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CS539-F23-F02

Dr. Sethi

Lab: Week 2: Dataset Research Question

Dataset: The dataset I chose is named Death rate from Diabetes, 1990 to 2019 found at Ourworldindata.org.

Description: The dataset provides information about the annual number of deaths specifically from diabetes per 100.000 people.

Purpose: This dataset offers a comprehensive view of factual data spanning 29 years and covers nearly every country worldwide. Stakeholders in this context may include governments, the healthcare sector, and citizens, all working together to address preventable diseases. It's important to note that the data is publicly available and comes from a reputable institution, the Institute for Health Metrics and Evaluation (IHME).

Meaningful question: Is there a significant correlation between the availability of healthcare resources and the prevalence of avoidable diseases across different countries, and how has this relationship evolved over the 29-year span covered by the dataset?

Why is it Useful or Impactful?

- Answering this question can have several important implications. It can help policymakers and healthcare professionals understand the relationship between healthcare resource allocation and disease prevention. Identifying any significant correlations can inform more targeted resource allocation strategies to combat avoidable diseases, potentially leading to better public health outcomes.

Data Collection Requirements:

To assess whether diabetes cases will increase or decrease in the future, the collection of fresh data is essential. This process may involve:

- Healthcare Resource Data: This dataset collects up-to-date information on healthcare infrastructure, facilities, and resources available in each country. This encompasses factors like the number of hospitals, clinics, healthcare professionals, and available medical equipment.
- Disease Prevalence Data: Gathering current data on the prevalence of avoidable diseases in different countries. This data includes disease rates, incidence, and outcomes.
- Long-Term Perspective: It's crucial for this data collection to span a substantial number of years. Health policies and their adoption by the population often require an extended period to show their effectiveness.

By following these data collection steps, we can better understand the future trends of diabetes cases and make informed decisions to address this health concern effectively.

How do you think this fresh data can be collected and how should you go about finding the answer to your question?

- To collect fresh data, we can follow the same approach as the IHME which involves gathering the necessary data on healthcare resources and disease prevalence for multiple countries, spanning multiple years. To find the answer to the question we can prepare similar charts and maps as the website OurworldData.org to interpret the data. Additionally, we can validate the findings by potentially using machine learning or modeling techniques to predict disease outcomes based on healthcare resource data.

Visualization: For this section, I utilized the map and charts available on OurWorldinData.org, which are based on a downloadable dataset found in the 'Download' section. The map's color intensity effectively highlights regions with higher case prevalence globally. Users seeking more detailed information can click on specific countries to explore data spanning from 1990 to 2019. This interactive map also facilitates comparisons of diabetes death rates between different countries.

