Power BI Project Report: Global Cancer Patients Analysis (2015-2024)

**Objective**

This project aimed to create an interactive and engaging Power BI dashboard to analyze global cancer patient data from 2015 to 2024. The focus was to uncover trends, distributions, and patterns in cancer diagnoses and treatment costs. The dashboard serves as a portfolio piece to demonstrate advanced data analysis and visualization skills.

**Dataset Overview**

The dataset used for this analysis contains the following key columns:

* **Patient\_ID**: Unique identifier for each patient.
* **Age**: Patient’s age.
* **Gender**: Male, Female, or Other.
* **Country\_Region**: Country or region of the patient.
* **Year**: Year of diagnosis or record.
* **Cancer\_Type**: Type of cancer (e.g., Lung, Breast, Skin).
* **Cancer\_Stage**: Cancer stage (e.g., Stage 0, I, II, III).
* **Treatment\_Cost\_USD**: Cost of treatment in USD.

**Key Dashboard Features**

**KPIs**

1. **Total Patients**: The total number of unique patients in the dataset.
   * **Value**: 50K patients.
2. **Average Age**: The average age of patients.
   * **Value**: 54.42 years.
3. **Average Treatment Cost**: The average treatment cost across all patients.
   * **Value**: $52.47K.

**Visualizations**

**Yearly Trends**

* **Chart Type**: Line Chart.
* **X-Axis**: Year.
* **Y-Axis**: Number of Patients.
* **Insight**: Highlights annual variations in cancer diagnoses, with a noticeable dip in 2018.

**Regional Distribution**

* **Chart Type**: Bar Chart.
* **X-Axis**: Number of Patients.
* **Y-Axis**: Country/Region.
* **Insight**: Reveals that the USA, UK, and Australia have the highest diagnosis counts.

**Cancer Type Analysis**

* **Chart Type**: Clustered Bar Chart.
* **X-Axis**: Cancer Type.
* **Y-Axis**: Number of Patients.
* **Insight**: Identifies the most common cancer types, each averaging around 6.2K cases.

**Cancer Stage Breakdown**

* **Chart Type**: Stacked Bar Chart.
* **X-Axis**: Cancer Stage.
* **Y-Axis**: Number of Patients.
* **Insight**: Stage II cancers are the most frequent, suggesting a critical intervention point.

**Gender Distribution**

* **Chart Type**: Pie Chart.
* **Categories**: Male, Female, Other.
* **Insight**: Male and Female patients each make up approximately 33.5%, with "Other" at 33%.

**Age Group Analysis**

* **Chart Type**: Horizontal Bar Chart.
* **Categories**: Age Groups (e.g., 0-20, 21-40, etc.).
* **Values**: Number of Patients.
* **Insight**: The 21-40 age group has the highest number of patients, followed by 61-80 and 41-60 age groups.

**Key Insights**

* **Demographics**: Patients aged 21-40 form the largest diagnosed group.
* **Geography**: The USA, UK, and Australia account for the highest number of cases.
* **Cancer Stages**: Stage II cancers dominate, representing a potential intervention point.
* **Yearly Patterns**: A dip in diagnoses is observed in 2018, potentially due to external factors or underreporting.

**Conclusion**

This dashboard provides actionable insights into global cancer trends, distributions, and demographics.