WORLD BANK- HEALTH DATA

Group #32

Francisco Magalhães 20221883
Gonçalo Farinha 20221871
Martim Pires 20221939
Semen Sazonov 20221689

TABLE OF CONTENTS

INTRODUCTION

This report leverages World Bank health data to analyze global health trends using Power BI. Our analysis focuses on key health indicators, such as cancer mortality rates, maternal health expenditures, pollution impacts and many more.

We decided to divide the report starting with the methodologies and data treatment used, following with the measures, and moving on to the analysis of each of the 14 graphics and topics we chose conclusion references. Finally, we have a conclusion to summarize everything we presented on the report, along with a references page.

On the methodology section we detail our data extraction, cleaning, and transformation processes in Power BI, ensuring data consistency and integrity.

We present our findings through fourteen detailed visualizations, each highlighting important health issues and trends, such as the correlation between pollution and emissions, mental health in students, and the effectiveness of eHealth in Europe. The report concludes with implications for public health policies and future research directions, supported by comprehensive references.

With detailed graphic analysis, this report provides concise yet profound insights into health disparities and outcomes, aiding stakeholders in making informed decisions to improve global health.

METHODOLOGY AND DATA TREATMENT

This section details the methodologies used to extract and process health-related data from the World Bank for our analysis on Global Health trends and factors that influence it.

Firstly, we sourced health data in Excel (.xlsx) and CSV (.csv) formats from the World Bank's Open Data platform, focusing on indicators like cancer mortality, maternal health expenditures, and pollution effects on health.

Then, we refined the dataset by removing irrelevant columns and standardizing measurement units to ensure consistency. This included harmonizing country names and addressing missing values through interpolation.

We created conditional columns to calculate values per row, such as "Total Methane in %" Additionally, we converted some year fields into date format using the formula "= #date([Year], 1, 1).

To prepare the data for in-depth analysis, we performed several transformations in Power BI, detailed as follows:

1. **Initial Sorting and Merging:** Upon importing the data into Power BI, we organized the datasets by thematic categories such as healthcare expenditure, disease prevalence, and public health outcomes. We also merged tables to complete datasets and maintain reliable relationships with dimensional tables.

2. **Cleaning and Normalization:** We streamlined the datasets by removing duplicate columns and irrelevant data. Variations in country names were standardized using a uniform list of country names and ISO codes, aiding in accurate cross-dataset comparisons.

3. **Unpivoting and Reformating:** Data originally formatted with years as columns were transformed by unpivoting these into rows. This reformatting facilitated a more flexible analysis across a consistent timeline. The year data was also converted from text to a date format using Power BI's M language to enable more robust time-series analysis.

4. **Handling Irregularities:** We addressed anomalies such as repeated observations for the same country and year by removing duplicate rows. Additionally, some columns with percentages were standardized by adjusting their scales and data types to ensure uniformity and precision in calculations.

Now, with clean and structured data, we loaded the datasets into a relational model in Power BI:

1. **Dimensional Modeling:** Employing a star schema, we organized the data with dimension tables (e.g., countries, years) connected to fact tables containing health metrics. This structure optimized query performance and data retrieval.

2. **Dynamic Reporting:** We set up dynamic parameters in Power BI to manage the data seamlessly, allowing updates and reconfigurations as new data becomes available.

3. **Visualization and Accessibility:** The final step involved creating comprehensive dashboards and reports that provide actionable insights. These visualizations are also optimized for mobile platforms, ensuring accessibility and ease of use across different devices.

To conclude, our methodology facilitated a comprehensive analysis of global health trends, ensuring data integrity and usability through careful extraction, cleaning, and integration processes. This approach allows for robust insights into health disparities and outcomes derived from World Bank data.