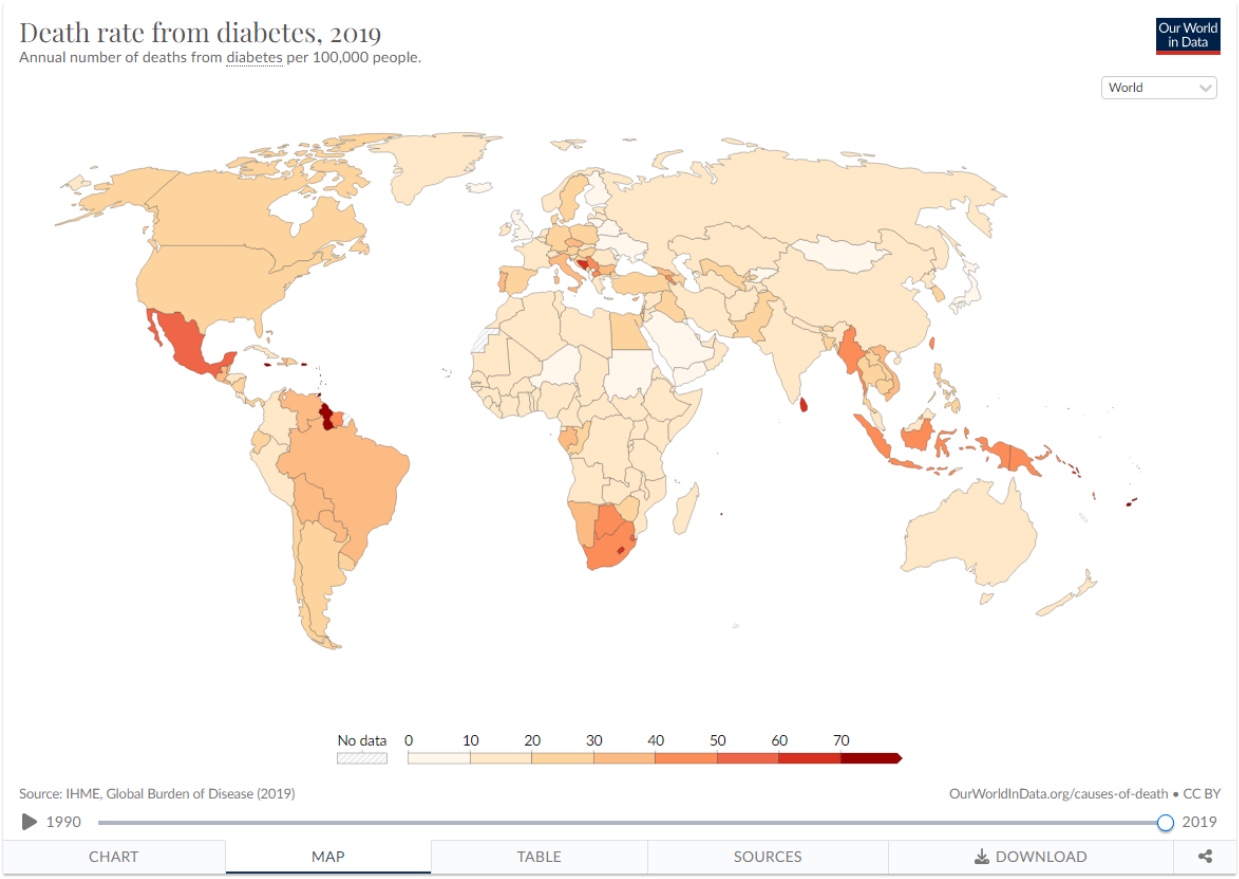

Figure 1. Map View Functionality

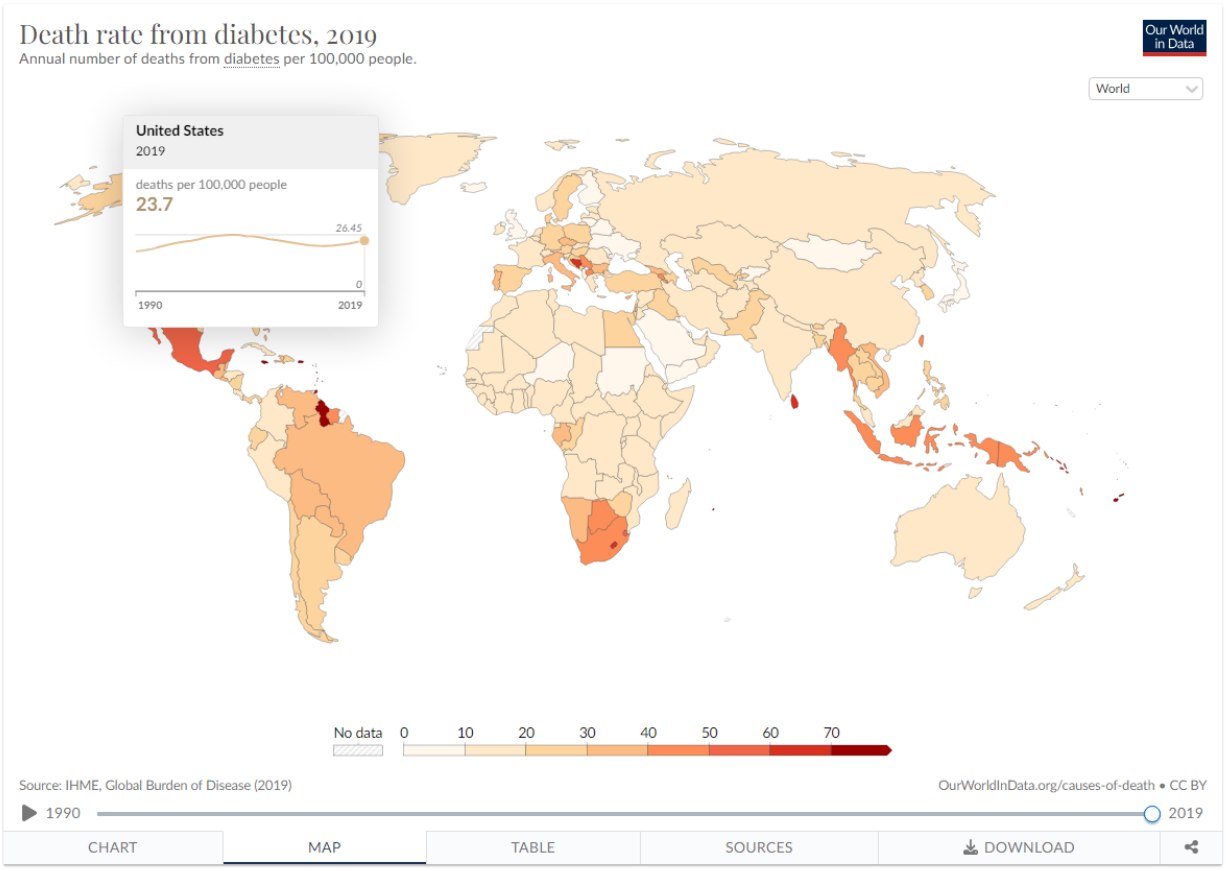

Figure 2. Map View