HEALTHCARE DATA ANALYSIS

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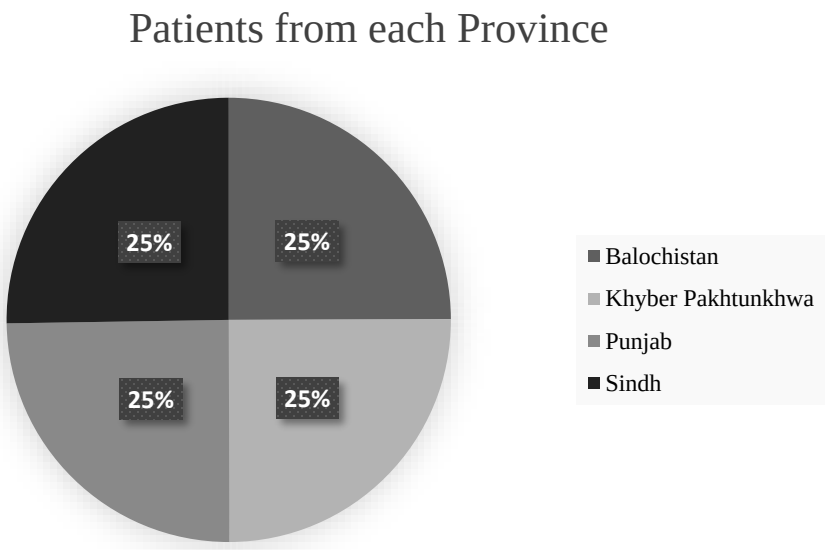
Objective:

In this case study, we will analyze a comprehensive health dataset from various hospitals across Pakistan. The provided dataset represents detailed information on patient visits, including personal and medical data. Our task is to explore patient demographics to understand the distribution of age, gender, height, and weight across different hospitals. We will evaluate disease prevalence to identify the most common conditions treated and their distribution across various cities and provinces. Additionally, we will assess treatment costs to understand the financial burden on patients, focusing on comparisons between those with and without insurance. The analysis will also involve comparing hospital performance based on patient volume and treatment costs, identifying peak times for admissions and discharges, and examining the impact of insurance coverage on healthcare expenses. By studying the distribution of blood groups and gaining geographical insights, we will uncover patterns and correlations that can inform healthcare providers and policymakers, ultimately contributing to improved healthcare services and outcomes in Pakistan.

Understanding Healthcare Analytics:

Healthcare analytics is the use of data collected on a large scale that provides stakeholders with actionable insights. It combines real-time and historical data to predict trends, reveal actionable insights, achieve medical advances, and drive long-term growth. These insights can be used by healthcare providers, hospital and health system leaders, those

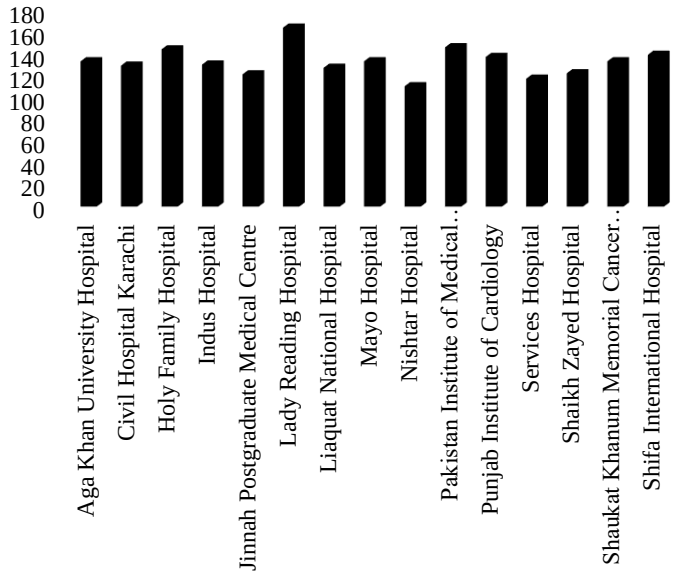
in government health and human services, and independent researchers to make evidence-based decision making and deliver value for the people they serve. With the latest technology to collect and store data, health analytics is also making its way to the mainstream health industry.



