and avoidable hospitalizations due to excessively high blood glucose levels without a diabetes diagnosis.[78, 79]

Asians make up 20.3 million of the population, according to the 2014 U.S. Census, and their number is rising at the quickest rate, up 7% from 2012.[21] These sub populations are as follows: Other Mixed Race/Ethnicity (14%), Korean (9%), Japanese (7%), Vietnamese (10%), Indians (19%), Filipinos (19%), and Chinese (22%). 10.2% of Asians lacked health insurance, and the poverty rate is 12.5%.[80]

Disparities in access to diabetes screenings have been reported, despite the fact that they are essential to primary prevention. Bullard et al. discovered that

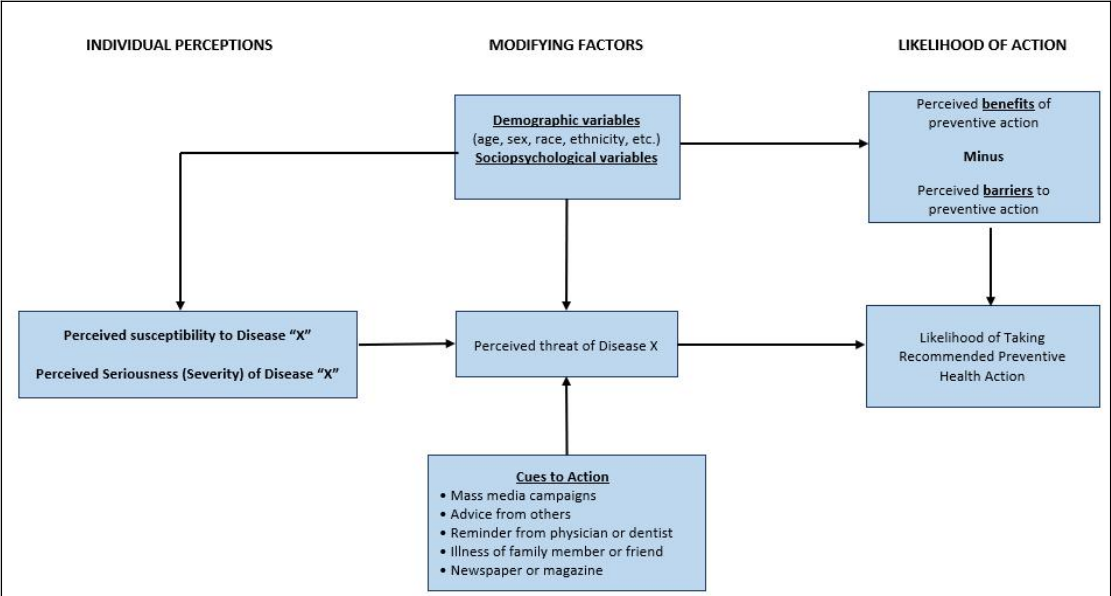


Figure 4: The Health Belief Model

minorities and people with lower socioeconomic status (SES) were the ones who did not get these harmful screenings, accounting for 49% of people with high risk of diabetes.^[81] Lavielle et al. have verified findings that greater SES increases the likelihood of getting screened for diabetes.^[82]

Figure 4's Health Belief Model, which depicts disease risk perception, shows how psycho-social and demographic elements can interact to impact an individual's risk perception and impact disease preventive initiatives. The asymptomatic populations most at risk for diabetes have poor risk perception. Research has shown that behaviour changes for prediabetes and diabetes are related to disease awareness, supporting the Health Belief Model.^[83,84] Just 11.8% of participants in a study designed to gauge prediabetes knowledge were aware that they had the disease; those who were more aware of their diagnosis were more likely to adopt lifestyle changes including increasing their physical activity levels.^[84]

Public health has changed its focus from studying disease monitoring, epidemiology, and healthcare access to identifying and treating social determinants of health. The social determinants of health (SDH) paradigm illustrates how a variety of factors, including biology and genes, behaviors, access to and quality of medical care, and social and environmental characteristics, affect population health and its results.

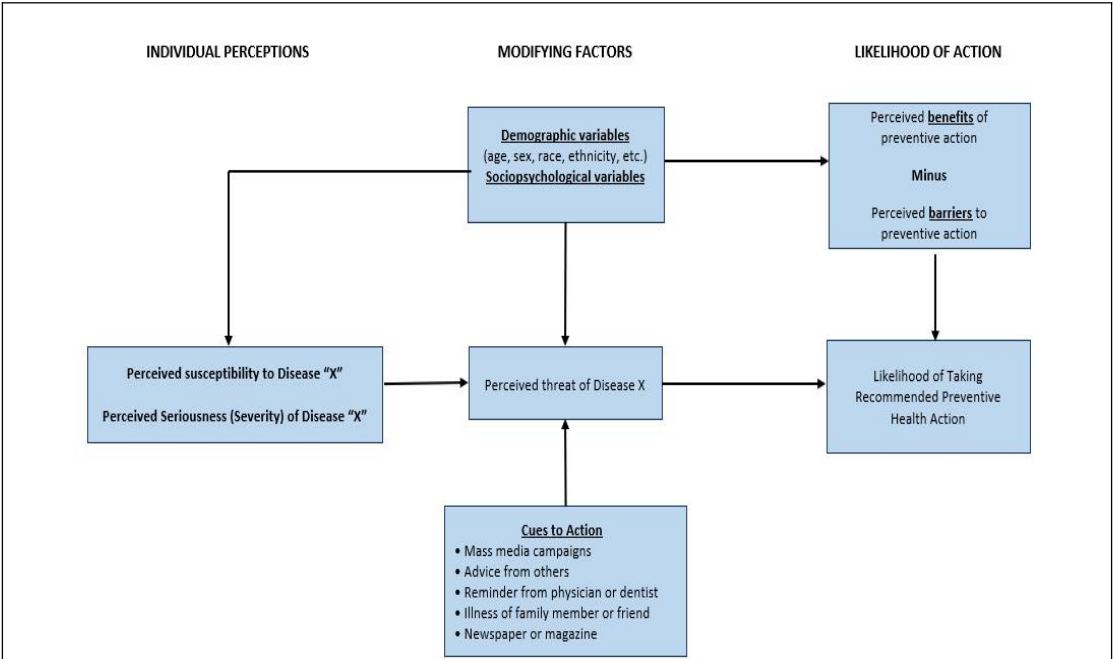
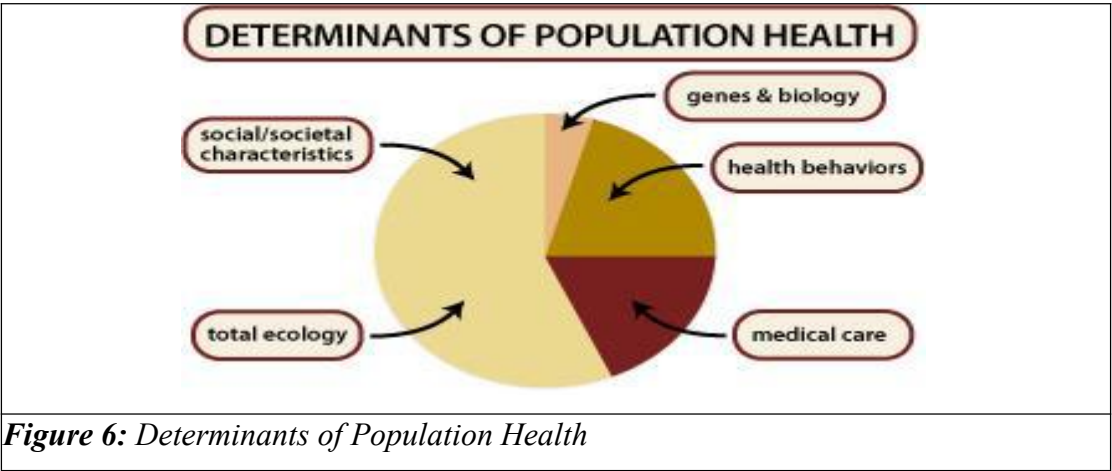


Figure 5: Health Belief Model, showing how patient perceptions and related factors interact to drive behavioral changes.

In contrast to genes and biology alone, environmental and social variables play a significant role in health and results (Figure 2).

Key socioeconomic predictors of diabetes are explained by social determinants of health (SDH) components (Figure 5). The following SDH factors are inherently linked to diabetes: availability to nutritious food, stress, education, work, and income. Poverty serves as an example to show how SDH works; it causes high levels of stress, which in turn raise cortisol levels, which in turn raise blood sugar levels. The lack of access to healthy foods and other environmental factors can also lessen the influence of poverty on diabetes.



About 25% of population health and outcomes are controlled by health-related behaviors, genes, and biology, according to Figure 6's Social Determinants of Health Framework.

Primary prevention begins with diabetes screening to identify high-risk groups, including those who are asymptomatic and undiagnosed. Disparities in the availability of diabetes testing, however, have been noted, leading to an under diagnosis of the disease. Receiving preventative screenings may have a direct effect on a person's perception of their risk for disease, which may increase the possibility that they will change their behaviour to avoid it.^[53]

Primary care physicians have a pivotal role in diabetes prevention initiatives, such as early intervention and opportunistic screening, at the forefront of patient care. However, because of their poor validity, the present diabetes risk screening methods are not being used to their full potential. Furthermore, the Asian population and subgroups have not had these screening instruments verified.

Diabetes Screening Guidelines: ADA and USPTF

Leading experts in the creation of guidelines, the American Diabetes Association (ADA) and the United States Preventive Task Force (USPTF), have issued recommendations to primary care physicians regarding opportunistic screening in silent high-risk diabetes populations. Table 1 presents a comparison of the risk factors. Moreover, neither guideline takes into account psycho-social issues or social determinants of health.