MEASURES

MEASURES	MEANING WITHIN THE CONTEXT
% Cancer Deaths over Population = DIVIDE(SUM('Cancer Deaths By Type'[Value]), SUM(Mortality[Value]))	Cancer deaths ratio over the population, from 2000-2019
Africa to World Internet Usage Ratio = DIVIDE([Individuals Using Internet in Africa], [Individuals Using Internet])	Ratio between, the percentage of population using the internet in african country, over in the world, from 2000-2023
Agriculture Emissions = AVERAGE('Agriculture Emissions'[Agriculture, hunting, forestry])	Average agriculture emission in percentage (not taking in account lifestock emissions,) from 1995-2018
Air Pollution Exposure = DIVIDE(SUM('Development Indicators'[Air Pollution, mean annual exposure (micrograms per cubic meter)]), DISTINCTCOUNTNOBLANK('Development Indicators'[Air Pollution, mean annual exposure (micrograms per cubic meter)]))	Average air pollution exposure per cubic meter, from 2000-2023 (excluding the empty rows)
Average Gini Index = AVERAGE(Poverty[Gini index])	Average Gini Index, from 2000-2023
Cases Growth = SUMX(Coronavirus, DIVIDE(Coronavirus[Active Cases], Coronavirus[Cumulative Total Cases]))	Coronavirus cases growth rate, from 2000-2023
CO2 Fuel Consumption = DIVIDE(SUM('Development Indicators'[CO2 emissions fuel consumption (% of total)]), DISTINCTCOUNTNOBLANK('Development Indicators'[CO2 emissions fuel consumption (% of total)]))	Average CO2 fuel consuption by percentage of the total value (excluding the empty rows), from 2000-2023
Energy Methane Emissions = SUM('Development Indicators'[Methane emissions (kt of CO2 equivalent)])	Cumulative sum of the methane emissions by kt of the CO2 equivelent, from 2000-2023
EU Health Expenditure = DIVIDE(SUM('EU Health Expenditure'[Value]), DISTINCTCOUNTNOBLANK('EU Health Expenditure'[Value]))	Average health expenditure from European Countries (excluding the empty rows), from 2000-2023
GPA Difference Mental Health = CALCULATE(AVERAGE('Student Mental health'[AVG CGPA]), 'Student Mental health'[Depressed] = 1 || 'Student Mental health'[Anxious] = 1 || 'Student Mental health'[Panic Attacks] = 1) - CALCULATE(AVERAGE('Student Mental health'[AVG CGPA]), 'Student Mental health'[Depressed] = 0 && 'Student Mental health'[Anxious] = 0 && 'Student Mental health'[Panic Attacks] = 0)	GPA difference between students with and without any mental problems (depression, anxiety and panic attacks), from 2023
Health Expenditure = DIVIDE(MAX('Health Expediture'[Value]), 100)	Max value health -expenditure in percentage, from 2000-2023
Health Workforce = VAR CurrentYear = SUM('Health Workforce'[Value]) VAR PreviousYear1 = CALCULATE(SUM('Health Workforce'[Value]), DATEADD('Year Date Table'[Date], -1, YEAR)) RETURN IF(ISBLANK(CurrentYear), PreviousYear1, CurrentYear)	Health workforce, filling the empty rows of the current year, from 2000-2023
Healthcare Workforce Growth = DIVIDE([Health Workforce] - [Previous Year Health Workforce], [Previous Year Health Workforce])	Health workforce growth in percentage, from 2000-2023
Individuals seeking eHealth % = DIVIDE(DIVIDE(SUM('Individuals Seek Health Information Online'[Value]), DISTINCTCOUNTNOBLANK('Individuals Seek Health Information Online'[Value])), 100)	Average value of individuals seeking ehealth in percentage (excluding the empty rows), from 2003-2019
Individuals Using Internet = DIVIDE(AVERAGE('Individuals Using Internet'[Value]), 100)	Average of individuals using internet, in the last 3 months in percentage of the total population, from 1960-2023
Individuals Using Internet in Africa = CALCULATE([Individuals Using Internet], 'Countries by continents'[Continent] = "Africa")	Average of individuals using internet, in the last 3 months in percentage of the total population, in african countries, from 1960-2024
Inflation Index = VAR CurrentYear = SUM('GDP Index'[Value]) VAR PreviousYear1 = CALCULATE(SUM('GDP Index'[Value]), DATEADD('Year Date Table'[Date], -1, YEAR)) RETURN IF(ISBLANK(CurrentYear), PreviousYear1, CurrentYear)	Inflation index, filling the empty rows of the current year, from 2000-2023
Inflation Index Growth = DIVIDE([Inflation Index] - [Previous Year Inflation Index], [Previous Year Inflation Index])	Inflation index growth rate, from 2000-2023
Living in Slums % population = DIVIDE(AVERAGE(Poverty[Population living in slums (% of urban population)]), 100)	Average of people living in slums in percentage of the total urban population, from 2000-2023
Married Students = CALCULATE(COUNTROWS('Student Mental health'), 'Student Mental health'[Marital status] = 1)	Number of students that are married, from 2023
Maternal Death to Birth Ratio = DIVIDE(SUM('Maternal Deaths'[Value]), SUM('Births per Woman'[Value]))	Ratio between, the total maternal deaths, over max value ratio of births per woman, from 2000-2023
Max Birth per Woman = MAX('Births per Woman'[Value])	Max value of the ratio of births per woman, from 2000-2023
Mortality Air Pollution = SUM('Development Indicators'[Mortality Air Pollution (per 100000 population)])	Total number of mortalities caused by air pollution per 100000 people of the total population, from 2000-2023
Mortality Unsafe Water = SUM('Development Indicators'[Mortality Unsafe Water (per 100,000 population)])	Total number of mortalities caused by unsafe water per 100000 people of the total population, from 2000-2023