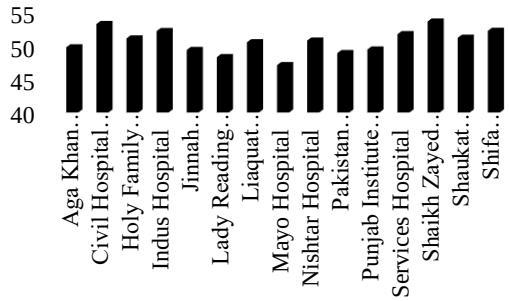
The healthcare analytics market in Pakistan is part of the broader global healthcare analytics industry, which is growing significantly. As of the latest reports, the global healthcare analytics market was valued at approximately USD 29 billion in 2023 and is projected to reach around USD 85.9 billion by 2032, growing at a compound annual growth rate (CAGR) of 12.1% during the forecast period from 2024 to 2032. In terms of per capita revenue, in Pakistan is estimated to generate PKR US$23.34 per person in 2024.

Dataset Analysis:

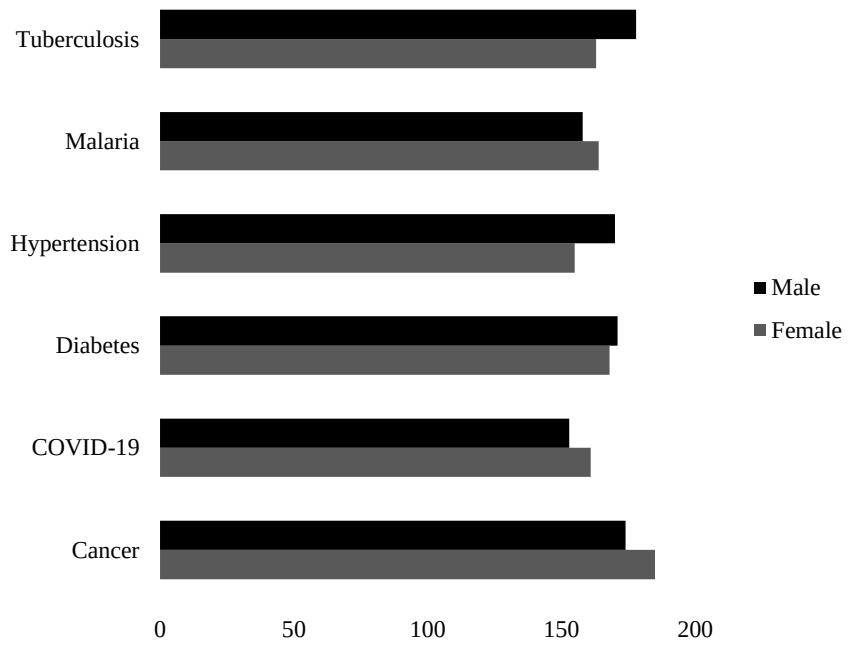
Distribution of patients across different hospitals:



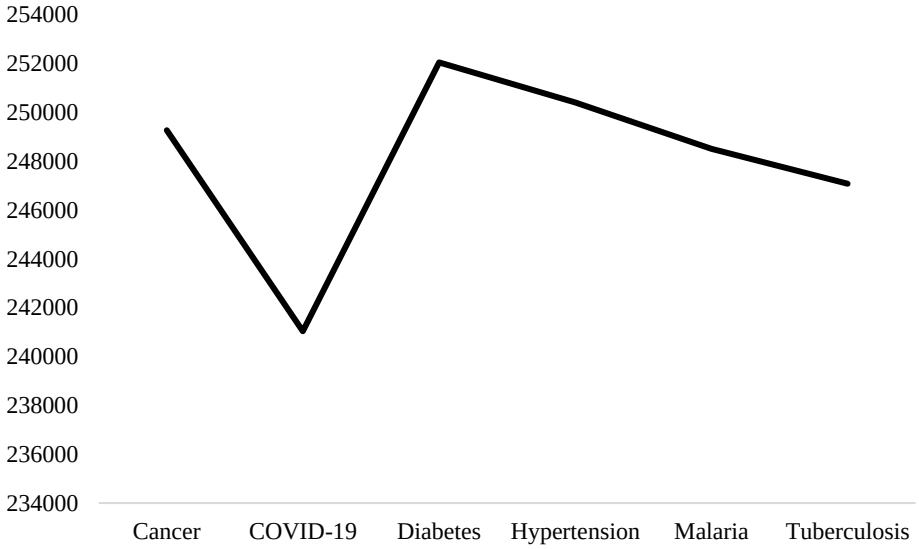
Age distribution of patients in each hospital:



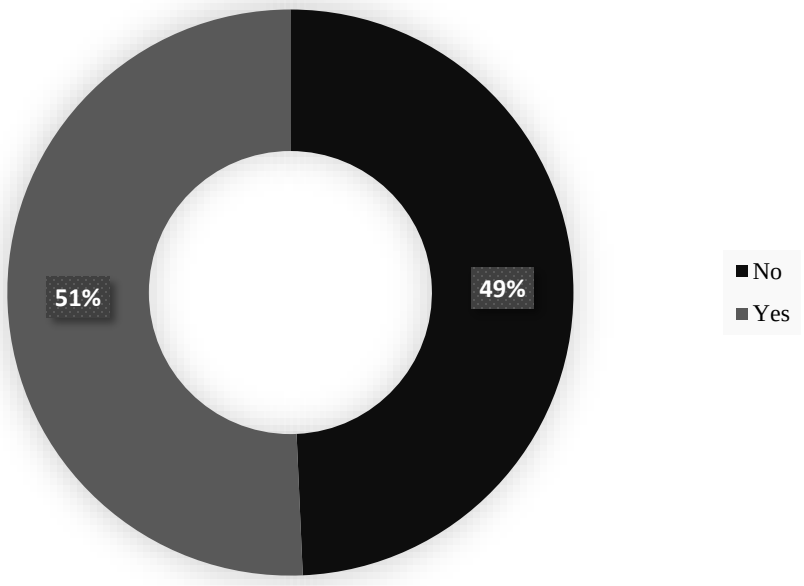
Gender ratio of patients for each diseases:



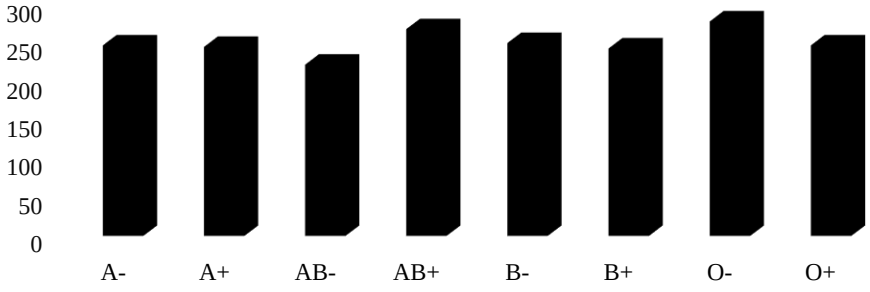
Average treatment cost for each disease:



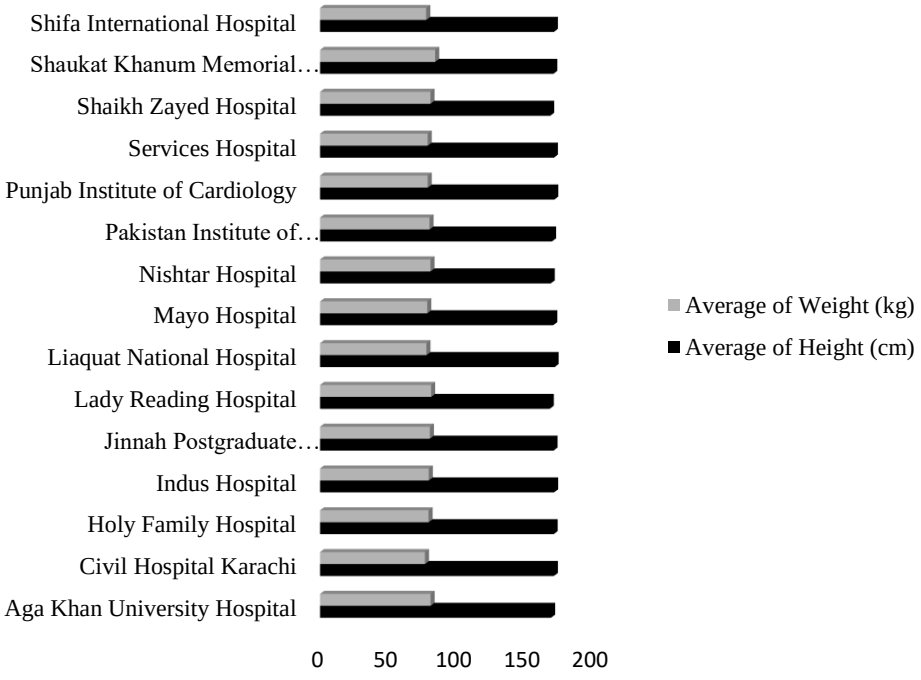
Percentage of patients that had insurance coverage:



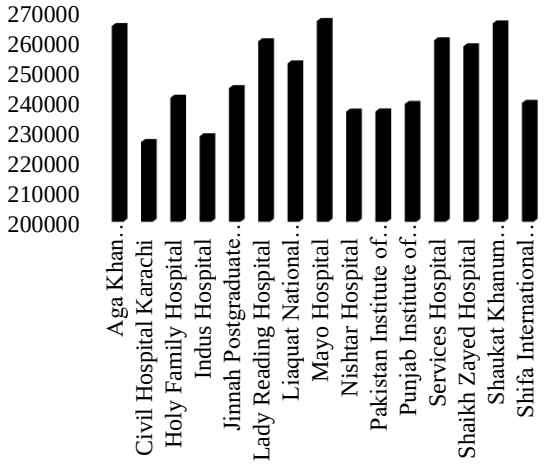
Distribution of blood groups among the patients:



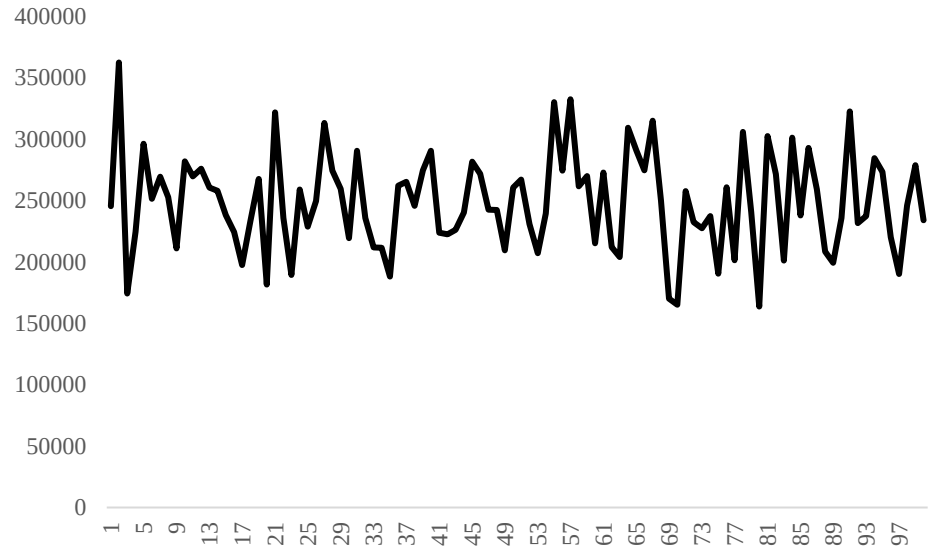
Average weight and height of patients in each hospital:



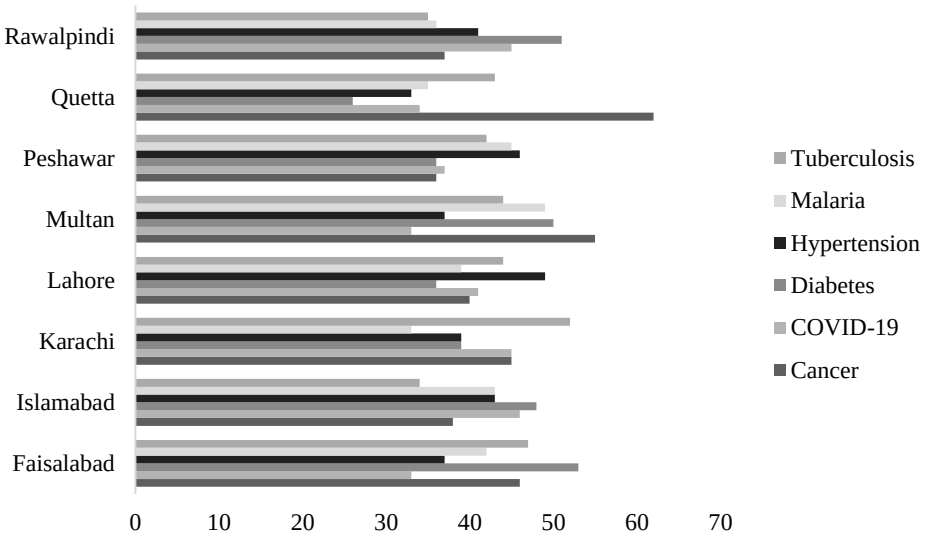
Average treatment cost across different hospitals:



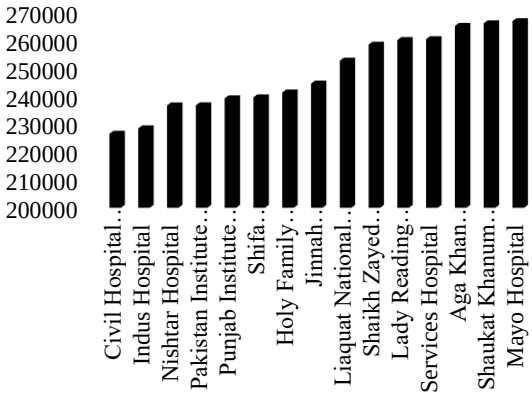
Correlation between the age of patients and treatment cost:



Most common disease in each city:



Hospital with average highest and lowest treatment cost:



Recommendations:

- **Resource Allocation**: Focus on hospitals with high patient counts to ensure they have adequate resources.
- **Cost Management**: Investigate reasons for high treatment costs in specific hospitals and diseases to implement cost-saving measures.
- **Insurance Policies**: Increase awareness and accessibility of insurance coverage to reduce the financial burden on patients.
- **Targeted Interventions**: Develop targeted healthcare programs for cities and age groups with specific disease prevalence.

Conclusion:

This analysis provides valuable insights into various aspects of healthcare in Pakistan. By understanding patient distribution, common diseases, demographic statistics, and treatment costs, healthcare providers can make informed decisions to improve patient care and optimize resource allocation.

The visualizations created using Excel charts and pivot tables effectively summarize the findings, making it easier to identify trends and areas that require attention.

By continuously analyzing healthcare data, stakeholders can drive improvements in the healthcare system, ensuring better patient outcomes and efficient use of resources.