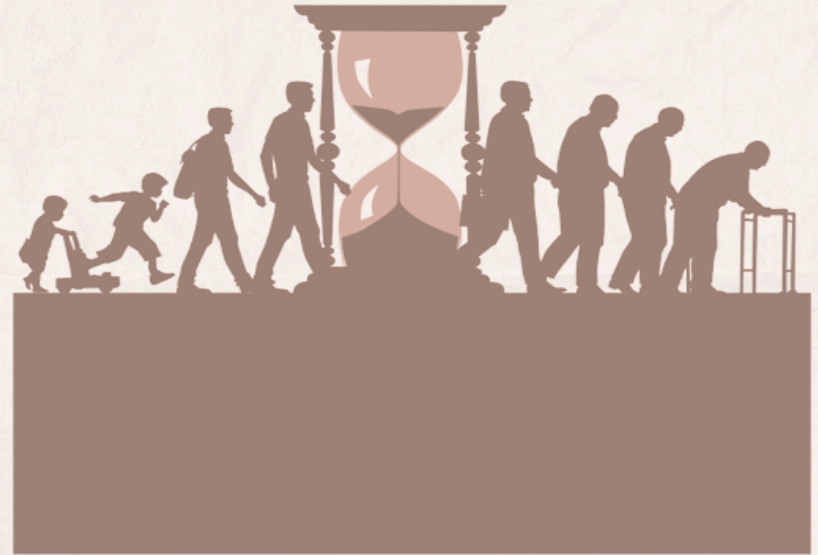


# Beyond the Numbers:

Investigating the Drivers of Life Expectancy Across the World

Rosemary Espinal



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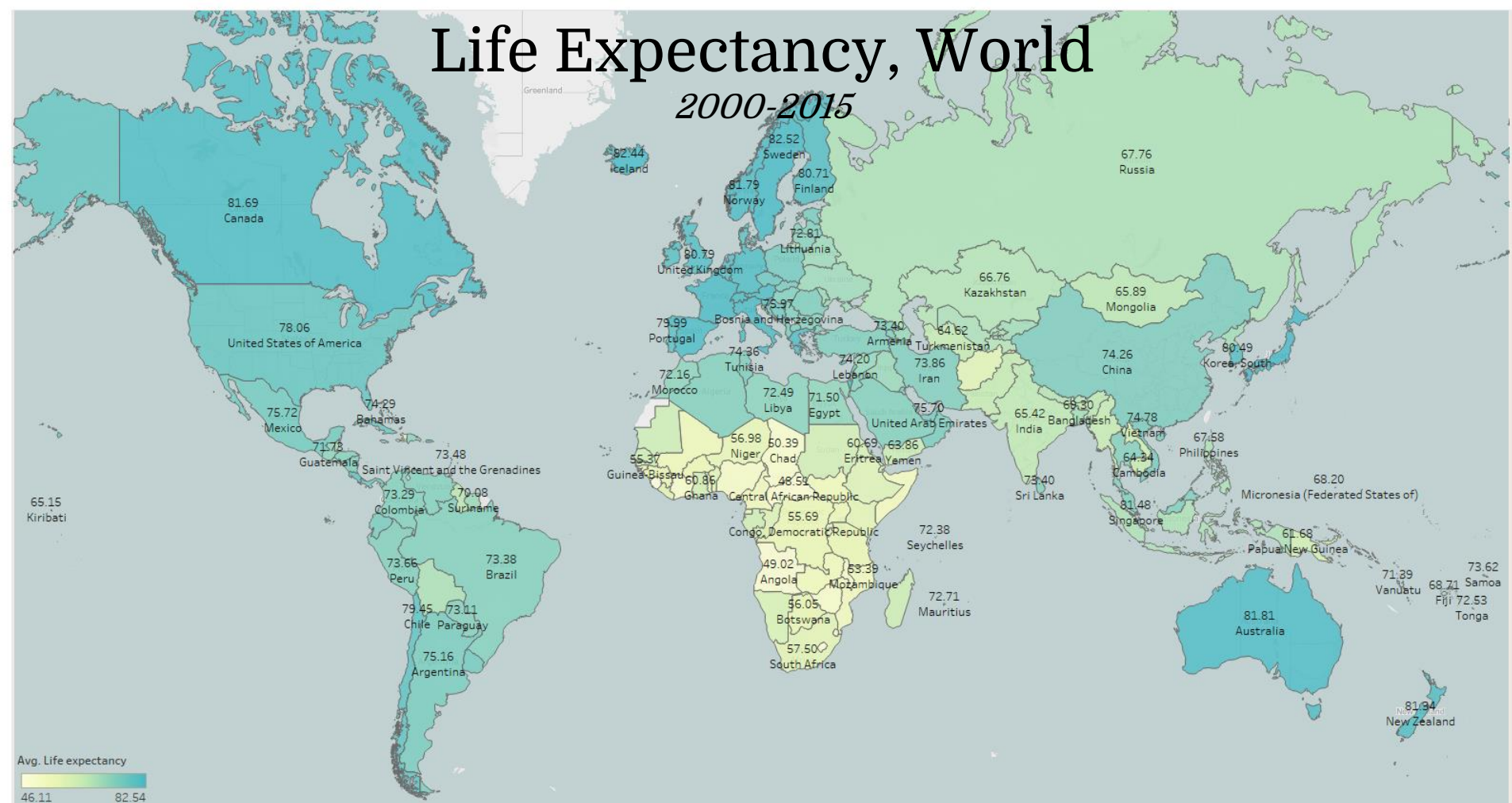
01