Mortality Population Ratio = DIVIDE(SUM(Mortality[Value]), SUM(Population[Value]))	Ratio between, the total mortalities, over the total population
Multidimensional Poverty % population = DIVIDE(AVERAGE(Poverty[Multidimensional poverty headcount ratio (% of population)]), 100)	Average value of the multidimensional poverty in percentage of the population, from 2000-2023
Online Prescription = DIVIDE(DIVIDE(SUM('Eletronic Prescriptions'[Value]), DISTINCTCOUNTNOBLANK('Eletronic Prescriptions'[Value])), 100)	Average value of online prescription (excluding the empty rows), from 2013
Health Workforce = VAR CurrentYear = SUM('Health Workforce'[Value]) VAR PreviousYear1 = CALCULATE(SUM('Health Workforce'[Value]), DATEADD('Year Date Table'[Date], -1, YEAR)) RETURN IF(ISBLANK(PreviousYear1), CurrentYear, PreviousYear1)	Health workforce, filling the empty rows of the previous year, from 2000-2023
Inflation Index = VAR CurrentYear = SUM('GDP Index'[Value]) VAR PreviousYear1 = CALCULATE(SUM('GDP Index'[Value]), DATEADD('Year Date Table'[Date], -1, YEAR)) RETURN IF(ISBLANK(PreviousYear1), CurrentYear, PreviousYear1)	Inflation index, filling the empty rows of the previous year, from 2000-2023
Seek Treatment = CALCULATE(COUNTROWS('Student Mental health'), ('Student Mental health'[Panic Attacks] = 1 || 'Student Mental health'[Depressed] = 1 || 'Student Mental health'[Anxious] = 1) && 'Student Mental health'[Treatment]= 1)	Number of students that seek mental health treatments, from 2023
Social Expenditure = DIVIDE(AVERAGE('Social Expenditure'[Total]), 100)	Average social expenditure from European Countries (excluding the empty rows), from 2000-2023
Students Failed Year = CALCULATE(COUNTROWS('Student Mental Health'), NOT (('Student Mental Health'[Year of Study] = "year 1" && 'Student Mental Health'[Age] IN {18, 19}) || ('Student Mental Health'[Year of Study] = "year 2" && 'Student Mental Health'[Age] IN {19, 20}) || ('Student Mental Health'[Year of Study] = "year 3" && 'Student Mental Health'[Age] IN {20, 21}) || ('Student Mental Health'[Year of Study] = "year 4" && 'Student Mental Health'[Age] IN{21, 22})))	Number of students that are at leats one year behind in university, from 2023
Sum of Cancer Deaths = SUM('Cancer Deaths By Type'[Value])	Total value of cancer related mortalities, from 200-2023
Total Methane ratio in % = DIVIDE(SUM('Development Indicators'[Total Methane in %]), 100)	Total ratio of methane in percentage, from 2000-2023
Unemployment = AVERAGE(Unemployment[Unemployment, total (% of total labor force) (national estimate)])	Average value of unemployed people in percentage of the total labor force, from 2000-2023

