

Life Expectancy Dataset Analysis

BY ELISA TLADI

About me.

Elisa Tladi

Previous industry was customer service focused from retail or NHS.

3 random facts about me:

- ▶ Previously played rugby and our team was the best girls' team in the West Midlands.
- ▶ Been on TV on 2 occasions.
- ▶ First in my family to graduate from University.

The dataset gathered by Kumraa Jarshi focuses on several factors that affect life expectancy. The research is gathered data from WHO and the UN. Kumraa aimed to highlight how immunization alongside GDP (and immunization related factors) should also be considered as a factor to study when looking at data that affects life expectancy.

Kumraa looks at data between 2000-2015 in 193 countries. I will narrow the findings to countries within Africa, Kumraa had obtained data from 47 out of 54 African states, I will focus the 47 out of 54 countries and explore how other components are just or more important than just immunization related factors and GDP.

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Year	Status	Life expectancy	Adult Mortality by %	Infant deaths	Hepatitis B	Measles	BMI	Polio	Total expenditure	Diphtheria	HIV/AIDS	GDP	Population	Schooling
2015	Developing	75.6	19	21	95	63	59.5	95	0	95	0.1	4,132.76	39,871,528	14.4
2015	Developing	52.4	335	66	64	118	23.3	7	0	64	1.9	3,695.79	2,785,935	11.4
2015	Developing	60	249	25	82	55	25.7	78	0	82	1	783.95	1,575,952	10.7
2015	Developing	65.7	256	2	95	0	37.9	96	0	95	2.2	6,532.65	229,197	12.6
2015	Developing	59.9	26	38	91	99	19.4	91	0	91	0.6	615.59	1,811,624	7.7
2015	Developing	59.6	288	21	94	9	18.7	94	0	94	0.7	33.68	119,927	10.6
2015	Developing	53.3	397	57	83	65	28	81	0	83	1.9	-	-	0
2015	Developing	57.3	357	45	84	1809	29	83	0	84	3.5	1,244.43	22,834,522	10.4
2015	Developing	52.5	397	15	47	150	22.7	47	0	47	4.4	348.38	45,461	7.1
2015	Developing	53.1	356	46	46	418	19.1	52	0	46	2.8	777.25	149,413	7.3
2015	Developing	64.7	267	7	8	1359	27.4	8	0	8	2.8	-	-	11.1
2015	Developing	59.8	258	236	81	5020	21.6	78	0	81	1.1	-	-	0
2015	Developing	79	159	51	93	5432	61.1	93	0	93	0.1	-	-	13.1
2015	Developing	58.2	32	3	16	1250	24.5	17	0	16	4.2	1,347.31	1,175,389	9.2
2015	Developing	64.7	255	5	95	198	18.6	95	0	95	0.4	-	-	5
2015	Developing	64.8	225	136	77	17745	17.6	75	0	77	0.6	645.46	9,987,333	8.4
2015	Developing	66	229	2	8	27	36.3	79	0	8	2.7	7,388.98	193,175	12.6
2015	Developing	61.1	262	3	97	71	27.3	96	0	97	1.7	-	-	8.9
2015	Developing	62.4	249	37	88	23	28.6	88	0	88	0.7	1,361.11	27,582,821	11.4
2015	Developing	59	284	26	54	243	23.3	42	0	54	0.5	554.49	1,291,533	8.8
2015	Developing	58.9	275	4	87	153	26.3	87	0	87	3.2	596.87	177,526	9.2
2015	Developing	63.4	249	54	89	95	22	83	0	89	2.8	1,349.97	47,236,259	11.1
2015	Developing	53.7	484	4	93	0	32.6	9	0	93	9.3	173.83	2,174,645	10.7
2015	Developing	61.4	259	8	52	1060	27.3	52	0	52	0.9	452.39	4,499,621	9.9
2015	Developing	72.7	138	1	97	82	64.8	97	0	97	0.1	-	-	13.4
2015	Developing	65.5	22	28	69	3	2.5	71	0	69	0.3	41.86	2,423,488	10.3
2015	Developing	63.1	25	8	73	1	3.8	67	0	73	0.9	1,158.26	4,182,341	8.5
2015	Developing	74.6	146	0	97	0	33.3	98	0	97	0.1	9,252.12	126,265	15.2
2015	Developing	74.3	95	17	99	17	58.5	99	0	99	0.1	2,847.29	3,483,322	12.1
2015	Developing	57.6	355	60	8	79	22.6	8	0	8	3.9	528.31	281,691	9.1
2015	Developing	65.8	248	2	92	212	35.7	92	0	92	2.1	4,737.67	2,425,561	11.7
2015	Developing	61.8	22	49	65	7693	19.3	65	0	65	0.4	359.00	19,896,965	5.4
2015	Developing	54.5	344	483	49	12423	25.4	49	0	49	3.7	2,655.16	#####	10
2015	Developing	66.1	227	11	98	1	21.4	99	0	98	0.4	71.35	11,629,553	10.8
2015	Developing	66.7	188	19	89	58	24.3	85	0	89	0.3	98.73	14,976,994	9.5
2015	Developing	51	413	22	86	607	24.4	86	0	86	0.5	587.54	723,725	9.5
2015	Developing	55	312	50	42	7497	24.3	47	0	42	0.7	426.99	-	0
2015	Developing	62.9	328	42	75	17	51.1	75	0	75	3.6	5,769.77	5,511,977	13
2015	Developing	57.3	332	26	31	878	0	41	0	31	3.4	758.73	11,882,136	4.9
2015	Developing	64.1	225	58	93	3585	0	93	0	93	0.3	2,513.88	3,864,783	7.2
2015	Developing	58.9	373	2	9	0	32.3	84	0	9	7.1	3,136.93	131,911	11.4
2015	Developing	59.9	287	13	88	20	24.3	88	0	88	1	551.14	741,682	12
2015	Developing	62.3	291	66	78	478	18.5	82	0	78	3.1	693.90	414,487	10
2015	Developing	61.8	279	85	98	30	23.8	96	0	98	1.4	-	-	0
2015	Developing	65.7	224	37	69	468	41.3	63	0	69	0.1	-	-	9
2015	Developing	61.8	33	27	9	9	23.4	9	0	9	4.1	1,313.89	161,587	12.5
2015	Developing	67	336	22	87	0	31.8	88	0	87	6.2	118.69	15,777,451	10.3