# Introduction & Global Overview

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# Life Expectancy, World

## 2000-2015

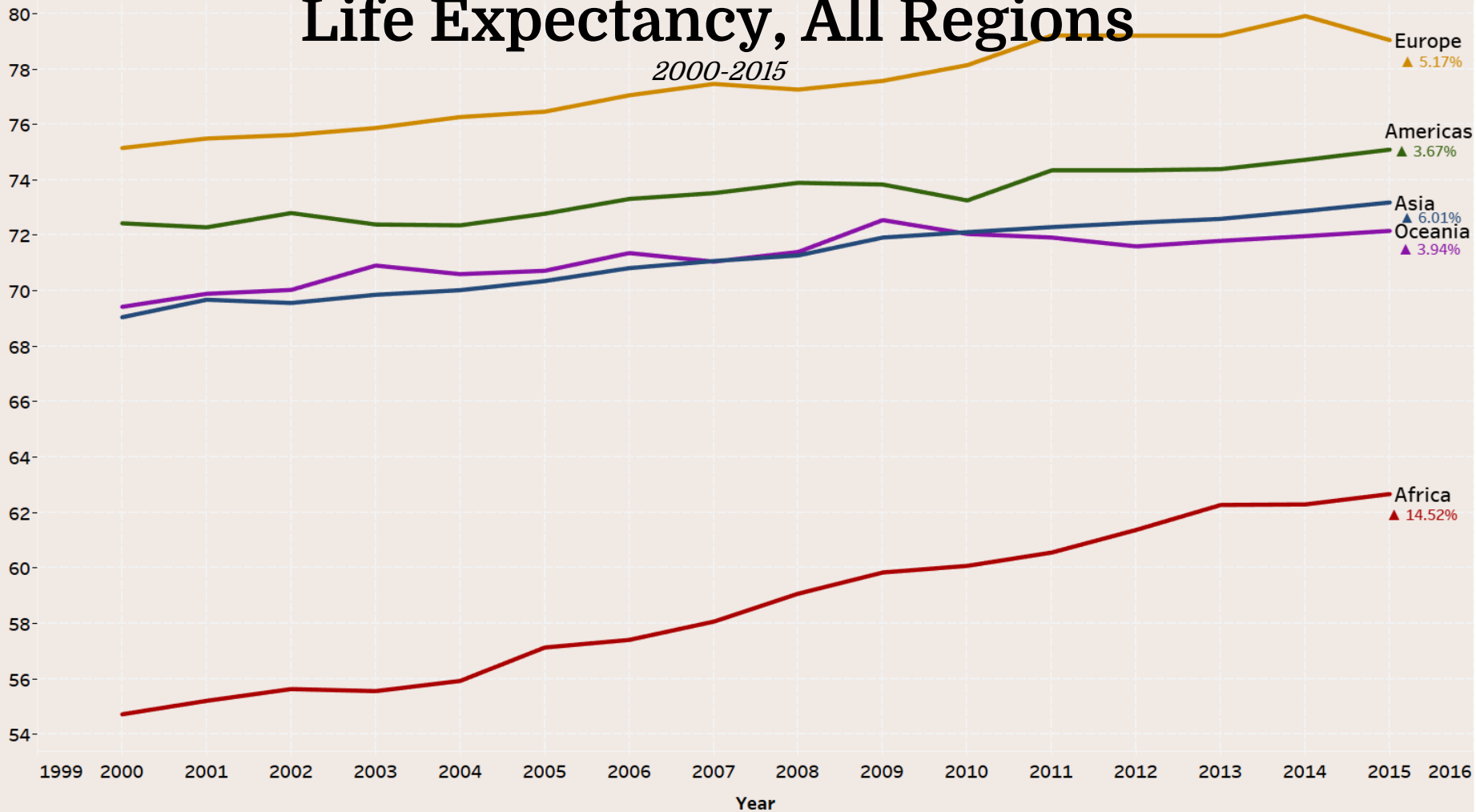


Avg. Life expectancy  
46.11 82.54

# Life Expectancy, All Regions

2000-2015

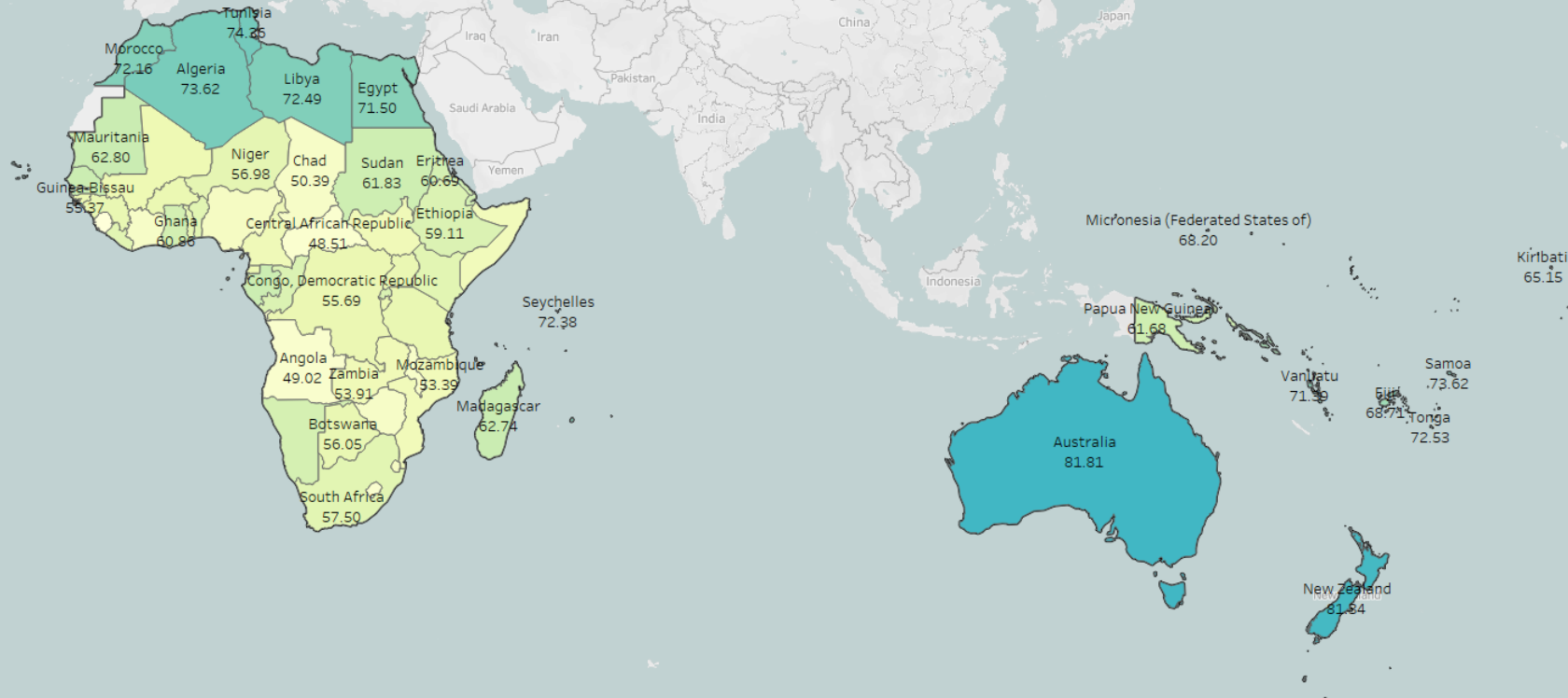
Avg. Life expectancy





# Life Expectancy, Africa & Oceania

## 2000-2015



Avg. Life expectancy

46.11 81.81

Region

# Life Expectancy, Sub-Regions

2000-2015

Africa

Avg. Life expectancy

Northern Africa  
Avg. 14 Year Difference!  
Sub-Saharan Africa

Americas

Avg. Life expectancy

Northern America  
Avg. 7 year difference  
Latin America and the Caribbean

Asia

Avg. Life expectancy

Eastern Asia  
Avg. 7 year difference  
Central Asia

Europe

Avg. Life expectancy

Western Europe  
Avg. 9 year difference!  
Eastern Europe

Oceania

Avg. Life expectancy

Australia and New Zealand  
Avg. 15 Year Difference!  
Polynesia  
Melanesia  
Micronesia

Year

1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

02

# Correlation Analysis

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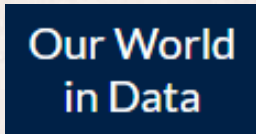
# Variables in the Dataset:

## Datasets Used for this Analysis:



Life Expectancy (WHO)

