

## **Visualizing Diabetes Risk: An Analysis of CDC's 2015 BRFSS Data**

### **Abstract**

This data visualization project explores diabetes trends and risk factors in the United States using the 2015 Behavioral Risk Factor Surveillance System (BRFSS) dataset. Collected annually by the CDC, the BRFSS survey gathers information on health-related behaviors, chronic conditions, and use of preventive services. The 2015 dataset includes responses from 441,455 individuals and contains 330 variables-referred to as "features"-which represent either direct survey questions or derived data based on participant responses. By analyzing and visualizing this comprehensive dataset, the project aims to uncover patterns related to diabetes prevalence, demographic risk factors, and indicators for early detection. Through clear, informative visuals, the project supports efforts to raise awareness and inform public health strategies for diabetes prevention and management.

### **Introduction**

Diabetes mellitus, commonly known as diabetes, is a chronic condition in which the body loses the ability to regulate blood glucose levels effectively. This occurs when the body either doesn't produce enough insulin or cannot use it properly. Insulin is a hormone essential for allowing glucose to enter cells and be used for energy. Without adequate insulin, glucose builds up in the bloodstream instead of being absorbed by the cells, leading to high blood sugar levels. If left unmanaged, this can result in serious health complications, reduced quality of life, and shorter life expectancy. Diabetes affects millions globally and is especially prevalent in the United States, where over 34 million Americans live with the condition. Alarming, many remain undiagnosed, emphasizing the urgent need for early detection and risk prediction strategies.

### **Findings**

- Individuals with diabetes had the highest prevalence of high blood pressure (HBP), with 79,312 cases compared to 26,604 in pre-diabetes and 2,913 in non-diabetic individuals.
- Individuals with diabetes showed the highest prevalence of high cholesterol, with 81,030 cases compared to 23,686 in pre-diabetes and 2,875 in non-diabetic individuals.
- The diabetes group had the highest proportion of individuals with high BMI (31,249 cases), dwarfing counts in pre-diabetes (3,914) and non-diabetic groups (146,437).
- 13.93% of the surveyed population has diabetes, indicating that more than 1 in 10 individuals are living with this chronic condition
- "Grade 12 or GED" (High school graduates) appear to have a higher representation in diabetes cases (bar height near 10K), indicating this group may face elevated risk.
- "College 1–3 years" (Some college/technical school) shows intermediate diabetes prevalence, while "College 4+ years" (College graduates) has the lowest counts, suggesting education may be a protective factor.