ADA Diabetes Guidelines 2016	USPSTF Diabetes Risk Guidelines 2015
Age >45	Age 40-70
Physical inactivity	Physical inactivity
First-degree relative with diabetes	Family history of diabetes
High-risk race/ethnicity	High-risk race/ethnicity: African Americans, American Indians or Alaskan Natives, Asian Americans, Hispanics or Latinos, or Native Hawaiians or Pacific Islanders)
Women with history of GDM or who delivered a baby >9 lb or were or <u>polycystic</u> ovarian syndrome (PCOS)	Women with history of gestational diabetes or PCOS
HDL-C <35mg/dL + TG >250 mg/dL	Hyperlipidemia (high cholesterol & high triglycerides)
Hypertension ($\geq 140/90$ mm Hg or on therapy)	Hypertension
A1C $\geq 5.7\%$, IGT, or IFG on previous testing	
Severe obesity	• Overweight and obesity • a high percentage of abdominal fat
History of CVD	NOTE: high risk races should be screened at a younger age or at a lower body mass index. Clinicians should consider screening earlier in persons with 1 or more of these characteristics.
--	Smoking

Table 1: Adapted from *Clinical Guidelines for Screening Asymptomatic Patients for Diabetes from the American Diabetes Association and United States Preventive Services Task Force.*

Prediction models and Algorithms for Undiagnosed Diabetes in Asians

To detect and forecast undiagnosed diabetes in Asian populations, very few models have been created. Furthermore, no models have been created especially for Asian Americans or for examining the variations among Asian-American ethnic subgroups. Psychosocial and social determinants of health (SDH) variables were not

included in the risk factors included in the models. Only Zhang et al.'s study, though, added either too much or too little sleep as a component to their model.^[85]

Zhang et al. used a sizable study population (n=12,285) made up of people living in rural China to create a prediction model for type 2 diabetes. To create and validate the model, data was randomised into two groups. The Finnish Diabetes Risk Score was then compared. It was regarded as having poor accuracy, nevertheless, and its AUC only slightly improved (0.66 compared to 0.64).

A study by Ahn et al. used laboratory values in a South Korean population (n=3,029) to validate the KRS diabetes risk scores. When compared to utilizing the KRS risk score alone, the model that used laboratory results had the highest AUC (0.838). The accuracy of this method would be impacted by recorded studies of the underutilisation of HbA1c screening in the United States.^[88] When the risk score was used alone to detect undiagnosed diabetes, the sensitivity, specificity, and AUC were lower (81%, 58%, and 0.754) than when the risk score was used to predict "future diabetes" (74%, 54%, 0.696).^[88]

Utilizing a data set that represented a Thai study population (n=4314), Pongchaiyakul's work developed a model utilizing Bayesian analytic techniques. Although 31 different groups of 150 were validated using bootstrapping techniques, no comparisons to other populations were made. However, a good AUC of 0.75 was shown when only three risk factors—BMI, age, and systolic blood pressure—were included.^[86]

Screening Tools

A research of Asian/Indian people (n=911) was carried out by the Madras Diabetes Research Foundation under the direction of Bhadoria et al. The diabetes risk score had a relatively acceptable AUC of 0.736, but its low Youden index (0.31), mediocre sensitivity (60.4%), and decent specificity (70.7%) showed that it was ineffective and that the threshold value for the score's cutoff for undiagnosed diabetes was not optimal.^[87]

Finding undiagnosed "isolated post-load hyperglycemia (IPH)" in a Chinese population (n=1175) was the goal of Li et al. Compared to fasting plasma glucose (FPG), which is typically used in place of the drawn-out oral glucose tolerance test (OGTT), IPH is more sensitive in detecting diabetes. Even though the AUC for the

four risk scores that were created ranged from 0.89 to 0.93, it still necessitates the collection of the underutilized biomarkers for FPG, IPH, and HbA1c.^[89]

The Finnish Diabetes Risk Score (FINDRISC) and its adaptations for Filipino residents of the Philippines were examined by Ku et al. The two modified versions of the risk score exhibited comparable AUCs of 0.74 and 0.75 to the unaltered FINDRISC (AUC 0.74).^[90]

Diabetes has become a critical global public health issue, with the situation particularly acute in low- and middle-income countries like India. The alarming surge in prevalence observed in recent years is projected to continue, posing a substantial threat to India's healthcare system through increased diabetes-related morbidity, mortality, and expenditure. To effectively combat this epidemic and its complications, a comprehensive, multifaceted strategy is essential. This strategy must encompass rigorous screening for complications, ensuring optimal care for individuals with diabetes at all levels of the healthcare system, and implementing robust prevention programs for those with prediabetes.

AIMS AND OBJECTIVES

The primary objective of this study is to assess the prevalence of undiagnosed type 2 diabetes mellitus in the city of Vijayapura.

METHODOLOGY

Study Design

Community based cross sectional study.

Source of Data

- The study will include adults aged more than 40 years from various areas in Vijayapura city representing its general population.
- The study subjects will be informed about the study in all respects, and informed consent will be obtained.
- Period of study will be from May 2023 to Dec 2024

Study Patients

The study will include people residing in the city of Vijayapura.

Inclusion Criteria

- People residing in Vijayapura city aged 35 years or above who have previously not been diagnosed with diabetes.

Exclusion Criteria

- Pregnant/ Lactating women.
- People taking drugs known to cause hyperglycemia.

Sample Size

As per the study done by Anusuya GS and et al 7.6% of study subjects were newly diagnosed diabetics (140 newly diagnosed diabetics among 921 subjects screened).^[5] Considering the confidence limit of these studies to be 95% with 5% level of significance and with 2% absolute precision. The sample size computed using the following formula

$$\text{Sample size (n)} = (Z^2 * p * (1-p)) / d^2$$

Where,

Z is the z score= 98% d is the margin of error= 2% n is the population size p is the population proportion =7.6% α is the level of significance =0.02

The estimated sample size of this study is 996.

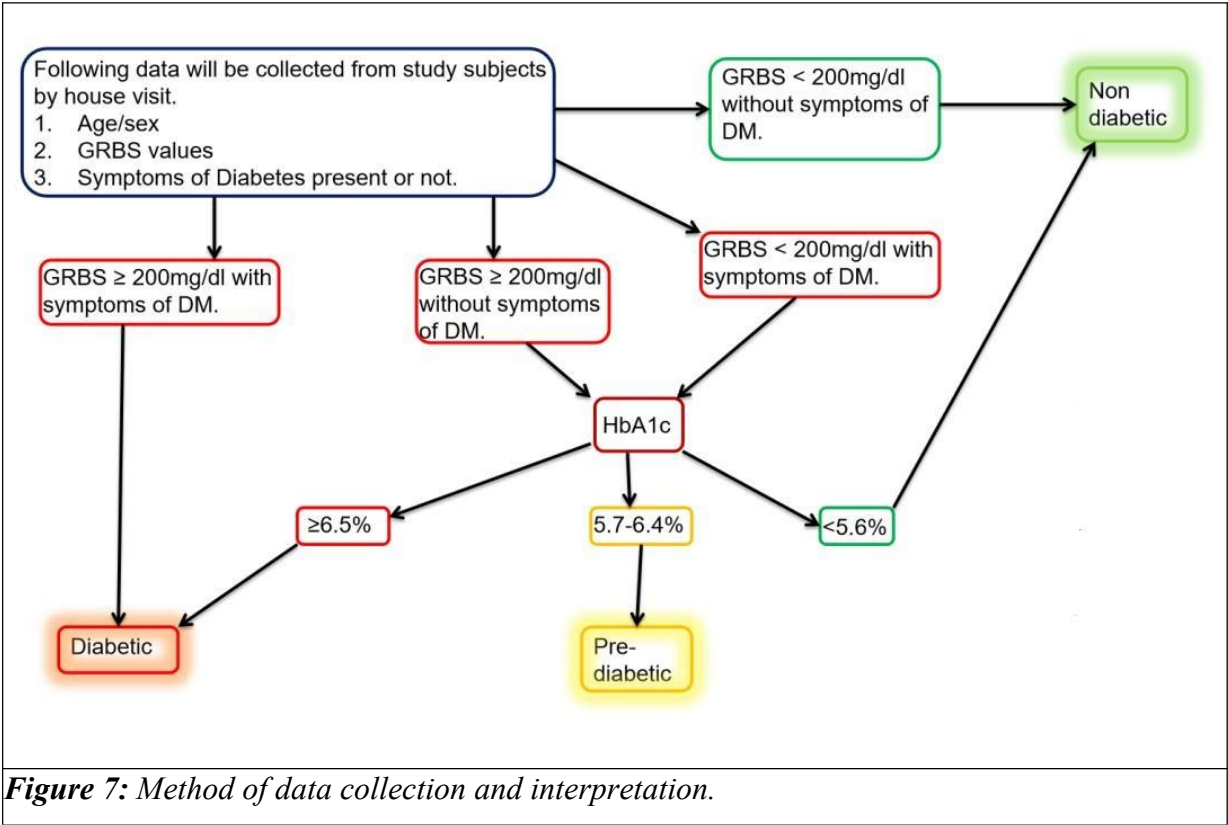
With 20% dropout rate = 996 + 199 = 1195 Total sample size = 1195.

Sampling Method

Using simple random sampling 5 areas will be selected in the city of Vijayapura. The areas covered were:

- 1) Railway station area
 - 2) Adarshnagar
 - 3) Gandhi cho
 - 4) Sadashiv nagar
 - 5) Ibrahimpur
 - 6) Banjara nagar
- Participants (population) in these areas were selected using simple random sampling.

- 200 residents per area, randomly selected across six locations, were screened for diabetes via field visits from May 2023 to December 2024. Only those who provided informed consent and met the study's inclusion and exclusion criteria were screened; others were excluded.
- Data collected included: participant age and sex; glucometer random blood sugar (GRBS) measurements; and the presence of hyperglycemia and diabetes symptoms, specifically: frequent urination, excessive thirst, increased hunger; fatigue and weakness; blurred vision; frequent infections or delayed wound healing; and tingling, pain, or numbness in hands or feet. [Figure 7]
- Participants were categorized as newly diagnosed diabetic, prediabetic, or non-diabetic based on the collected data. Individuals with GRBS readings exceeding 200 mg/dL or those exhibiting diabetes symptoms were classified as newly diagnosed diabetics. Asymptomatic individuals with GRBS readings below 200 mg/dL were classified as non-diabetic. [Figure 7]



- Consenting participants with GRBS below 200 mg/dL and symptoms, or asymptomatic participants with GRBS 200 mg/dL or higher, provided blood

samples for HbA1c testing. Based on HbA1c values these participants were included in one of the three predefined categories. That is Newly diagnosed diabetes (HbA1c > 6.5%), Prediabetic (HbA1c 5.7-6.4%) and non diabetic (HbA1c < 5.6%). [Figure 7]

STATISTICAL ANALYSIS

Data, stored in Excel, underwent statistical analysis using SPSS (Version 20). Results were summarized with descriptive statistics and visuals. Group differences were assessed with t-tests (normal continuous data), Mann-Whitney U tests (non-normal continuous data), and Chi-square/Fisher's exact tests (categorical data). Multiple group comparisons used ANOVA or Kruskal-Wallis H tests. A significance threshold of $p < 0.05$ was applied, and all analyses were two-tailed.