<https://www.kaggle.com/datasets/kumarajarshi/life-expectancy-who>



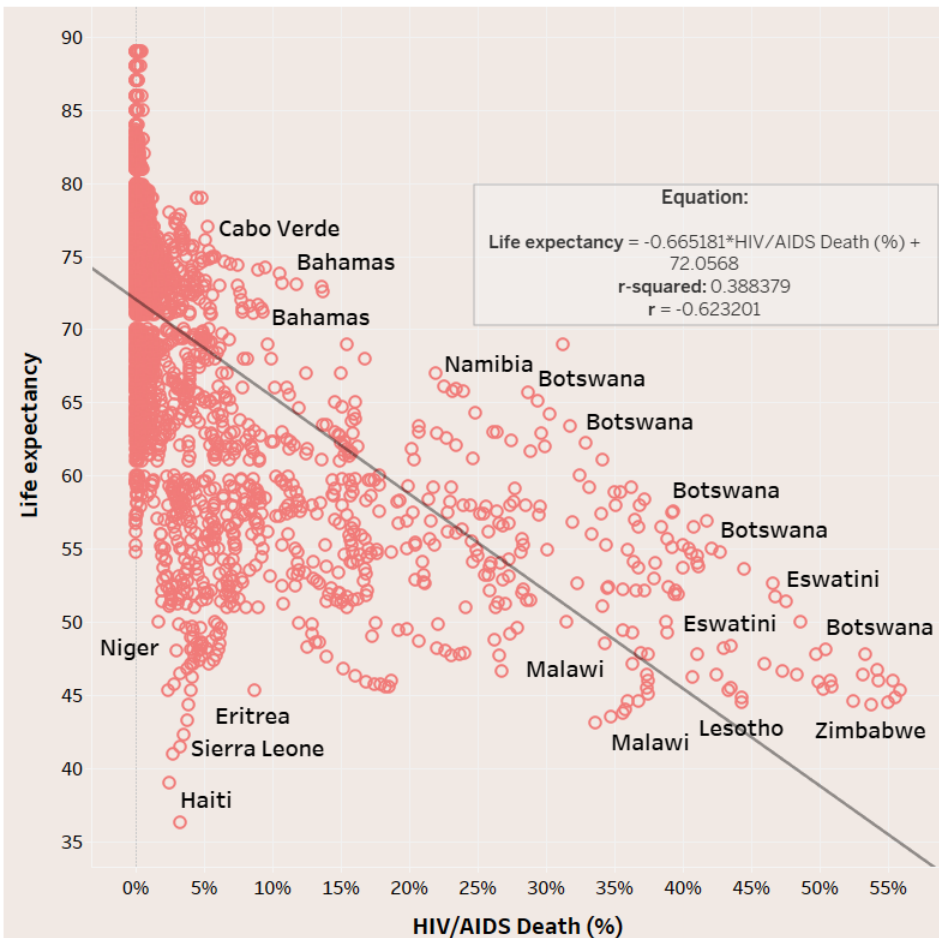
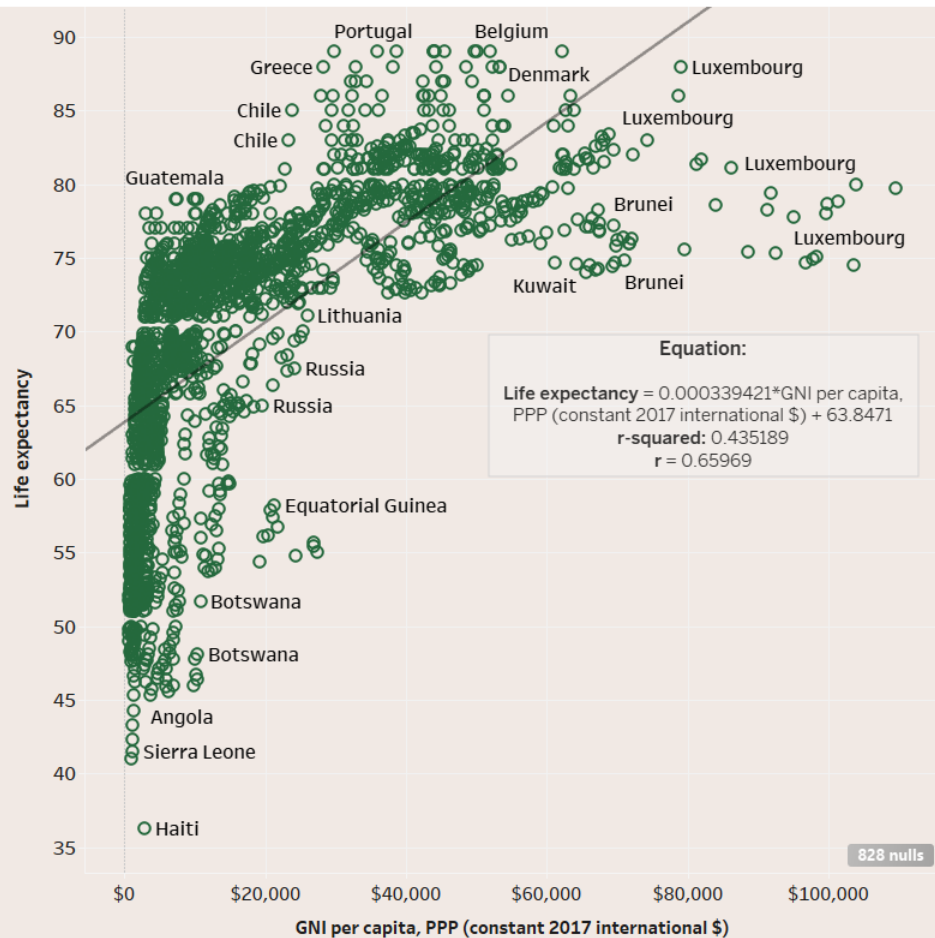
Cancer, Smoking & Drug Use Disorders, Mental Disorders

<https://ourworldindata.org/>

## Variables (Factors) in the Dataset:

- ☐ Alcohol Use Disorders (%)
- ☐ Schooling (years)
- ☐ Smoking Death Rate (%)
- ☐ Immunization (*DPT3 (Diphtheria, Pertussis, Tetanus, Measles, Polio, Hepatitis B) (% of 1-yr olds)*)
- ☐ Drug Use Disorders (%)
- ☐ GDP Per Capita
- ☐ Health Expenditure Per Capita (\$)
- ☐ Income Composition of Resources (ICOR)
- ☐ Population
- ☐ Mental Disorders (%)
- ☐ Obesity (%)
- ☐ HIV/AIDS Deaths (%)
- ☐ Various other factors

# Finding the Strongest Correlations to Life Expectancy



# Strongest Correlations to Life Expectancy



## 1. Schooling

$r = 0.73$ , strong positive correlation



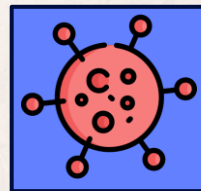
## 2. Income Composition of Resources (ICOR)

