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**HIV in Central Africa**

**Group 1**

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**June 23, 2023**

**INTRODUCTION**

Our group's primary area of focus is HIV data management in Central Africa. As defined by the United Nations, Central Africa comprises nine countries, namely Angola, Cameroon, the Central African Republic, Chad, Congo, the Democratic Republic of the Congo, Equatorial Guinea, Gabon, and Sao Tome & Principe.

We used open sources including WHO, World Bank, UNICEF, and global economic data to gather information for our report. Before uploading the dataset into MySQL, we ensured that it was cleaned and organized into CSV files. To import the cleaned files into MySQL, we followed a two-step process. First, we created a schema in MySQL to define the structure of the database. Then, we used the Table Data Import Wizard to import the data from the CSV files into the corresponding tables within the MySQL database.

**ANALYSIS:**

We created a schema named "hiv\_project" and imported two CSV files into MySQL. One CSV file, named "table1," contained HIV data, while the other, named "table2," contained information about countries. We modified the tables to align them with our specific analytical needs. This involved refining the structure and adjusting column attributes. By tailoring the tables to our requirements, we aimed to enhance the efficiency and effectiveness of our analysis.

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To perform our analysis, we joined “table1\_final” with “table2\_final” on Country and Year column. By combining these tables, we were able to calculate the estimated number of people living with HIV by dividing the number of HIV cases by the country's population.

**FINDINGS:**

**QUERY 1:**

Upon calculating the percentage of people living with HIV by country, our analysis revealed that the Democratic Republic of Congo had the lowest rate, estimated at 0.76%. Conversely, Equatorial Guinea exhibited the highest rate, with an estimated percentage of 3.49%.

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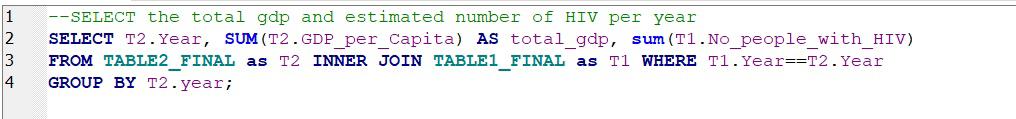
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**QUERY 2:**

From 2008 to 2017, both GDP and the number of people living with HIV in Central Africa shows some fluctuations, but there is no consistent trend of increase or decrease between the two.

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**QUERY 3:**

There appears to be an inverse relationship between the number of people living with HIV and the total number of deaths in Central Africa. There is a trend of an increase in the number of people living with HIV from 2008 to 2011, followed by a slight fluctuation and a decrease from 2013 to 201. In contrast, the total number of deaths due to HIV shows a consistent decrease throughout the entire period.

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**QUERY 4:**

In Central Africa, the percentage of pregnant women with HIV remained relatively stable from 2008 to 2009, followed by a gradual increase until 2016. Although there were fluctuations along the way, the overall trend showed an upward direction. However, there was a subsequent decline in this percentage from 2016 to 2017. In contrast, the mother-to-child transmission rate exhibited a consistent decline over the same period, with a steady trend observed from 2014 to 2017. The provided trend graph visually represents this information, where the red line represents the mother-to-child transmission rate, and the blue line represents the percentage of pregnant women with HIV.

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**QUERY 5:**

We did not find a direct relationship between the total number of people living with HIV and the unemployment rate in central Africa. The total number of people living with HIV shows some fluctuations over the years, ranging from 1708000 to 1766000. However, there is no clear increasing or decreasing pattern observed. In contrast, the total unemployment rate displays a varying trend over the same period. The rates range from 69% to 85.06%. The unemployment rate demonstrates both increases and decreases, with notable variations.

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**QUERY 6:**

There is an overall increasing trend in the number of women aged 15 and above living with HIV in Central Africa. The values show a gradual rise from 2008 to 2017, with some fluctuations but generally following an upward trajectory around 12.5%.

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**CONCLUSION**

1. **Percentage of People Living with HIV:** The overall percentage of people living with HIV was not adequately illustrated by the data, especially in terms of country-specific percentages from 2008 to 2017.
2. **HIV Prevalence by Country:** Significant variation in HIV prevalence is observed across countries in Central Africa, with Equatorial Guinea having the highest prevalence at ~3.5% and the Democratic Republic of the Congo the lowest at around 0.75%.
3. **Relationship between HIV Cases and GDP:** The relationship between HIV cases and GDP in Central Africa is complex, with an inverse pattern observed from 2008 to 2010, a slight decrease in GDP despite increased HIV cases in 2012-2013, highlighting the need for further investigation.
4. **HIV Mortality and Prevalence:** The number of deaths due to HIV decreased over the years, while the number of people living with HIV increased.
5. **Transmission Rate and HIV in Pregnant Women:** A decrease in the transmission rate was associated with an increase in the percentage of pregnant women with HIV.
6. **Unemployment Rate and HIV:** The unemployment rate in Central Africa fluctuated significantly, while the number of people living with HIV consistently increased. Although the unemployment rate varied slightly each year, the overall trend suggests a rise in the number of people living with HIV from 2008 to 2017.
7. **HIV Prevalence in Women:** The number of women aged 15 and above living with HIV in Central Africa increased significantly by approximately 12.5% from 2008 to 2017.

**HIV POLICY RECOMMENDATIONS**

1. **Strengthen HIV Prevention Strategies:** Implement comprehensive HIV prevention programs addressing sexual transmission, mother-to-child transmission, and transmission among key populations to effectively combat the spread of the virus.
2. **Address Socio-Economic Factors:** The visualization indicates that higher GDP is associated with lower HIV cases, suggesting the need for government focus on strengthening GDP to control and reduce HIV cases.
3. **Focus On Women and Maternal Health:** Governments should prioritize interventions targeting women, particularly in maternal health, as the number of pregnant women with HIV is significantly increasing over time; enhancing access to HIV testing, prevention, and treatment services is crucial.

References:

UNICEF. (2022). *Global and regional trends - UNICEF DATA*. UNICEF DATA. https://data.unicef.org/topic/hivaids/global-regional-trends/

‌ *Hiv/Aids | Data | DataBank*. (n.d.). Databank.worldbank.org. Retrieved June 23, 2023, from <https://databank.worldbank.org/databases/hiv/aids>

The Global Economy. (2023). *Global economy, world economy | TheGlobalEconomy.com*. TheGlobalEconomy.com. <https://www.theglobaleconomy.com/>

*GHO | By category | Number of people (all ages) living with HIV - Estimates by country*. (n.d.). WHO. https://apps.who.int/gho/data/view.main.22100?lang=en

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