RESULTS

In this study, we screened 1195 participants from six randomly assigned areas in Vijayapura City. Of these, 60 (5.02%) exhibited diabetes symptoms and had GRBS levels exceeding 200 mg/dL, leading to a diagnosis of diabetes. An additional 120 (10.4%) asymptomatic participants with GRBS levels below 200 mg/dL underwent HbA1c testing. Among these 120, 6 were newly diagnosed with diabetes and 24 were prediabetic. Consequently, the overall study results showed 67 participants (5.61%) were newly diagnosed with diabetes, 24 (2.01%) were prediabetic, and 1104 (92.38%) were non-diabetic. [Table 2]

Category	N	%
Newly Diagnosed Diabetics	67	5.61%
Pre diabetic	24	2.01%
Non Diabetics	1104	92.38%
Total Participants screened	1195	

Table 2: Of the 1195 participants screened, 67 (5.61%) were newly diagnosed with diabetes, 24 (2.01%) were pre-diabetic, and 1104 (92.38%) were non-diabetic.

Out of the 1195 participants screened 599 were women and 596 were men. Prevalence of Undagnosed diabetes was 2.93% in women and 2.68% among men. [Table 3]

Gender	Participants screened	Newly diagnosed Diabetics	Prevalance %
Female	599	35	2.93%
Male	596	32	2.68%
Total	1195	67	5.61%

Table 3: Gender wise Prevalance of undiagnosed diabetes in Vijayapura city.

Table 4 represents the age distribution of screened participants and the age-specific prevalence of undiagnosed diabetes.

Age Group	Participants screened	Newly diagnosed Diabetics	Prevalance %
35-44 years	202	5	8%
45-54 years	287	11	17%
55-64 years	287	20	30%
65-74 years	239	17	25%
75-85 years	120	11	16%
>85 years	60	3	4%

Table 4: Age wise Prevalance of undiagnosed diabetes in Vijayapura city.

Among the 181 newly diagnosed diabetic individuals, the most common symptoms are Blurred Vision (77.3%), Fatigue and Weakness (70.7%), and Frequent Urination (66.9%). Other frequently reported symptoms include Excessive Thirst (46.4%), Tingling, Pain, or Numbness in Hands/Feet (40.3%), and Increased Hunger (34.3%). Frequent Infections or Slow-Healing Sores were observed in 24.3% of individuals. [Figure 8]

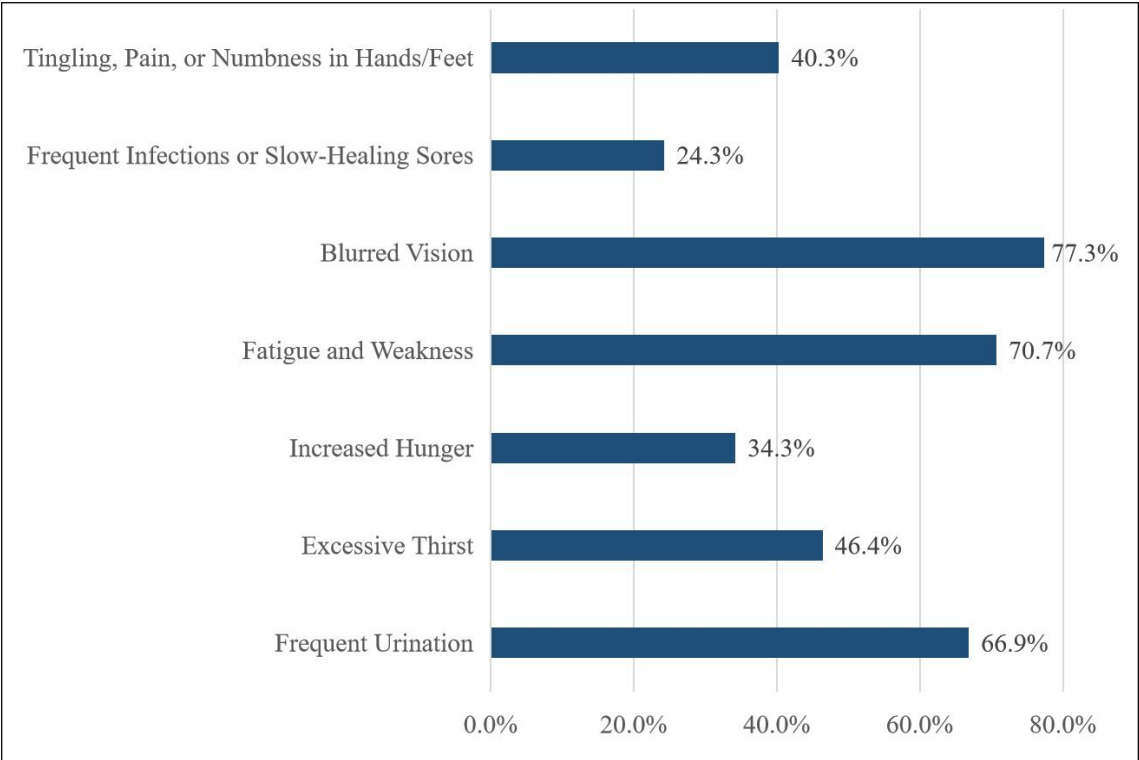


Figure 8: Symptoms distribution among newly diagnosed diabetics

DISCUSSION

Our study is a **community-based cross-sectional study** aimed to assess the **prevalence of undiagnosed Type 2 Diabetes Mellitus (T2DM) in Vijayapura city**. A total of **1,195 individuals** participated, with **60 (5.02%)** newly diagnosed as diabetic based on **GRBS $\geq$ 200 mg/dL with symptoms**. Additionally, **120 individuals (10.04%)** had **GRBS $<$ 200 mg/dL but exhibited diabetes-related symptoms**, warranting further HbA1c testing. Among them, **6 (0.5%)** were **newly diagnosed with diabetes**, and **24 (2.0%)** were **identified as prediabetic**. These findings highlight the **importance of community-based screening programs** for early detection of diabetes.

A **gender-wise distribution** of newly diagnosed diabetes cases revealed that **52.2% were female and 47.8% were male**. Although the overall prevalence difference between genders was minimal (**2.93% in females and 2.68% in males**), the results emphasize the need for **gender-inclusive screening programs** to identify undiagnosed diabetes cases effectively.

These findings are consistent with previous studies conducted in India and other countries. For instance, a study by Anjana et al. (2021) estimated that **57% of adults with diabetes in India remain undiagnosed**, corresponding to approximately **43.9 million individuals**. The authors emphasized that many individuals are unaware of their diabetic status due to a **lack of screening and asymptomatic progression** in early stages (Anjana et al., 2021). Similarly, a **community-based study in rural Kerala** assessed **425 individuals** and found a **significant burden of undiagnosed diabetes**, reinforcing the need for **regular screening in both urban and rural populations** (Sudhakar et al., 2023). ^[91,92]

Study	Location	Sample Size	Prevalence of Undiagnosed Diabetes (%)	Prediabetes (%)	Key Findings
Our Study	Vijayapura city, India	1,195	5.61%	2.0%	Community based study in Vijayapura city.
Anjana et al. (2021)	India (Nationwide)	57,000+	57% of diabetes cases were undiagnosed	Not reported	Highlighted the need for nationwide screening programs
Sudhakar et al. (2023)	Kerala, India	425	6.8%	3.5%	Rural areas showed a significant burden of undiagnosed diabetes
Bekele et al. (2024) ^[93]	Ethiopia	1,500	8.13%	Not reported	Family history and physical inactivity were major risk factors
Li et al. (2022)	China	10,000+	3.6%	6.2%	Lower prevalence due to better screening programs and healthcare infrastructure
Table 5: Comparison of Prevalence of Undiagnosed Diabetes Mellitus in Different Studies					

International studies have also reported a high prevalence of undiagnosed diabetes. A study in **Southwest Ethiopia** found an **undiagnosed diabetes prevalence of 8.13%**, with **risk factors including physical inactivity and family history** (Bekele et al., 2024). This is **higher than the 5.02% prevalence observed in the current study**, likely due to differences in **lifestyle, genetic predisposition, and access to healthcare**. In contrast, a study in China reported a **lower prevalence of undiagnosed diabetes (3.6%)**, attributed to **better healthcare infrastructure and nationwide diabetes screening programs** (Li et al., 2022).^[93,94]

Our study highlights the **urgent need for large-scale diabetes screening and awareness programs in India**, particularly in regions with **limited access to healthcare**. The detection of prediabetic individuals (2.0%) underscores the importance of **early intervention strategies to prevent or delay the onset of diabetes**. Given the **growing burden of T2DM in India**, implementing **community-based screening, lifestyle modification programs, and improved healthcare accessibility** is crucial for reducing the prevalence of undiagnosed diabetes.

Age-Wise Distribution and Comparison with Other Studies

Study	Age Group with Highest Prevalence	Percentage (%)
Our study (Vijayapura, India)	55-64 years	30%
Anjana et al. (2021), India	50-69 years	41%
Sudhakar et al. (2023), Kerala	55-70 years	38%
Bekele et al. (2024), Ethiopia	50+ years	72%
Li et al. (2022), China	45-64 years	36%
<i>Table 6: Age-Wise Distribution of Newly Diagnosed Diabetic Patients in our study compared to other studies</i>		

Age plays a crucial role in diabetes onset, with the **highest proportion of newly diagnosed diabetics observed in the 55-64 age group (30%), followed by 65-74 years (25%).** These findings align with previous studies indicating that diabetes prevalence increases with age. For instance, a large-scale **Indian study by Anjana et al. (2021)** found that **diabetes prevalence sharply rises after 45 years,** with individuals aged **55-74 having the highest burden.** A similar trend was noted in a **community-based study in Kerala,** where **individuals over 50 years accounted for more than 60% of newly diagnosed cases** (Sudhakar et al., 2023).^[91,92]

Compared to global studies, the present study’s findings resonate with research from Ethiopia, where **72% of undiagnosed diabetics were aged 50 and above** (Bekele et al., 2024). However, in China, a **national diabetes screening program identified a more even age distribution across younger and older adults** (Li et al., 2022), suggesting that earlier detection strategies may help mitigate age-related diabetes progression.^[93,94]

Common Symptoms Among Newly Diagnosed Diabetics

Symptom	Our Study (%)	Sudhakar et al. (2023), Kerala (%)	Adepoju et al. (2023), Nigeria (%)
Blurred Vision	77.3%	75.1%	74.8%
Fatigue and Weakness	70.7%	72.5%	68.9%
Frequent Urination	66.9%	68.0%	70.2%
Excessive Thirst	46.4%	49.2%	50.1%
Tingling/Numbness in Hands or Feet	40.3%	38.8%	41.5%
Increased Hunger	34.3%	35.1%	37.8%
Frequent Infections or Slow-Healing Sores	24.3%	26.7%	28.1%
<i>Table 7: Comparison of symptoms distribution of diabetics in our study and across other studies.</i>			

The most commonly reported symptoms among **181 newly diagnosed diabetics** were **Blurred Vision (77.3%)**, **Fatigue and Weakness (70.7%)**, and **Frequent Urination (66.9%)**. Other notable symptoms included **Excessive Thirst (46.4%)**, **Tingling or Numbness (40.3%)**, and **Increased Hunger (34.3%)**. These symptoms align with clinical manifestations of diabetes observed in previous studies.