$r = 0.72$ , strong positive correlation



## 3. Gross National Income (GNI)

$r = 0.65$ , moderately strong positive correlation



## 4. Cancer Deaths (%)

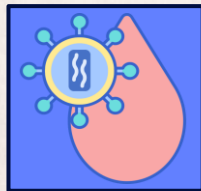
$r = 0.64$ , moderately strong positive correlation. *Higher cancer deaths, higher life expectancy?*



## 5. Immunizations (%)

*Polio, Diphtheria, Pertussis, Tetanus, Measles, Hepatitis B*

$r = 0.63$  moderately strong positive correlation



## 6. HIV/AIDS Deaths (%)

$r = -0.62$ , moderately strong negative correlation

03

## A Deeper Look Into Africa & Oceania

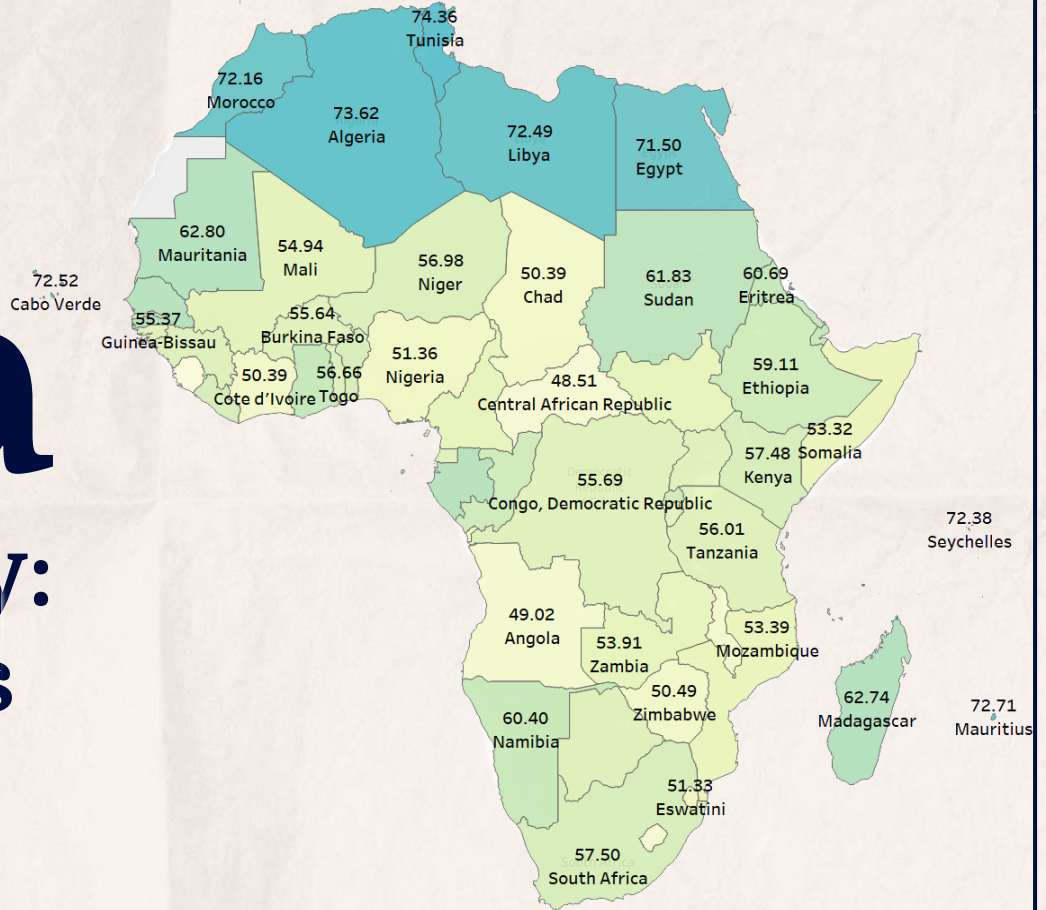




# Africa

Life Expectancy:  
Avg. **58.6** years

*(throughout 2000-2015)*



# Africa



14 Year  
Difference!



## Northern Africa

- Alcohol disorders 0.42%
- HIV/AIDS Deaths 0.45%
- GNI Per Capita \$7774

Why?