POWER BI GRAPHICS ANALYSIS

- ### Global Cancer Mortality

This analysis examines the global cancer mortality trends, emphasizing the significantly higher cancer mortality rates in China. According to the data visualized through various charts, China leads globally in the number of cancer deaths. The types of cancer most prevalent in China include lung, stomach, liver, and breast cancer. This visualization highlights the diversity and volume of cancer cases in the country compared to others such as India and Russia, which also have large populations but show fewer cancer deaths.

The line graph detailing cancer mortality growth from 2000 to 2020 indicates a steady increase in deaths globally, underscoring a rising health challenge worldwide. However, the situation in China is particularly concerning, with a potential link suggested between environmental exposure to nuclear testing at sites like Top Nor and the high incidence of cancer.

This link is speculative and necessitates further scientific investigation to establish a definitive cause-and-effect relationship, although the evidence has shown that it is the most likely cause.

- **Pollution Exposure, Emissions, and Consumptions**

The main goal of this section was to study the relationship between air pollution exposure and greenhouse gas emissions, focusing on CO2 fuel consumption and methane emissions across different continents.

The scatter plot shows that North America and Asia, regions with high levels of air pollution exposure, correspondingly report high rates of CO2 and methane emissions. This suggests a significant environmental impact from their industrial and energy activities. In contrast, Europe and South America, which are exposed to lower levels of air pollution, exhibit considerably lower emissions, potentially indicating more effective pollution control measures or differing energy usage patterns.

Africa, despite experiencing high pollution exposure, has the lowest CO2 fuel consumption among the continents analyzed. This indicates a disparity in the types of pollutants or the sources of pollution affecting the region.

This analysis highlights the importance of strategic policy implementation to address pollution and emission rates effectively, particularly in North America and Asia, where the data shows the greatest environmental impact.

Data sources include the World Development Indicators, although it should be noted that data completeness varies by region, with some potential gaps especially in regions with less robust environmental monitoring infrastructures.

- **Health Expenditure in Maternal Deaths Context**

This part delves into the correlation between maternal mortality ratios and health expenditure across various countries, with data spanning from 2000 to 2012. We decided to use a bar and line graph to better exemplify maternal death to birth ratios alongside health expenditure as a percentage of GDP.

The data shows significant disparities in maternal mortality rates among countries, with India and Nigeria displaying particularly high rates. These high mortality rates correlate with their lower health expenditure, highlighting the impact of healthcare funding and socio-economic conditions on maternal health outcomes.

In countries like India, there is a noted gradual improvement in health expenditure over the years, which corresponds with a slow but observable reduction in maternal mortality ratios. However, the graph suggests that there are still substantial gaps in healthcare infrastructure and maternal services, which are critical in determining maternal health outcomes.

It's crucial to point out that despite some progress, the health expenditure levels in many of these countries remain low, underscoring the need for targeted health policies and enhanced maternal care practices. It is also suggested that increasing health expenditure alone may not be sufficient; a holistic approach involving improvements in healthcare infrastructure and access to services is also vital for reducing maternal mortality rates.

This analysis is based on data from the World Bank's Health Nutrition and Population Statistics, which includes notes on potential limitations such as reporting variances and discrepancies in healthcare access across different regions. This emphasizes the need for continuous monitoring and targeted interventions to improve maternal health globally.

- **eHealth in the European Context**

We studied the implementation and impact of online prescriptions within the European healthcare context, examining the correlation between digital health adoption and healthcare expenditure across various European countries from 2011 to 2019.

The provided visuals, include a map and a combined bar and line graph, highlight the varying levels of online prescription usage and the percentage of individuals seeking eHealth solutions across Europe. Countries like Estonia and Denmark exhibit a high utilization of online prescriptions without correspondingly high healthcare expenditures, suggesting that online prescriptions may lead to more efficient healthcare spending.