A study in **Kerala (Sudhakar et al., 2023)** found that **Fatigue (72%)** and **Frequent Urination (68%)** were the most reported symptoms, similar to the present study. Additionally, a study in **Nigeria (Adepoju et al., 2023)** reported **Frequent Urination (70%)** and **Blurred Vision (75%)** as dominant symptoms, closely matching the findings in Vijayapura. These similarities reinforce the **universal nature of diabetic symptoms across different populations**, further highlighting the importance of **symptom-based screening programs** to detect undiagnosed diabetes.^[92,95]

CONCLUSION

Our study revealed that the prevalence of undiagnosed type 2 diabetes in the city of vijayapura to be 5.61% which highlights the significant burden of undiagnosed diabetes in the community, emphasizing the need for early detection and intervention. A substantial proportion of individuals exhibited diabetic symptoms despite having glucose levels below the diagnostic threshold. Common symptoms such as fatigue, blurred vision, and frequent urination were prevalent. Strengthening routine screenings, lifestyle modifications, and public health initiatives is essential to prevent complications and reduce the growing impact of diabetes

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ANNEXURES

ANNEXURE I

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE



BLDE

(DEEMED TO BE UNIVERSITY)

Declared as Deemed to be University u/s 3 of UGC Act, 1956

Accredited with 'A' Grade by NAAC (Cycle-2)

The Constituent College

SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPURA

BLDE (DU)/IEC/ 908/2023-24

10/4/2023

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this University met on **Saturday, 18th March, 2023 at 11.30 a.m. in the CAL Laboratory, Dept. of Pharmacology**, scrutinizes the Synopsis/ Research Projects of Post Graduate Student / Under Graduate Student /Faculty members of this University /Ph.D. Student College from ethical clearance point of view. After scrutiny, the following original/ corrected and revised version synopsis of the thesis/ research projects has been accorded ethical clearance.

TITLE: "A COMMUNITY BASED CROSS-SECTIONAL STUDY TO ASSESS THE PREVALENCE OF UNDIAGNOSED TYPE 2 DIABETES MELLITUS IN THE CITY OF VIJAYAPURA".

NAME OF THE STUDENT/PRINCIPAL INVESTIGATOR: DR.SANKETH C. M.

NAME OF THE GUIDE: DR.VIJAYAKUMAR G. WARAD,, PROFESSOR, DEPT. OF MEDICINE.

Dr. Santoshkumar Jeevangi

Chairperson

IEC, BLDE (DU),

VIJAYAPURA

Chairman,

Institutional Ethical Committee,

BLDE (Deemed to be University)

Vijayapura

Dr. Akram A. Naikwadi

Member Secretary

IEC, BLDE (DU),

VIJAYAPURA

MEMBER SECRETARY

Institutional Ethics Committee

BLDE (Deemed to be University)

Vijayapura-586103, Karnataka

Following documents were placed before Ethical Committee for Scrutinization.

- Copy of Synopsis/Research Projects
- Copy of inform consent form
- Any other relevant document

Smt. Bangaramma Sajjan Campus, B. M. Patil Road (Sholapur Road), Vijayapura - 586103, Karnataka, India.

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ANNEXURE II

INFORMED CONSENT FORM (ENGLISH)

TITLE OF RESEARCH: A COMMUNITY BASED CROSS-SECTIONAL STUDY TO ASSESS THE PREVALENCE OF UNDIAGNOSED TYPE 2 DIABETES MELLITUS IN THE CITY OF VIJAYAPURA.

All aspects of this consent form are explained to the patient in the language understood by him or her.

PURPOSE OF STUDY:

I have been informed that the purpose of this study is to study the prevalence of undiagnosed diabetics in Vijayapura city.

PROCEDURE:

I understand that I will undergo detailed history and clinical examination and investigations

BENEFITS:

I understand that my participation in this study will have no direct benefit to me other than the potential benefit of treatment which is planned to prevent further morbidity and mortality in me and my community.

CONFIDENTIALITY:

I understand that the medical information produced by the study will become a part of hospital record and will be subjected to confidentiality and privacy regulation of hospital. If the data is used for publication the identity will not be revealed.

REQUEST FOR MORE INFORMATION:

I understand that I may ask for more information about the study at any time.

REFUSAL OR WITHDRAWAL OF PARTICIPATION:

I understand that my participation is voluntary and I may refuse to participate or withdraw From study at any time.

Date:

Place:

(Signature of the participant)

INFORMED CONSENT FORM (KANNADA)

ಮಾಹಿತಿ ನೀಡಿದ ಒಪ್ಪಿಗೆ ನಮೂನೆ:

ನಾನು, _____, ಈ ಮೂಲಕ ಇದನ್ನು ಘೋಷಿಸಲಿದ್ದೇನೆ.
ಡಾ ಸಂಕೇತ್ ಸಿ ಎಂ ಅವರು ನನ್ನ ಸ್ವಂತ ಭಾಷೆಯಾದ ಕನ್ನಡದಲ್ಲಿ ಮೇಲಿನ ಎಲ್ಲಾ ವಿವರಗಳನ್ನು ನನಗೆ ವಿವರಿಸಿದ್ದಾರೆ
ಎಂದು ನಾನು ದೃಢೀಕರಿಸುತ್ತೇನೆ. ನನಗೂ ಅದೇ ಅರ್ಥವಾಗಿದೆ. ಈ ಸಂಶೋಧನಾ ಯೋಜನೆಯಲ್ಲಿ ಭಾಗವಹಿಸಲು ನನ್ನ
ಒಪ್ಪಿಗೆಯನ್ನು ನೀಡಲು ನಾನು ಒಪ್ಪುತ್ತೇನೆ.

ಸಂಶೋಧನೆಯ ಶೀರ್ಷಿಕೆ:

ವಿಜಯಪುರ ನಗರದಲ್ಲಿ ಗುರುತಿಸಲಾಗದ ಟೈಪ್ 2 ಡಯಾಬಿಟಿಸ್ ಮೆಲ್ಲಿಟಸ್‌ನ ಹೊರೆಯನ್ನು ನಿರ್ಣಯಿಸಲು ಒಂದು
ಸಮುದಾಯ ಆಧಾರಿತ ಅಡ್ಡ-ವಿಭಾಗೀಯ ಅಧ್ಯಯನ.

ಅಧ್ಯಯನದ ಉದ್ದೇಶ:

ವಿಜಯಪುರ ನಗರದಲ್ಲಿ ಪತ್ತೆಯಾಗದ ಮಧುಮೇಹಗಳ ಹೊರೆಯನ್ನು ಅಧ್ಯಯನ ಮಾಡುವುದು ಈ ಅಧ್ಯಯನದ
ಉದ್ದೇಶವಾಗಿದೆ ಎಂದು ನನಗೆ ತಿಳಿಸಲಾಗಿದೆ.

ಕಾರ್ಯವಿಧಾನ:

ನಾನು ವಿವರವಾದ ಇತಿಹಾಸ ಮತ್ತು ಕ್ಲಿನಿಕಲ್ ಪರೀಕ್ಷೆ ಮತ್ತು ತನಿಖೆಗಳಿಗೆ ಒಳಗಾಗುತ್ತೇನೆ ಎಂದು ನಾನು
ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಪ್ರಯೋಜನಗಳು:

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯು ನನಗೆ ಮತ್ತು ನನ್ನ ಸಮುದಾಯದಲ್ಲಿ ಮತ್ತಷ್ಟು ಅನಾರೋಗ್ಯ ಮತ್ತು
ಮರಣವನ್ನು ತಡೆಗಟ್ಟಲು ಯೋಜಿಸಲಾದ ಚಿಕಿತ್ಸೆಯ ಸಂಭಾವ್ಯ ಪ್ರಯೋಜನವನ್ನು ಹೊರತುಪಡಿಸಿ ನನಗೆ ಯಾವುದೇ ನೇರ
ಪ್ರಯೋಜನವನ್ನು ಹೊಂದಿಲ್ಲ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಗೌಪ್ಯತೆ:

ಅಧ್ಯಯನದಿಂದ ಉತ್ಪತ್ತಿಯಾಗುವ ವೈದ್ಯಕೀಯ ಮಾಹಿತಿಯು ಆಸ್ಪತ್ರೆಯ ದಾಖಲೆಯ ಭಾಗವಾಗುತ್ತದೆ ಮತ್ತು ಆಸ್ಪತ್ರೆಯ
ಗೌಪ್ಯತೆ ಮತ್ತು ಗೌಪ್ಯತೆ ನಿಯಂತ್ರಣಕ್ಕೆ ಒಳಪಟ್ಟಿರುತ್ತದೆ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ. ಡೇಟಾವನ್ನು ಪ್ರಕಟಣೆಗೆ
ಬಳಸಿದರೆ ಗುರುತನ್ನು ಬಹಿರಂಗಪಡಿಸಲಾಗುವುದಿಲ್ಲ.

ಹೆಚ್ಚಿನ ಮಾಹಿತಿಗಾಗಿ ವಿನಂತಿ:

ನಾನು ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅಧ್ಯಯನದ ಕುರಿತು ಹೆಚ್ಚಿನ ಮಾಹಿತಿಯನ್ನು ಕೇಳಬಹುದು ಎಂದು ನಾನು
ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಭಾಗವಹಿಸುವಿಕೆಯ ನಿರಾಕರಣೆ ಅಥವಾ ಹಿಂತೆಗೆದುಕೊಳ್ಳುವಿಕೆ:

ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯು ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ ಮತ್ತು ನಾನು ಯಾವುದೇ
ಸಮಯದಲ್ಲಿ ಭಾಗವಹಿಸಲು ಅಥವಾ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯಲು ನಿರಾಕರಿಸಬಹುದು.