## Sub-Saharan Africa

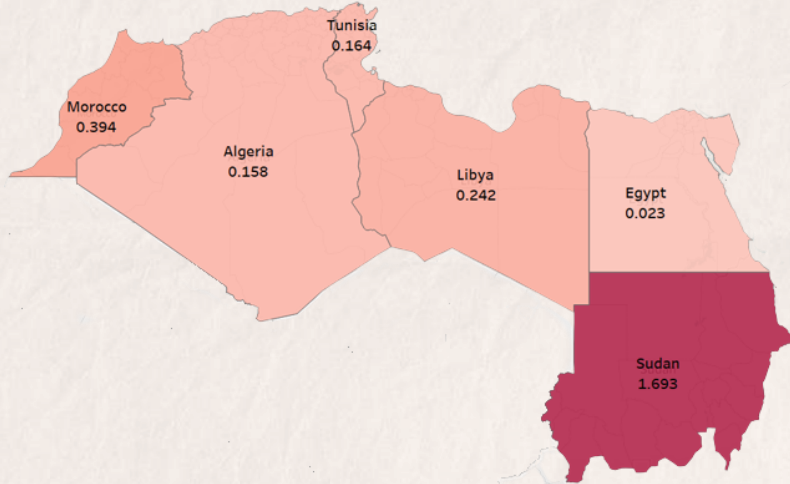
- Alcohol disorders 1.14% (2.7x more)
- HIV/AIDS Deaths **13.64%** (**30x** more!)
- GNI Per Capita \$4,610 (1.7x more)



## HIV/AIDS Deaths

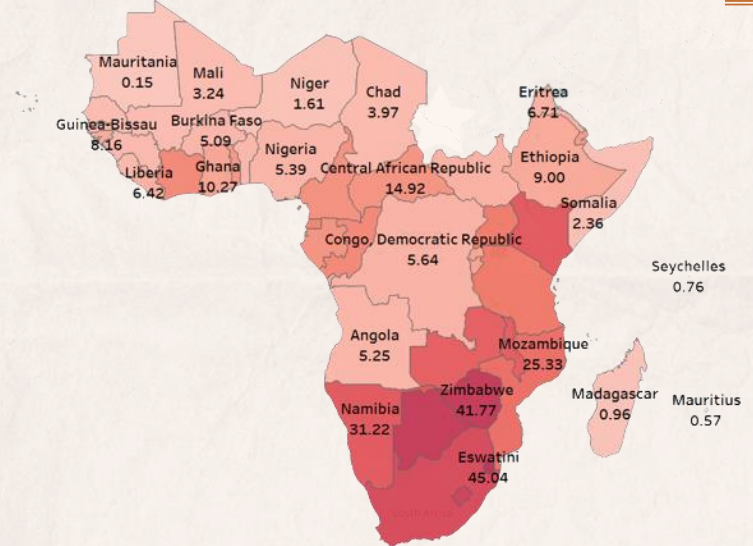


### Northern Africa



- Sudan 1.7% (**26x** lower!)
- Morocco 0.4%
- Libya 0.2%

### Sub-Saharan Africa



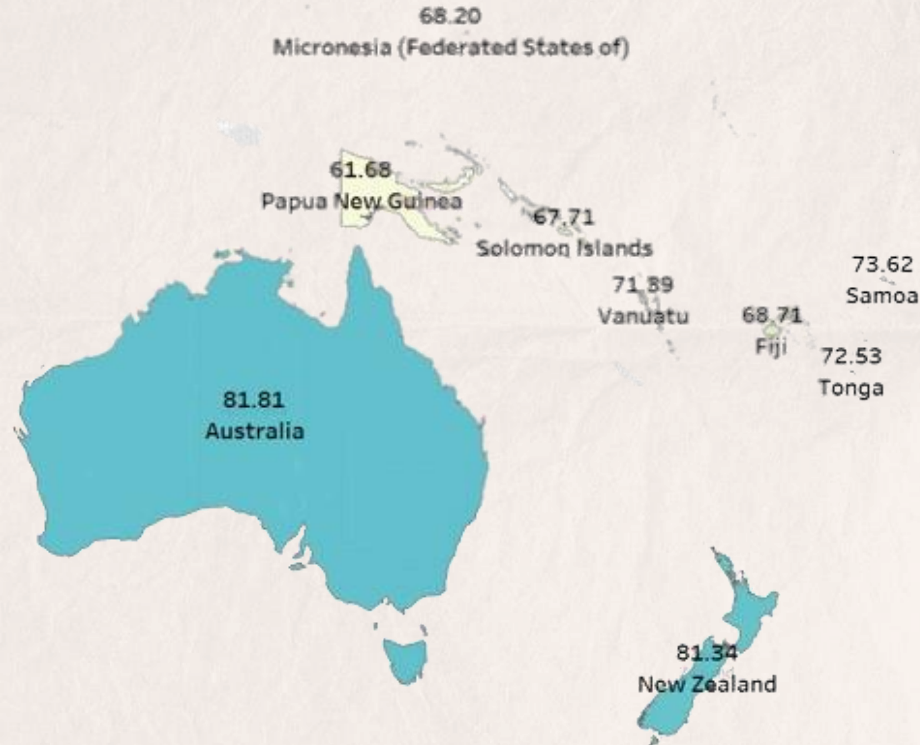
- Eswatini **45.0%**
- Zimbabwe 41.8%
- Botswana 41.2%

