Diabetic Patient Analysis Report

Executive Summary:

This report conducts an in-depth analysis of a patient dataset, focusing on key factors such as age, BMI, HbA1c levels, glucose levels, smoking history, and gender. The utilization of Data Analysis Expressions (DAX) in Power BI has been integral to deriving meaningful insights for informed decision-making in the management of diabetes.

Key Findings:

Key Performance Indicators (KPIs):

1. **Total Patients:**
    - The dataset encompasses [Total Patients] individuals.
2. **Average BMI:**
    - Patients exhibit an average BMI of [Average BMI].
3. **Average HbA1c Level:**
    - The dataset shows an average HbA1c level of [Average HbA1c Level].
4. **Average Glucose Level:**
    - The dataset indicates an average glucose level of [Average Glucose Level].
5. **Average Age:**
    - The average age of patients is [Average Age].
6. **Diabetic Status Distribution:**
    - [Total Diabetic] patients.
    - [Total Pre-Diabetic] patients.
    - [Total Non-Diabetic] patients.

Visual Insights:

1. Number of Patients by HbA1c Level:

- A majority of patients exhibit HbA1c levels indicating a moderate risk.

2. Diabetic Status Distribution:

- Utilizing a [Pie Chart], we visualize the distribution of diabetic, pre-diabetic, and non-diabetic patients.

3. BMI Level Distribution:

- A [Ribbon Chart] provides an in-depth view of patients distributed across various BMI categories.

4. Smokers Distribution:

- A [Donut Chart] offers insights into the distribution of smokers among patients.

5. Age Range Distribution:

- A [Stacked Column Chart] visually displays the distribution of patients across different age ranges.

6. Number of Patients by Diabetic and BMI:

- Leveraging a [Stacked Bar Chart], we reveal the count of patients based on diabetic status and BMI category.

7. Count of Patients by Smoking History and Gender:

- A [Stacked Column Chart] illustrates patient counts based on smoking history and gender.

8. Number of Patients by Age Range and Gender:

- Utilizing a [Grouped Bar Chart], we gain insights into patient counts based on age range and gender.

9. Number of Patients w.r.t Age and BMI:

- A [Stacked Area Chart] visually represents the count of patients with respect to both age and BMI.

DAX Utilization:

DAX played a crucial role in this analysis, providing the following advantages:

1. **Data Transformation:**
    - DAX was employed to transform raw data into meaningful metrics, such as average age, BMI, HbA1c levels, and glucose levels.
2. **Categorical Analysis:**
    - DAX functions facilitated categorical analysis, enabling the categorization of patients based on age ranges, BMI categories, and glucose levels.
3. **KPI Calculation:**
    - Measures were created using DAX to calculate key performance indicators, including total diabetic, pre-diabetic, and non-diabetic patients.
4. **Patient Segmentation:**
    - DAX expressions were utilized to segment patients based on risk factors, facilitating personalized healthcare plans.

Insights and Recommendations:

1. **High HbA1c Levels:**
    - A considerable number of patients have HbA1c levels indicating moderate to high risk. Recommendations include targeted interventions and closer monitoring.
2. **BMI Distribution:**

    - A significant percentage of patients fall into overweight and obese BMI categories. Encourage lifestyle modifications and weight management programs.
3. **Age and Diabetic Status:**
    - Diabetic patients are distributed across various age ranges, indicating the need for age-specific diabetes management strategies.
4. **Smoking and Diabetes:**
    - Explore the impact of smoking on diabetes. Consider implementing smoking cessation programs for diabetic patients who smoke.

Conclusion:

This report provides a comprehensive analysis of the diabetic patient dataset, blending DAX-powered insights with traditional analytics. The utilization of DAX enhances the granularity and specificity of the analysis, offering actionable insights for healthcare professionals and policymakers. By leveraging these insights, targeted interventions can be implemented, leading to improved patient outcomes and contributing to the broader goal of public health.

This report aims to showcase not only the traditional analytics but also the power of DAX in extracting granular insights from the dataset. The combination of both approaches enhances the depth and accuracy of the analysis, providing a robust foundation for data-driven decision-making in diabetes management.