Date:

Signature of the participant

ANNEXURE III

SCHEME OF CASE TAKING

Case number:

Name:

Age:

Sex:

Address:

Symptoms of diabetes

- Polyuria or nocturnal diuresis Yes / No
- Polyphagia Yes / No
- Polydipsia Yes / No
- Fatigue or weakness Yes / No
- Blurred vision Yes / No
- Delayed wound healing Yes / No
- Tingling, pain or numbness in hands or feet Yes / No

Past history:

Family history:

Personal history:

Treatment History:

Investigations

- Glucometer RBS:
- HbA1c:

CONCLUSION:

DATE:

SIGNATURE

ANNEXURE IV

MASTER CHART

Case ID	Date	Locality	Age	Gender	GRBS (mg/dL)	HbA1C	Symptoms of diabetes							Inference
							Frequent Urination	Excessive Thirst	Increased Hunger	Fatigue and Weakness	Blurred Vision	Frequent infections or delayed wound healing	Tingling, Pain, or Numbness in Hands/Feet	
1	21-05-2023	Railway station area	64	Female	172	NA	No	No	No	No	No	No	Non Diabetic	
2	21-05-2023	Railway station area	66	Female	128	NA	No	No	No	No	No	No	Non Diabetic	
3	21-05-2023	Railway station area	65	Female	150	NA	No	No	No	No	No	No	Non Diabetic	
4	21-05-2023	Railway station area	73	Female	176	NA	No	No	No	No	No	No	Non Diabetic	
5	21-05-2023	Railway station area	46	Female	161	NA	No	No	No	No	No	No	Non Diabetic	
6	21-05-2023	Railway station area	82	Female	166	NA	No	No	No	No	No	No	Non Diabetic	
7	21-05-2023	Railway station area	63	Male	95	NA	No	No	No	No	No	No	Non Diabetic	
8	21-05-2023	Railway station area	41	Female	96	NA	No	No	No	No	No	No	Non Diabetic	
9	21-05-2023	Railway station area	68	Male	183	NA	No	No	No	No	No	No	Non Diabetic	
10	21-05-2023	Railway station area	63	Female	182	4.9	Yes	No	Yes	Yes	Yes	No	Non Diabetic	
11	21-05-2023	Railway station area	61	Female	113	NA	No	No	No	No	No	No	Non Diabetic	
12	21-05-2023	Railway station area	57	Female	120	NA	No	No	No	No	No	No	Non Diabetic	
13	21-05-2023	Railway station area	69	Female	109	NA	No	No	No	No	No	No	Non Diabetic	
14	21-05-2023	Railway station area	48	Male	182	4.7	Yes	No	No	Yes	No	No	Non Diabetic	
15	21-05-2023	Railway station area	61	Female	174	NA	No	No	No	No	No	No	Non Diabetic	
16	21-05-2023	Railway station area	82	Female	144	NA	No	No	No	No	No	No	Non Diabetic	
17	21-05-2023	Railway station area	59	Female	130	NA	No	No	No	No	No	No	Non Diabetic	
18	21-05-2023	Railway station area	72	Female	191	NA	No	No	No	No	No	No	Non Diabetic	
19	21-05-2023	Railway station area	64	Female	180	NA	No	No	No	No	No	No	Non Diabetic	
20	21-05-2023	Railway station area	45	Female	163	NA	No	No	No	No	No	No	Non Diabetic	
21	21-05-2023	Railway station area	50	Male	144	NA	No	No	No	No	No	No	Non Diabetic	
22	21-05-2023	Railway station area	45	Female	179	NA	No	No	No	No	No	No	Non Diabetic	
23	21-05-2023	Railway station area	54	Female	134	NA	No	No	No	No	No	No	Non Diabetic	
24	21-05-2023	Railway station area	83	Female	152	NA	No	No	No	No	No	No	Non Diabetic	
25	21-05-2023	Railway station area	61	Male	134	NA	No	No	No	No	No	No	Non Diabetic	
26	21-05-2023	Railway station area	93	Female	192	5.7	Yes	Yes	Yes	Yes	No	Yes	Pre-diabetic	
27	21-05-2023	Railway station area	38	Male	203	NA	Yes	No	Yes	Yes	No	Yes	Newly diagnosed diabetes	
28	21-05-2023	Railway station area	68	Male	138	NA	No	No	No	No	No	No	Non Diabetic	
29	21-05-2023	Railway station area	64	Male	137	NA	No	No	No	No	No	No	Non Diabetic	
30	21-05-2023	Railway station area	72	Male	181	NA	No	No	No	No	No	No	Non Diabetic	
31	21-05-2023	Railway station area	81	Female	118	NA	No	No	No	No	No	No	Non Diabetic	

32	21-05-2023	Railway station area	37	Female	186	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
33	21-05-2023	Railway station area	48	Male	164	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
34	21-05-2023	Railway station area	67	Female	137	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
35	21-05-2023	Railway station area	75	Female	138	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
36	21-05-2023	Railway station area	37	Female	185	4.5	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	No	Non Diabetic
37	21-05-2023	Railway station area	68	Female	254	NA	Yes	Yes	No	No	No	No	No	No	Yes	No	Yes	Newly diagnosed diabetes
38	21-05-2023	Railway station area	49	Male	136	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
39	21-05-2023	Railway station area	54	Male	168	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
40	21-05-2023	Railway station area	49	Male	131	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
41	21-05-2023	Railway station area	40	Male	156	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
42	21-05-2023	Railway station area	57	Female	136	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
43	21-05-2023	Railway station area	61	Female	180	5.0	Yes	No	No	No	Yes	No	No	No	No	No	No	Non Diabetic
44	21-05-2023	Railway station area	64	Female	179	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
45	21-05-2023	Railway station area	78	Male	178	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
46	21-05-2023	Railway station area	48	Female	150	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
47	21-05-2023	Railway station area	60	Male	130	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
48	21-05-2023	Railway station area	59	Male	177	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
49	21-05-2023	Railway station area	53	Female	167	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
50	21-05-2023	Railway station area	48	Female	156	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
51	21-05-2023	Railway station area	50	Male	162	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
52	21-05-2023	Railway station area	60	Male	136	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
53	21-05-2023	Railway station area	41	Male	110	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
54	21-05-2023	Railway station area	60	Female	140	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
55	21-05-2023	Railway station area	94	Male	143	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
56	21-05-2023	Railway station area	54	Male	122	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
57	21-05-2023	Railway station area	44	Male	164	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
58	21-05-2023	Railway station area	59	Male	150	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
59	21-05-2023	Railway station area	59	Male	191	4.7	No	No	No	Yes	Yes	Yes	Yes	No	No	No	No	Non Diabetic
60	21-05-2023	Railway station area	37	Male	149	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
61	11-06-2023	Railway station area	62	Male	120	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
62	11-06-2023	Railway station area	72	Female	177	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
63	11-06-2023	Railway station area	35	Female	167	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
64	11-06-2023	Railway station area	44	Male	168	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
65	11-06-2023	Railway station area	50	Male	170	5.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Non Diabetic

203	13-08-2023	Adarshnagar	55	Male	143	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
204	13-08-2023	Adarshnagar	48	Female	175	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
205	13-08-2023	Adarshnagar	65	Female	189	5.1	Yes	Yes	No	No	No	No	No	Yes	No	Non Diabetic
206	13-08-2023	Adarshnagar	51	Female	135	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
207	13-08-2023	Adarshnagar	74	Female	132	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
208	13-08-2023	Adarshnagar	43	Female	158	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
209	13-08-2023	Adarshnagar	58	Male	170	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
210	13-08-2023	Adarshnagar	70	Male	194	5.2	No	Yes	No	Yes	Yes	Yes	No	Yes	No	Non Diabetic
211	13-08-2023	Adarshnagar	50	Male	135	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
212	13-08-2023	Adarshnagar	65	Male	164	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
213	13-08-2023	Adarshnagar	61	Female	142	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
214	13-08-2023	Adarshnagar	51	Female	183	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
215	13-08-2023	Adarshnagar	55	Male	133	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
216	13-08-2023	Adarshnagar	63	Male	136	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
217	13-08-2023	Adarshnagar	56	Male	173	8.4	Yes	No	No	Yes	Yes	Yes	No	Yes	No	Newly diagnosed diabetes
218	13-08-2023	Adarshnagar	51	Male	139	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
219	13-08-2023	Adarshnagar	57	Male	150	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
220	13-08-2023	Adarshnagar	39	Male	179	5.2	No	No	No	Yes	Yes	Yes	No	Yes	No	Non Diabetic
221	13-08-2023	Adarshnagar	85	Female	144	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
222	13-08-2023	Adarshnagar	56	Male	145	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
223	13-08-2023	Adarshnagar	68	Female	273	NA	Yes	No	No	No	No	No	No	No	No	Newly diagnosed diabetes
224	13-08-2023	Adarshnagar	54	Male	110	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
225	13-08-2023	Adarshnagar	45	Female	116	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
226	13-08-2023	Adarshnagar	44	Female	162	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
227	13-08-2023	Adarshnagar	56	Female	148	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
228	13-08-2023	Adarshnagar	82	Male	130	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
229	13-08-2023	Adarshnagar	38	Male	183	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
230	13-08-2023	Adarshnagar	47	Male	294	NA	Yes	No	No	Yes	Yes	Yes	No	No	No	Newly diagnosed diabetes
231	13-08-2023	Adarshnagar	56	Male	225	NA	Yes	No	No	Yes	Yes	Yes	No	No	No	Newly diagnosed diabetes
232	13-08-2023	Adarshnagar	68	Female	169	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
233	13-08-2023	Adarshnagar	45	Male	192	4.5	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Non Diabetic