The data indicates a significant trend towards digital engagement in healthcare, as online prescription use correlates with controlled healthcare spending in several countries. Despite the variability in online prescription rates, the percentage of individuals seeking health information online remains relatively consistent, underscoring a uniform level of digital health literacy across the continent.

Furthermore, the analysis hints at a broader adoption of digital health solutions potentially leading to more controlled and efficient healthcare expenditure across Europe. However, it's important to note that these trends can vary due to national policies, technological infrastructure, and public health priorities, which might affect the direct correlation between digital health engagement and healthcare spending.

The sources of the data include the EU Data Agenda and Eurostat, ensuring a reliable basis for this analysis, though there might be also potential variations due to differing national healthcare strategies. This insight is crucial for policymakers and healthcare providers aiming to optimize healthcare delivery through digital platforms in Europe.

- **Social Expenditure and Living Quality**

This section studies the impact of social expenditure on living conditions across various countries, focusing particularly on the percentage of the population living in slums as a metric for assessing living quality.

The data reveals a significant variation in slum residency rates. For instance, South Sudan has an exceptionally high percentage of its population living in slums, estimated at 97%, which correlates with issues such as political instability and insufficient urban planning. In contrast, Azerbaijan, with the highest social expenditure in its region at 36%, shows a considerably lower percentage of its population living in slums, highlighting how increased social spending can potentially improve living conditions.

Georgia, leading with a social expenditure rate of 9.27%, also suggests a potential link between increased government spending on social services and improved living conditions. This trend is evident across several other countries listed, showing that higher social expenditures often correspond with better urban living standards.

The source of the data, DataBank World Development Indicators, provides a robust basis for analysis but acknowledges potential limitations in reporting.

In conclusion, the data suggests that increased social spending is generally associated with better living conditions. However, the effectiveness of this spending can vary significantly depending on other factors such as governance, urban planning, and socio-economic stability. The relationship between social expenditure and quality of living underscores the importance of holistic approaches to policy-making that consider a wide range of socio-economic and political factors.

- **Students Mental Health in the Academic Performance**

The main goal of this metric is to understand the impact of mental health on academic success across various disciplines, highlighting the relationship between students' mental health issues and their academic performance. Using data visualized through a bar graph, we show the GPA differences attributable to mental health by course and year of study.

The graph demonstrates that fields such as Psychology and Human Resources show positive GPA differences, indicating that students with mental health issues in these areas might receive better support or develop effective coping mechanisms. These disciplines likely offer environments that are more understanding of or equipped to deal with mental health challenges, leading to higher academic performance among affected students.

Conversely, more demanding programs like Engineering and Law exhibit negative GPA differences. This suggests that mental health challenges significantly impact academic performance in rigorous environments where there may be less support or higher stress levels.

Additionally, the statistics provided—6 students seeking treatment, 16 married students, and 64 students who failed the year—offer a glimpse into the diverse conditions and personal situations that can influence academic outcomes related to mental health.

The conclusion drawn from the analysis is that the academic success of students with mental health issues varies significantly across disciplines. It highlights the crucial role of support systems within academic programs in addressing these issues. The need for targeted interventions and resources to support students facing mental health challenges in more demanding academic environments becomes evident.

- **Unemployment Effects on Gini Index**

This is an analysis of the link between unemployment rates and income inequality across various countries, as reflected in the Gini Index. The analysis, based on comparative bar charts of unemployment and Gini Index values, suggests that higher unemployment correlates with greater income inequality.

Countries like South Africa and Namibia, with high unemployment, exhibit high Gini Index values, indicating significant income disparities influenced by structural inequalities. In contrast, some European nations with developed welfare systems show lower Gini Index values, highlighting the mitigating effect of strong social safety nets on inequality.

Unemployment not only impacts those out of work but also contributes to wealth concentration among the employed, exacerbating income inequality. This underscores the need for effective employment and social welfare strategies to address and reduce these disparities.