Functionality - Mouse-hover effect

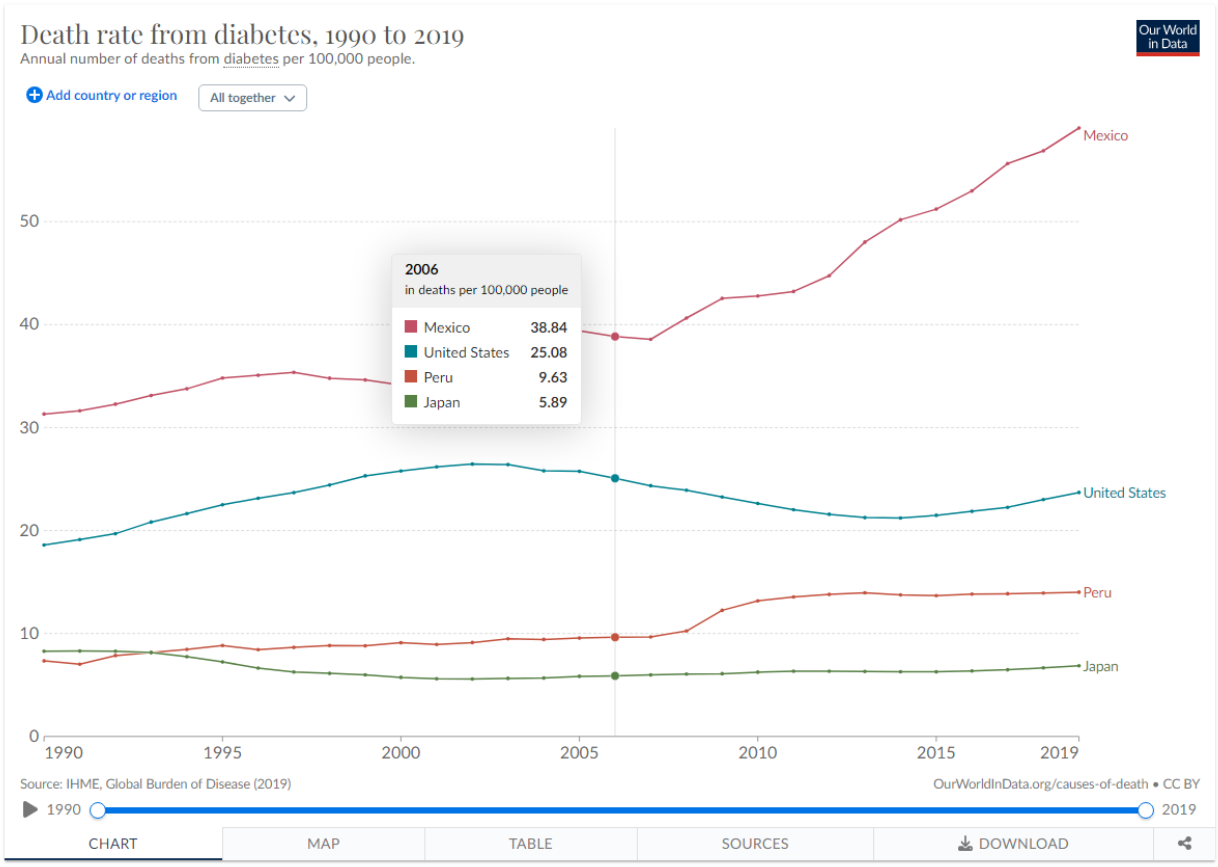

Figure 3. Chart functionality - Diabetes death cases countries comparison