234	13-08-2023	Adarshnagar	57	Male	171	NA	No	No	No	No	No	No	No	Non Diabetic
235	13-08-2023	Adarshnagar	47	Female	151	NA	No	No	No	No	No	No	No	Non Diabetic
236	13-08-2023	Adarshnagar	62	Female	238	NA	Yes	Yes	No	Yes	Yes	No	No	Newly diagnosed diabetes
237	13-08-2023	Adarshnagar	94	Female	100	NA	No	No	No	No	No	No	No	Non Diabetic
238	13-08-2023	Adarshnagar	35	Male	165	NA	No	No	No	No	No	No	No	Non Diabetic
239	13-08-2023	Adarshnagar	56	Male	183	5.4	Yes	No	Yes	No	No	Yes	Yes	Non Diabetic
240	13-08-2023	Adarshnagar	43	Male	174	NA	No	No	No	No	No	No	No	Non Diabetic
241	13-08-2023	Adarshnagar	62	Female	145	NA	No	No	No	No	No	No	No	Non Diabetic
242	13-08-2023	Adarshnagar	65	Female	131	NA	No	No	No	No	No	No	No	Non Diabetic
243	13-08-2023	Adarshnagar	40	Female	294	NA	Yes	No	No	No	No	No	No	Newly diagnosed diabetes
244	13-08-2023	Adarshnagar	83	Male	141	NA	No	No	No	No	No	No	No	Non Diabetic
245	13-08-2023	Adarshnagar	43	Male	142	NA	No	No	No	No	No	No	No	Non Diabetic
246	13-08-2023	Adarshnagar	54	Female	261	NA	Yes	No	Yes	No	No	No	No	Newly diagnosed diabetes
247	13-08-2023	Adarshnagar	83	Female	186	6.8	Yes	No	No	Yes	Yes	No	No	Newly diagnosed diabetes
248	13-08-2023	Adarshnagar	41	Female	179	NA	No	No	No	No	No	No	No	Non Diabetic
249	13-08-2023	Adarshnagar	83	Male	174	NA	No	No	No	No	No	No	No	Non Diabetic
250	13-08-2023	Adarshnagar	81	Male	157	NA	No	No	No	No	No	No	No	Non Diabetic
251	13-08-2023	Adarshnagar	45	Male	176	NA	No	No	No	No	No	No	No	Non Diabetic
252	13-08-2023	Adarshnagar	73	Male	168	NA	No	No	No	No	No	No	No	Non Diabetic
253	13-08-2023	Adarshnagar	89	Male	217	NA	Yes	No	yes	Yes	Yes	No	No	Newly diagnosed diabetes
254	13-08-2023	Adarshnagar	46	Male	116	NA	No	No	No	No	No	No	No	Non Diabetic
255	13-08-2023	Adarshnagar	40	Female	93	NA	No	No	No	No	No	No	No	Non Diabetic
256	13-08-2023	Adarshnagar	55	Female	140	NA	No	No	No	No	No	No	No	Non Diabetic
257	13-08-2023	Adarshnagar	37	Male	169	NA	No	No	No	No	No	No	No	Non Diabetic
258	13-08-2023	Adarshnagar	49	Male	144	NA	No	No	No	No	No	No	No	Non Diabetic
259	13-08-2023	Adarshnagar	35	Male	149	NA	No	No	No	No	No	No	No	Non Diabetic
260	13-08-2023	Adarshnagar	83	Female	173	4.5	No	No	Yes	Yes	Yes	No	No	Non Diabetic
261	17-09-2023	Adarshnagar	71	Male	132	NA	No	No	No	No	No	No	No	Non Diabetic
262	17-09-2023	Adarshnagar	59	Female	209	NA	No	Yes	No	Yes	Yes	No	No	Newly diagnosed diabetes

[illegible]

[illegible]

[illegible]

[illegible]

560	14-01-2024	Gandhi Chowk	53	Female	164	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
561	14-01-2024	Gandhi Chowk	75	Male	151	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
562	14-01-2024	Gandhi Chowk	38	Female	167	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
563	14-01-2024	Gandhi Chowk	58	Female	135	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
564	14-01-2024	Gandhi Chowk	41	Female	172	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
565	14-01-2024	Gandhi Chowk	67	Male	156	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
566	14-01-2024	Gandhi Chowk	72	Female	174	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
567	14-01-2024	Gandhi Chowk	44	Male	151	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
568	14-01-2024	Gandhi Chowk	59	Male	169	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
569	14-01-2024	Gandhi Chowk	57	Male	147	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
570	14-01-2024	Gandhi Chowk	68	Male	209	NA	Yes	No	No	Yes	No	No	No	No	No	Newly diagnosed diabetes
571	14-01-2024	Gandhi Chowk	42	Female	187	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
572	14-01-2024	Gandhi Chowk	60	Male	107	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
573	14-01-2024	Gandhi Chowk	48	Male	176	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
574	14-01-2024	Gandhi Chowk	64	Male	164	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
575	14-01-2024	Gandhi Chowk	49	Female	155	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
576	14-01-2024	Gandhi Chowk	46	Female	144	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
577	14-01-2024	Gandhi Chowk	50	Female	178	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
578	14-01-2024	Gandhi Chowk	70	Female	168	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
579	14-01-2024	Gandhi Chowk	60	Female	141	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
580	14-01-2024	Gandhi Chowk	85	Female	144	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
581	14-01-2024	Gandhi Chowk	46	Male	95	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
582	14-01-2024	Gandhi Chowk	73	Male	131	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
583	14-01-2024	Gandhi Chowk	58	Female	131	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
584	14-01-2024	Gandhi Chowk	73	Female	178	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
585	14-01-2024	Gandhi Chowk	58	Female	179	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
586	14-01-2024	Gandhi Chowk	64	Female	128	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
587	14-01-2024	Gandhi Chowk	74	Female	138	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
588	14-01-2024	Gandhi Chowk	63	Female	157	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
589	14-01-2024	Gandhi Chowk	56	Female	145	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
590	14-01-2024	Gandhi Chowk	69	Female	177	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
591	14-01-2024	Gandhi Chowk	62	Female	160	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
592	14-01-2024	Gandhi Chowk	54	Male	176	5.2	No	Yes	No	Yes	No	Yes	No	No	No	Non Diabetic
593	14-01-2024	Gandhi Chowk	69	Male	178	5.5	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Non Diabetic

628	18-02-2024	Sadashiv nagar	63	Female	139	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
629	18-02-2024	Sadashiv nagar	72	Female	160	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
630	18-02-2024	Sadashiv nagar	89	Male	93	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
631	18-02-2024	Sadashiv nagar	82	Female	156	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
632	18-02-2024	Sadashiv nagar	42	Male	119	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
633	18-02-2024	Sadashiv nagar	53	Male	171	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
634	18-02-2024	Sadashiv nagar	84	Female	386	NA	Yes	Yes	No	Yes	No	No	Yes	No	Yes	No	Newly diagnosed diabetes
635	18-02-2024	Sadashiv nagar	60	Female	153	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
636	18-02-2024	Sadashiv nagar	91	Female	130	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
637	18-02-2024	Sadashiv nagar	47	Female	143	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
638	18-02-2024	Sadashiv nagar	62	Male	164	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
639	18-02-2024	Sadashiv nagar	39	Female	144	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
640	18-02-2024	Sadashiv nagar	76	Male	109	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
641	18-02-2024	Sadashiv nagar	44	Female	146	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
642	18-02-2024	Sadashiv nagar	63	Female	160	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
643	18-02-2024	Sadashiv nagar	63	Female	133	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
644	18-02-2024	Sadashiv nagar	70	Male	189	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
645	18-02-2024	Sadashiv nagar	80	Male	167	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
646	18-02-2024	Sadashiv nagar	61	Male	170	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
647	18-02-2024	Sadashiv nagar	70	Male	194	5.5	Yes	Yes	No	Yes	No	No	Yes	No	No	No	Non Diabetic
648	18-02-2024	Sadashiv nagar	62	Male	172	5.3	Yes	Yes	No	Yes	No	No	Yes	No	No	No	Non Diabetic
649	18-02-2024	Sadashiv nagar	64	Female	181	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
650	18-02-2024	Sadashiv nagar	83	Male	150	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
651	18-02-2024	Sadashiv nagar	74	Female	104	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
652	18-02-2024	Sadashiv nagar	55	Male	138	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
653	18-02-2024	Sadashiv nagar	53	Female	158	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
654	18-02-2024	Sadashiv nagar	87	Male	118	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
655	18-02-2024	Sadashiv nagar	41	Female	158	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
656	18-02-2024	Sadashiv nagar	59	Male	163	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
657	18-02-2024	Sadashiv nagar	93	Male	163	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
658	18-02-2024	Sadashiv nagar	64	Female	164	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
659	18-02-2024	Sadashiv nagar	55	Female	176	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
660	18-02-2024	Sadashiv nagar	47	Male	212	NA	Yes	No	No	Yes	No	Yes	No	No	No	No	Newly diagnosed diabetes

661	10-03-2024	Sadashiv nagar	51	Male	172	NA	No	No	No	No	No	No	No	Non Diabetic
662	10-03-2024	Sadashiv nagar	61	Male	363	NA	No	Yes	No	No	No	No	No	Newly diagnosed diabetes
663	10-03-2024	Sadashiv nagar	57	Female	181	NA	No	No	No	No	No	No	No	Non Diabetic
664	10-03-2024	Sadashiv nagar	50	Female	159	NA	No	No	No	No	No	No	No	Non Diabetic
665	10-03-2024	Sadashiv nagar	54	Female	145	NA	No	No	No	No	No	No	No	Non Diabetic
666	10-03-2024	Sadashiv nagar	72	Female	133	NA	No	No	No	No	No	No	No	Non Diabetic
667	10-03-2024	Sadashiv nagar	79	Female	160	NA	No	No	No	No	No	No	No	Non Diabetic
668	10-03-2024	Sadashiv nagar	59	Male	177	4.8	Yes	No	No	Yes	Yes	No	No	Non Diabetic
669	10-03-2024	Sadashiv nagar	52	Female	185	5.4	No	Yes	No	Yes	Yes	No	No	Non Diabetic
670	10-03-2024	Sadashiv nagar	62	Female	247	NA	No	Yes	No	No	Yes	No	No	Newly diagnosed diabetes
671	10-03-2024	Sadashiv nagar	59	Male	148	NA	No	No	No	No	No	No	No	Non Diabetic
672	10-03-2024	Sadashiv nagar	69	Female	180	NA	No	No	No	No	No	No	No	Non Diabetic
673	10-03-2024	Sadashiv nagar	39	Male	166	NA	No	No	No	No	No	No	No	Non Diabetic
674	10-03-2024	Sadashiv nagar	56	Female	226	NA	No	Yes	No	No	Yes	No	Yes	Newly diagnosed diabetes
675	10-03-2024	Sadashiv nagar	52	Female	173	NA	No	No	No	No	No	No	No	Non Diabetic
676	10-03-2024	Sadashiv nagar	40	Male	145	NA	No	No	No	No	No	No	No	Non Diabetic
677	10-03-2024	Sadashiv nagar	38	Male	94	NA	No	No	No	No	No	No	No	Non Diabetic
678	10-03-2024	Sadashiv nagar	45	Male	186	NA	No	No	No	No	No	No	No	Non Diabetic
679	10-03-2024	Sadashiv nagar	58	Female	149	NA	No	No	No	No	No	No	No	Non Diabetic
680	10-03-2024	Sadashiv nagar	39	Female	147	NA	No	No	No	No	No	No	No	Non Diabetic
681	10-03-2024	Sadashiv nagar	89	Female	131	NA	No	No	No	No	No	No	No	Non Diabetic
682	10-03-2024	Sadashiv nagar	37	Female	441	NA	Yes	No	No	No	Yes	No	No	Newly diagnosed diabetes
683	10-03-2024	Sadashiv nagar	48	Female	172	NA	No	No	No	No	No	No	No	Non Diabetic
684	10-03-2024	Sadashiv nagar	45	Male	147	NA	No	No	No	No	No	No	No	Non Diabetic
685	10-03-2024	Sadashiv nagar	51	Female	144	NA	No	No	No	No	No	No	No	Non Diabetic
686	10-03-2024	Sadashiv nagar	60	Male	109	NA	No	No	No	No	No	No	No	Non Diabetic
687	10-03-2024	Sadashiv nagar	72	Female	161	NA	No	No	No	No	No	No	No	Non Diabetic
688	10-03-2024	Sadashiv nagar	71	Female	185	NA	No	No	No	No	No	No	No	Non Diabetic
689	10-03-2024	Sadashiv nagar	63	Female	500	NA	Yes	No	Yes	No	Yes	No	No	Newly diagnosed diabetes
690	10-03-2024	Sadashiv nagar	80	Female	174	5.4	No	No	Yes	Yes	Yes	Yes	Yes	Non Diabetic