Overall, the relationship between unemployment and income inequality emphasizes the importance of comprehensive economic and social policies aimed at ensuring more equitable income distribution. The DataBank World Development Indicators provide a robust foundation for these observations, though they also note the influence of historical and structural factors.

- **Health Workforce Impact**

This analysis examines the relationship between the health workforce size and mortality rates, alongside trends in healthcare workforce growth from 2010 to 2024.

The data illustrates that larger health workforces do not necessarily correlate with lower mortality rates, indicating the importance of other factors like healthcare quality and public policies. The graph showing workforce trends highlights significant fluctuations, particularly a sharp decline in 2020 due to the COVID-19 pandemic and a subsequent recovery.

It is proven that while a substantial health workforce is vital, the effectiveness of healthcare systems also relies on quality services and robust public health strategies. It is suggested that comprehensive healthcare policies are crucial for improving health outcomes, beyond merely increasing workforce numbers.

- **Poverty Influences Mortalities**

This section studies the impact of poverty on mortality rates worldwide, utilizing a bar chart of mortality rates by country and a global map of multidimensional poverty. The data indicates a strong correlation between high poverty levels and increased mortality rates, particularly in African countries.

The map showcases varying degrees of multidimensional poverty, with Africa displaying the highest percentages, significantly affecting health outcomes and access to medical care. These factors contribute to higher mortality rates, underscoring the link between economic hardship and health disparities.

In conclusion, the visuals highlight that regions with higher poverty levels, such as Africa, often experience weaker health infrastructure and poorer health outcomes, leading to higher mortality rates. This relationship suggests the critical need for targeted health interventions and poverty alleviation strategies to improve health outcomes in the most affected regions.

- **Global Coronavirus Cases**

This topic examines the trends in coronavirus case growth across various countries, analyzing the effectiveness of pandemic responses. The bar graph shows both increases and decreases in case numbers over time, indicating how different countries have managed the pandemic.

Notably, Mongolia and Yemen experienced significant spikes in case numbers, reflecting challenges in containment efforts. Conversely, Croatia and Switzerland displayed minimal growth, suggesting effective management strategies. Countries like the Philippines and Slovenia saw increases in later years, possibly due to relaxed restrictions or the emergence of new virus variants.

European countries generally show stable or low growth, demonstrating consistent virus management. However, some Asian countries experienced fluctuations, with intermittent spikes in cases, highlighting the challenges posed by periodic outbreaks and varying control measures.

In conclusion, the data illustrates a mixed global response to COVID-19, underscoring the importance of adaptive health policies and the dynamic nature of pandemic management.

- **Mortalities Air Pollution and Unsafe Water**

This section assesses the comparative impact of air pollution and unsafe water on mortality rates across various countries from 2000 to 2023. The analysis reveals that air pollution consistently results in higher mortality rates than unsafe water, particularly highlighting the severe effects in the Central African Republic with a maximum cumulative mortality of 305.10 from air pollution, compared to 108 from unsafe water in Lesotho.

The data underscores air pollution as a more significant health threat than unsafe water, indicating the critical influence of industrial development and urban air quality on public health. Countries experiencing high air pollution mortality rates necessitate urgent implementation of stricter air quality control measures and public health interventions.

In conclusion, the stark disparity in mortality rates caused by air pollution versus unsafe water confirms the need for enhanced environmental policies and public health strategies, focusing primarily on mitigating air pollution to reduce its severe health impacts.

- **Methane Emission Along Two Decades**

The following metric analyzes global methane emissions from agriculture over two decades, highlighting Brazil's leading role and the variable trends in other major countries like China, the United States, and India. The data, presented in spider charts for 2000, 2010, and 2020, alongside a bar chart of agricultural emissions, illustrates Brazil's consistently high emissions levels throughout the period, largely due to its extensive agricultural activities, particularly livestock farming.

The comparison among countries shows varying methane emission levels, reflecting different agricultural practices and the impact of national environmental policies over the years. For example, while Brazil shows persistent high emissions, other countries like the United States and China exhibit fluctuations that may correspond to changes in agricultural practices or policy implementations.