# Oceania

65.15  
Kiribati

Life Expectancy:  
Avg. **71.2** years

*(throughout 2000-2015)*



# Oceania



## Australia & New Zealand

- Alcohol Use Disorders **2.07%** (35x more!)
- HIV/AIDS deaths 0.06%
- Cancer Deaths 3.05%
- ICOR 0.90

15 Year  
Difference!



## Micronesia

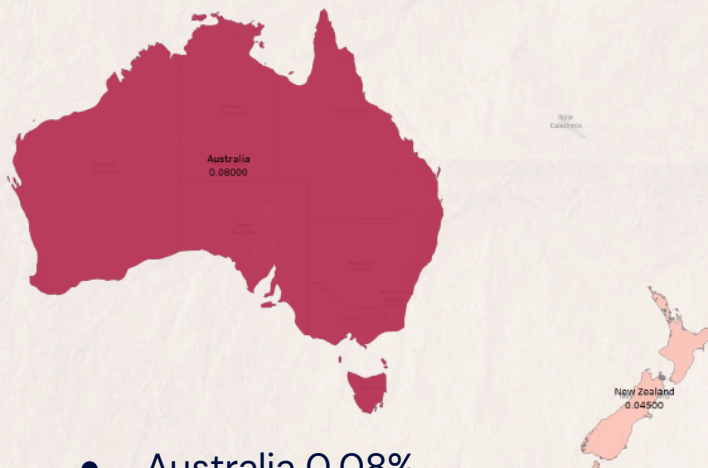
- Alcohol Use Disorders 0.06%
- HIV/AIDS deaths **0.92%** (15x more!)
- Cancer Deaths 0.64%
- ICOR 0.47

Why?

# HIV/AIDS Deaths



## Australia & New Zealand



- Australia 0.08%
- New Zealand 0.04%

## Micronesia



- Federated States of Micronesia **1.70%** (21x more!)
- Kiribati 0.15%



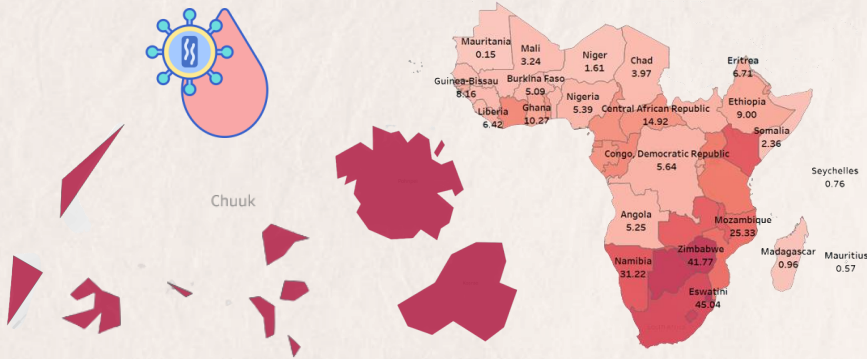
04

# Conclusion & Next Steps

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# Takeaways

- Africa's and Oceania's sub-regions have huge discrepancies in life expectancy.
- High HIV/AIDS death rates (%) in Sub-Saharan Africa and Micronesia.
- Highlights the urgent need to address the HIV/AIDS epidemic
- Implications for policymakers, etc.



# Next Steps

- Explore cancer death rates and why it correlates to life expectancy.
- Explore the quality of life in populations.
- Explore the economic inequalities in countries around the world.