691	10-03-2024	Sadashiv nagar	46	Male	178	5.6	Yes	No	No	No	Yes	No	No	Non Diabetic
692	10-03-2024	Sadashiv nagar	45	Female	188	NA	No	No	No	No	No	No	No	Non Diabetic
693	10-03-2024	Sadashiv nagar	45	Male	101	NA	No	No	No	No	No	No	No	Non Diabetic
694	10-03-2024	Sadashiv nagar	56	Female	178	5.1	Yes	Yes	Yes	No	Yes	Yes	Yes	Non Diabetic
695	10-03-2024	Sadashiv nagar	40	Male	147	NA	No	No	No	No	No	No	No	Non Diabetic
696	10-03-2024	Sadashiv nagar	76	Male	138	NA	No	No	No	No	No	No	No	Non Diabetic
697	10-03-2024	Sadashiv nagar	78	Female	153	NA	No	No	No	No	No	No	No	Non Diabetic
698	10-03-2024	Sadashiv nagar	46	Female	185	5.4	Yes	Yes	No	Yes	Yes	Yes	Yes	Non Diabetic
699	10-03-2024	Sadashiv nagar	47	Female	160	NA	No	No	No	No	No	No	No	Non Diabetic
700	10-03-2024	Sadashiv nagar	43	Female	179	NA	No	No	No	No	No	No	No	Non Diabetic
701	10-03-2024	Sadashiv nagar	54	Female	158	NA	No	No	No	No	No	No	No	Non Diabetic
702	10-03-2024	Sadashiv nagar	94	Male	146	NA	No	No	No	No	No	No	No	Non Diabetic
703	10-03-2024	Sadashiv nagar	66	Male	193	4.8	Yes	No	Yes	No	Yes	Yes	Yes	Non Diabetic
704	10-03-2024	Sadashiv nagar	54	Female	194	NA	No	No	No	No	No	No	No	Non Diabetic
705	10-03-2024	Sadashiv nagar	65	Male	119	NA	No	No	No	No	No	No	No	Non Diabetic
706	10-03-2024	Sadashiv nagar	74	Female	150	NA	No	No	No	No	No	No	No	Non Diabetic
707	10-03-2024	Sadashiv nagar	64	Female	148	NA	No	No	No	No	No	No	No	Non Diabetic
708	10-03-2024	Sadashiv nagar	36	Male	157	NA	No	No	No	No	No	No	No	Non Diabetic
709	10-03-2024	Sadashiv nagar	37	Male	147	NA	No	No	No	No	No	No	No	Non Diabetic
710	10-03-2024	Sadashiv nagar	46	Female	186	5.6	No	Yes	No	Yes	No	No	No	Non Diabetic
711	10-03-2024	Sadashiv nagar	40	Male	133	NA	No	No	No	No	No	No	No	Non Diabetic
712	10-03-2024	Sadashiv nagar	41	Female	170	5.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Non Diabetic
713	10-03-2024	Sadashiv nagar	70	Male	166	NA	No	No	No	No	No	No	No	Non Diabetic
714	10-03-2024	Sadashiv nagar	53	Male	97	NA	No	No	No	No	No	No	No	Non Diabetic
715	10-03-2024	Sadashiv nagar	69	Female	90	NA	No	No	No	No	No	No	No	Non Diabetic
716	10-03-2024	Sadashiv nagar	52	Male	138	NA	No	No	No	No	No	No	No	Non Diabetic
717	10-03-2024	Sadashiv nagar	60	Female	162	NA	No	No	No	No	No	No	No	Non Diabetic
718	10-03-2024	Sadashiv nagar	49	Female	188	4.6	Yes	Yes	Yes	No	Yes	No	No	Non Diabetic
719	10-03-2024	Sadashiv nagar	46	Female	153	NA	No	No	No	No	No	No	No	Non Diabetic
720	10-03-2024	Sadashiv nagar	72	Female	179	NA	No	No	No	No	No	No	No	Non Diabetic
721	14-04-2024	Sadashiv nagar	85	Female	149	NA	No	No	No	No	No	No	No	Non Diabetic
722	14-04-2024	Sadashiv nagar	69	Female	142	NA	No	No	No	No	No	No	No	Non Diabetic
723	14-04-2024	Sadashiv nagar	63	Female	170	4.7	Yes	Yes	No	Yes	No	No	No	Non Diabetic
724	14-04-2024	Sadashiv nagar	37	Female	147	NA	No	No	No	No	No	No	No	Non Diabetic
725	14-04-2024	Sadashiv nagar	44	Male	173	6.4	Yes	Yes	No	Yes	Yes	No	No	Pre diabetic

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759	06-05-2024	Sadashiv nagar	39	Female	134	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
760	06-05-2024	Sadashiv nagar	78	Male	171	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
761	06-05-2024	Sadashiv nagar	50	Female	166	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
762	06-05-2024	Sadashiv nagar	49	Male	156	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
763	06-05-2024	Sadashiv nagar	83	Male	167	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
764	06-05-2024	Sadashiv nagar	57	Male	187	4.9	Yes	No	Yes	No	No	No	Yes	No	Yes	No	Non Diabetic
765	06-05-2024	Sadashiv nagar	59	Female	153	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
766	06-05-2024	Sadashiv nagar	56	Female	232	NA	No	Yes	No	Yes	No	No	Yes	No	No	No	Newly diagnosed diabetes
767	06-05-2024	Sadashiv nagar	55	Female	102	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
768	06-05-2024	Sadashiv nagar	52	Male	166	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
769	06-05-2024	Sadashiv nagar	56	Male	136	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
770	06-05-2024	Sadashiv nagar	84	Female	134	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
771	06-05-2024	Sadashiv nagar	62	Female	170	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
772	06-05-2024	Sadashiv nagar	39	Female	141	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
773	06-05-2024	Sadashiv nagar	70	Female	171	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
774	06-05-2024	Sadashiv nagar	69	Male	166	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
775	06-05-2024	Sadashiv nagar	59	Male	141	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
776	06-05-2024	Sadashiv nagar	41	Male	154	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
777	06-05-2024	Sadashiv nagar	60	Male	162	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
778	06-05-2024	Sadashiv nagar	47	Male	152	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
779	06-05-2024	Sadashiv nagar	59	Female	152	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
780	06-05-2024	Sadashiv nagar	35	Female	174	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
781	06-05-2024	Sadashiv nagar	52	Female	134	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
782	06-05-2024	Sadashiv nagar	36	Female	134	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
783	06-05-2024	Sadashiv nagar	86	Male	161	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
784	06-05-2024	Sadashiv nagar	55	Male	165	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
785	06-05-2024	Sadashiv nagar	89	Male	177	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
786	06-05-2024	Sadashiv nagar	43	Female	119	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
787	06-05-2024	Sadashiv nagar	36	Male	159	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
788	06-05-2024	Sadashiv nagar	59	Female	177	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
789	06-05-2024	Sadashiv nagar	52	Female	132	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
790	06-05-2024	Sadashiv nagar	72	Female	146	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
791	06-05-2024	Sadashiv nagar	66	Female	140	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
792	06-05-2024	Sadashiv nagar	56	Male	163	NA											

827	09-06-2024	Ibrahimpur	60	Male	159	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
828	09-06-2024	Ibrahimpur	85	Female	172	5.1	Yes	No	No	Yes	No	No	No	Yes	No	No	Non Diabetic
829	09-06-2024	Ibrahimpur	65	Male	137	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
830	09-06-2024	Ibrahimpur	73	Female	171	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
831	09-06-2024	Ibrahimpur	54	Female	186	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
832	09-06-2024	Ibrahimpur	58	Male	148	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
833	09-06-2024	Ibrahimpur	69	Female	158	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
834	09-06-2024	Ibrahimpur	95	Female	163	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
835	09-06-2024	Ibrahimpur	55	Female	175	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
836	09-06-2024	Ibrahimpur	47	Female	118	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
837	09-06-2024	Ibrahimpur	63	Female	183	5.5	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	Non Diabetic
838	09-06-2024	Ibrahimpur	50	Female	159	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
839	09-06-2024	Ibrahimpur	73	Male	138	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
840	09-06-2024	Ibrahimpur	61	Female	156	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
841	09-06-2024	Ibrahimpur	60	Male	173	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
842	09-06-2024	Ibrahimpur	61	Female	143	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
843	09-06-2024	Ibrahimpur	67	Female	171	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
844	09-06-2024	Ibrahimpur	55	Male	132	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
845	09-06-2024	Ibrahimpur	56	Female	167	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
846	09-06-2024	Ibrahimpur	42	Female	182	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
847	09-06-2024	Ibrahimpur	36	Male	93	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
848	09-06-2024	Ibrahimpur	59	Male	95	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
849	09-06-2024	Ibrahimpur	50	Female	278	NA	No	Yes	No	Yes	Yes	Yes	Yes	No	No	No	Newly diagnosed diabetes
850	09-06-2024	Ibrahimpur	45	Female	129	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
851	09-06-2024	Ibrahimpur	50	Female	91	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
852	09-06-2024	Ibrahimpur	37	Male	156	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
853	09-06-2024	Ibrahimpur	52	Male	129	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
854	09-06-2024	Ibrahimpur	65	Female	179	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
855	09-06-2024	Ibrahimpur	54	Female	180	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
856	09-06-2024	Ibrahimpur	60	Male	94	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
857	09-06-2024	Ibrahimpur	69	Male	265	NA	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	No	Newly diagnosed diabetes
858	09-06-2024	Ibrahimpur	63	Male	156	NA	No	No	No	No	No	No	No	No	No	No	Non Diabetic
859	09-06-2024	Ibrahimpur	71	Female	243	NA	Yes	Yes	No	Yes	Yes	Yes	No	No	No	No	Newly diagnosed