In conclusion, the analysis underlines the significant impact of agricultural type and scale on methane emissions. Brazil's example highlights the environmental challenges of large-scale livestock operations, emphasizing the need for sustainable practices and policies to mitigate such emissions effectively.

- **European Inflation Index Trends**

This visualizationation reviews inflation trends across European countries from 2000 to 2020, using line graphs to depict individual country trends and a composite view of world inflation growth. The data highlights notable variations in inflation rates, with countries like Romania and the United Kingdom exhibiting significant increases, likely influenced by economic policies, Brexit implications, and market sentiments.

The analysis reveals that inflation rates in countries like Switzerland and Sweden remained relatively stable, while others such as Ukraine experienced more pronounced fluctuations due to economic challenges and geopolitical situations. These disparities underscore the impact of national economic policies, global economic events like the financial crisis, and Eurozone debt crises on inflation dynamics.

In conclusion, the trends indicate a clear correlation between economic policies, global events, and inflation rates in Europe, illustrating how political and economic decisions significantly influence inflation volatility across the region.

- **Individuals Using Internet in Africa**

This final metric examines the growth of internet usage in Africa over the past two decades and compares it to global trends, highlighting the continent's progress in bridging the digital divide. The data shows a steady increase in the number of individuals using the internet across various African countries, with Seychelles, Morocco, and Tunisia leading in internet penetration.

The line graph demonstrates the overall increase in internet usage in Africa and how it compares with the global average. The trend shows a narrowing gap between Africa and the rest of the world, reflecting significant improvements in telecommunications infrastructure and mobile technology across the continent.

Despite initial challenges related to infrastructure and economic barriers, African countries have made considerable progress in digital inclusion. This ongoing development is crucial for integrating Africa more fully into the global digital landscape, offering enhanced opportunities for economic and social advancements through increased connectivity.

CONCLUSION

This report has methodically examined a range of global health indicators to provide a comprehensive overview of significant health trends impacting various regions around the world. From exploring the correlations between environmental factors such as air pollution and health outcomes to assessing the economic impacts of unemployment on income equality, our analysis underscores the intricate relationships between health, environment, and socioeconomic factors.

Our findings reveal that challenges such as internet access in Africa and methane emissions from agriculture are influenced by a complex mix of infrastructural development, policy implementation, and technological advancements. These issues not only affect health outcomes but also reflect broader societal and economic dynamics that can extend beyond national borders.

With the help of PowerBI, the visualizations presented in this report have illustrated both progress and ongoing challenges. For instance, while there has been substantial growth in internet connectivity in Africa, bridging the digital divide remains a work in progress. Similarly, despite advancements in healthcare infrastructure globally, disparities in health outcomes persist, necessitating targeted interventions and sustained policy efforts.

In conclusion, this report highlights the necessity for integrated and adaptive approaches to health policy and planning. It advocates for continued investment in health research and infrastructure, emphasizing the importance of data-driven decisions to enhance health outcomes globally. As we move forward, it will be essential to maintain a focus on equitable health improvements, ensuring that advancements are inclusive and benefit all segments of society. This strategic approach will be crucial in navigating the complexities of global health and in forging pathways towards sustainable health improvements worldwide.

REFERENCES

- World Bank. (2024). World development indicators. Retrieved from https://databank.worldbank.org/source/world-development-indicators
- Shariful. Student mental health [Data set]. Kaggle. Retrieved from https://www.kaggle.com/datasets/shariful07/student-mental-health
- OECD. (2023). OECD health statistics 2023 [Data set]. Retrieved from https://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_STAT
- Devskp. COVID-19 dataset [Data set]. Kaggle. Retrieved from https://www.kaggle.com/datasets/imdevskp/corona-virus-report
- ITU (International Telecommunication Union). World telecommunication/ICT indicators database.
- Kaggle - Cancer and Deaths Dataset: 1990~2019 Globally, Nuclear Test SitesMF International Financial Statistics
- International Monetary Fund. International financial statistics.
- International Monetary Fund.Climate change indicators dashboard.
- World Bank. (2023). Health, nutrition and population statistics. Retrieved from https://databank.worldbank.org/source/health-nutrition-and-population-statistics