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927	11-08-2024	Ibrahimpur	61	Male	167	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
928	11-08-2024	Ibrahimpur	53	Female	139	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
929	11-08-2024	Ibrahimpur	76	Male	159	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
930	11-08-2024	Ibrahimpur	45	Male	159	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
931	11-08-2024	Ibrahimpur	84	Female	149	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
932	11-08-2024	Ibrahimpur	66	Male	170	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
933	11-08-2024	Ibrahimpur	90	Male	137	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
934	11-08-2024	Ibrahimpur	66	Male	168	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
935	11-08-2024	Ibrahimpur	56	Female	143	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
936	11-08-2024	Ibrahimpur	75	Male	182	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
937	11-08-2024	Ibrahimpur	58	Female	134	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
938	11-08-2024	Ibrahimpur	58	Female	143	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
939	11-08-2024	Ibrahimpur	47	Male	142	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
940	11-08-2024	Ibrahimpur	40	Female	472	NA	Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	No	Yes	Newly diagnosed diabetes
941	11-08-2024	Ibrahimpur	71	Male	137	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
942	11-08-2024	Ibrahimpur	39	Female	173	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
943	11-08-2024	Ibrahimpur	66	Female	156	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
944	11-08-2024	Ibrahimpur	78	Male	182	5.9	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	No	No	Pre diabetic
945	11-08-2024	Ibrahimpur	79	Female	154	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
946	11-08-2024	Ibrahimpur	55	Male	168	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
947	11-08-2024	Ibrahimpur	50	Male	145	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
948	11-08-2024	Ibrahimpur	39	Male	161	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
949	11-08-2024	Ibrahimpur	43	Male	169	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
950	11-08-2024	Ibrahimpur	65	Male	130	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
951	11-08-2024	Ibrahimpur	86	Male	172	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
952	11-08-2024	Ibrahimpur	47	Female	140	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
953	11-08-2024	Ibrahimpur	59	Male	162	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
954	11-08-2024	Ibrahimpur	71	Male	170	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
955	11-08-2024	Ibrahimpur	56	Female	135	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
956	11-08-2024	Ibrahimpur	49	Male	144	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
957	11-08-2024	Ibrahimpur	61	Female	155	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
958	11-08-2024	Ibrahimpur	95	Female	135	NA	No	No	No	No	No	No	No	No	No	No	No	Non Diabetic
959	11-08-2024	Ibrahimpur	44	Female														

961	11-08-2024	Ibrahimpur	48	Male	170	5.4	Yes	Yes	No	Yes	No	No	Non Diabetic
962	11-08-2024	Ibrahimpur	36	Male	174	5.5	Yes	Yes	Yes	No	No	Yes	Non Diabetic
963	11-08-2024	Ibrahimpur	56	Male	291	NA	No	Yes	No	Yes	Yes	No	Newly diagnosed diabetes
964	11-08-2024	Ibrahimpur	44	Male	169	NA	No	No	No	No	No	No	Non Diabetic
965	11-08-2024	Ibrahimpur	57	Male	139	NA	No	No	No	No	No	No	Non Diabetic
966	11-08-2024	Ibrahimpur	73	Female	162	NA	No	No	No	No	No	No	Non Diabetic
967	11-08-2024	Ibrahimpur	38	Male	191	NA	No	No	No	No	No	No	Non Diabetic
968	11-08-2024	Ibrahimpur	70	Female	179	NA	No	No	No	No	No	No	Non Diabetic
969	11-08-2024	Ibrahimpur	66	Female	145	NA	No	No	No	No	No	No	Non Diabetic
970	11-08-2024	Ibrahimpur	41	Male	131	NA	No	No	No	No	No	No	Non Diabetic
971	11-08-2024	Ibrahimpur	55	Male	168	NA	No	No	No	No	No	No	Non Diabetic
972	11-08-2024	Ibrahimpur	47	Female	88	NA	No	No	No	No	No	No	Non Diabetic
973	11-08-2024	Ibrahimpur	74	Male	179	NA	No	No	No	No	No	No	Non Diabetic
974	11-08-2024	Ibrahimpur	75	Female	289	NA	No	No	No	Yes	No	No	Newly diagnosed diabetes
975	11-08-2024	Ibrahimpur	71	Male	166	NA	No	No	No	No	No	No	Non Diabetic
976	11-08-2024	Ibrahimpur	54	Male	171	NA	No	No	No	No	No	No	Non Diabetic
977	11-08-2024	Ibrahimpur	54	Male	174	NA	No	No	No	No	No	No	Non Diabetic
978	11-08-2024	Ibrahimpur	71	Male	173	NA	No	No	No	No	No	No	Non Diabetic
979	11-08-2024	Ibrahimpur	68	Female	156	NA	No	No	No	No	No	No	Non Diabetic
980	11-08-2024	Ibrahimpur	70	Female	135	NA	No	No	No	No	No	No	Non Diabetic
981	08-09-2024	Ibrahimpur	44	Male	147	NA	No	No	No	No	No	No	Non Diabetic
982	08-09-2024	Ibrahimpur	43	Female	162	NA	No	No	No	No	No	No	Non Diabetic
983	08-09-2024	Ibrahimpur	41	Female	179	NA	No	No	No	No	No	No	Non Diabetic
984	08-09-2024	Ibrahimpur	85	Female	173	5.2	No	Yes	No	Yes	No	Yes	Non Diabetic
985	08-09-2024	Ibrahimpur	50	Female	166	NA	No	No	No	No	No	No	Non Diabetic
986	08-09-2024	Ibrahimpur	62	Female	142	NA	No	No	No	No	No	No	Non Diabetic
987	08-09-2024	Ibrahimpur	56	Male	194	6.1	No	Yes	Yes	No	No	No	Pre diabetic
988	08-09-2024	Ibrahimpur	84	Male	159	NA	No	No	No	No	No	No	Non Diabetic
989	08-09-2024	Ibrahimpur	45	Male	167	NA	No	No	No	No	No	No	Non Diabetic
990	08-09-2024	Ibrahimpur	68	Male	151	NA	No	No	No	No	No	No	Non Diabetic
991	08-09-2024	Ibrahimpur	73	Male	172	NA	No	No	No	No	No	No	Non Diabetic
992	08-09-2024	Ibrahimpur	63	Male	151	NA	No	No	No	No	No	No	Non Diabetic
993	08-09-2024	Ibrahimpur	50	Female	164	NA	No	No	No	No	No	No	Non Diabetic

1093	03-11-2024	Banjara nagar	43	Female	138	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1094	03-11-2024	Banjara nagar	52	Male	115	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1095	03-11-2024	Banjara nagar	55	Male	157	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1096	03-11-2024	Banjara nagar	52	Male	130	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1097	03-11-2024	Banjara nagar	41	Female	158	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1098	03-11-2024	Banjara nagar	70	Male	170	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1099	03-11-2024	Banjara nagar	73	Male	170	5.3	Yes	No	Yes	Yes	Yes	No	No	No	No	Non Diabetic
1100	03-11-2024	Banjara nagar	74	Female	109	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1101	03-11-2024	Banjara nagar	53	Female	179	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1102	03-11-2024	Banjara nagar	87	Male	227	NA	Yes	No	No	No	Yes	No	Yes	Yes	No	Newly diagnosed diabetes
1103	03-11-2024	Banjara nagar	50	Female	193	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1104	03-11-2024	Banjara nagar	50	Male	142	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1105	03-11-2024	Banjara nagar	52	Male	148	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1106	03-11-2024	Banjara nagar	36	Female	192	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1107	03-11-2024	Banjara nagar	68	Female	156	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1108	03-11-2024	Banjara nagar	46	Male	290	NA	No	Yes	Yes	Yes	Yes	No	No	No	No	Newly diagnosed diabetes
1109	03-11-2024	Banjara nagar	42	Female	190	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1110	03-11-2024	Banjara nagar	41	Male	166	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1111	03-11-2024	Banjara nagar	55	Female	181	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1112	03-11-2024	Banjara nagar	51	Female	189	5.5	Yes	No	No	Yes	Yes	No	Yes	No	No	Non Diabetic
1113	03-11-2024	Banjara nagar	39	Male	184	5.1	No	Yes	No	No	Yes	No	Yes	No	No	Non Diabetic
1114	03-11-2024	Banjara nagar	58	Female	176	6.2	Yes	No	No	No	Yes	Yes	Yes	No	No	Pre diabetic
1115	03-11-2024	Banjara nagar	60	Male	335	NA	No	Yes	No	No	Yes	No	Yes	Yes	No	Newly diagnosed diabetes
1116	03-11-2024	Banjara nagar	48	Female	141	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1117	03-11-2024	Banjara nagar	67	Male	185	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1118	03-11-2024	Banjara nagar	77	Male	155	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1119	03-11-2024	Banjara nagar	39	Female	157	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1120	03-11-2024	Banjara nagar	51	Female	163	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1121	08-12-2024	Banjara nagar	74	Female	173	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1122	08-12-2024	Banjara nagar	83	Male	152	NA	No	No	No	No	No	No	No	No	No	Non Diabetic
1123	08-12-2024	Banjara nagar	53	Male	194	4.9	Yes	No	No	Yes	Yes	No	Yes	No	No	Non Diabetic
1124	08-12-2024	Banjara nagar	63	Male	265	NA	No	Yes	No	No	Yes	Yes	Yes	No	No	Newly diagnosed

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1191	22-12-2024	Banjara nagar	52	Male	138	NA	No	No	No	No	No	No	No	No
1192	22-12-2024	Banjara nagar	42	Female	166	NA	No	No	No	No	No	No	No	No
1193	22-12-2024	Banjara nagar	63	Male	148	NA	No	No	No	No	No	No	No	No
1194	22-12-2024	Banjara nagar	59	Female	176	5.1	Yes	Yes	No	Yes	No	Yes	No	No
1195	22-12-2024	Banjara nagar	46	Male	166	NA	No	No	No	No	No	No	No	No