Excel findings

The total figure of schooling across Africa	437.4
According to Bupa, global average life expectancy is 73. On average, do countries in Africa have either "High life expectancy" or "Low life expectancy" life expectancy? low life expectancy	
The global infant mortality rate in a developed country was 19 in 2015. How many countries have a lower rate than average (globally)?	18
Which country has the highest life expectancy?	79 Egypt
Which country has the same Hepatitis B and Polio figures?	Niger
Morocco has the closest Diphtheria rate to 100, what is it?	99 100
What is the average infant death per 1000 of the population across the continent?	43
Bibliography:	
Average life expectancy – exploring longevity around the world, Bupa, 2023, https://shorturl.at/pEhha , [accessed online 19/7/24]	
Levels and trends in child mortality, UN, 2015, https://shorturl.at/gHMeW , [accessed online 19/7/24]	

To find answers to my questions I used the following statements:

SUM VLOOKUP

IF XLOOKUP

COUNTIF AVERAGE

MAX

EXCEL FINDINGS

1. GDP= goods and services produced for sale. It measures the economic health because it also considers some nonmarket (traded goods) production, such as defence or education services provided by the government. In England alone the GDP in 2015 was 1.64 trillion, in the whole continent of Africa (considering the 47 states), the total was 69,656.
2. On average, countries in Africa have a low life expectancy.
3. There is a lot of missing data which skews results.

SQL findings

As requested, I used the following functions:
SUM, COUNTS, AVG,
GROUP BY and WHERE to filter data, CASE WHEN.

```
29   FROM
30     life_expectancy
31   GROUP BY
32     Country
33   ORDER BY
34     total_infant_deaths ASC;
35
36 -- Countries with GDP greater than 2000
37
38 • SELECT
39   Country,
40   Year,
41   GDP,
42   Population
43   FROM
44     life_expectancy
45   WHERE
46     GDP > 2000;
47
48 -- Categorize countries based on GDP
49 • SELECT
50   Country,
51   GDP,
52   CASE
53     WHEN GDP > 25000 THEN 'High GDP'
54     WHEN GDP BETWEEN 13000 AND 15000 THEN 'Medium GDP'
55     ELSE 'Low GDP'
56   END AS gdp_category
57   FROM
```

Total Infant Deaths:

The dataset showed that there is a total 2,040 infant deaths across Africa. The reason I wanted to focus on infant mortality can help us understand the state of the healthcare system across African states, where Kumaar highlights the need of immunization, immunization cannot hide a poor healthcare system which leads to a high infant mortality.

Average GDP:

The average GDP of 1482.04 USD implies the economic conditions of the countries. Where African states have an abundance of resources, this is not highlighted in the economic conditions. I found it difficult to draw out the relationship between schooling and GDP, I aim to do this visually.

Conclusion:

Despite the findings painting a bleak picture of the development across Africa in 2015, I can recognize the limitations of my findings across the 47 records. Firstly, there is missing data, we can only go so far with an inaccurate representation of the different countries in 2015. Secondly, the size of the dataset provides a snapshot of 47/58 states, missing data within the continent does not cover all countries comprehensively.

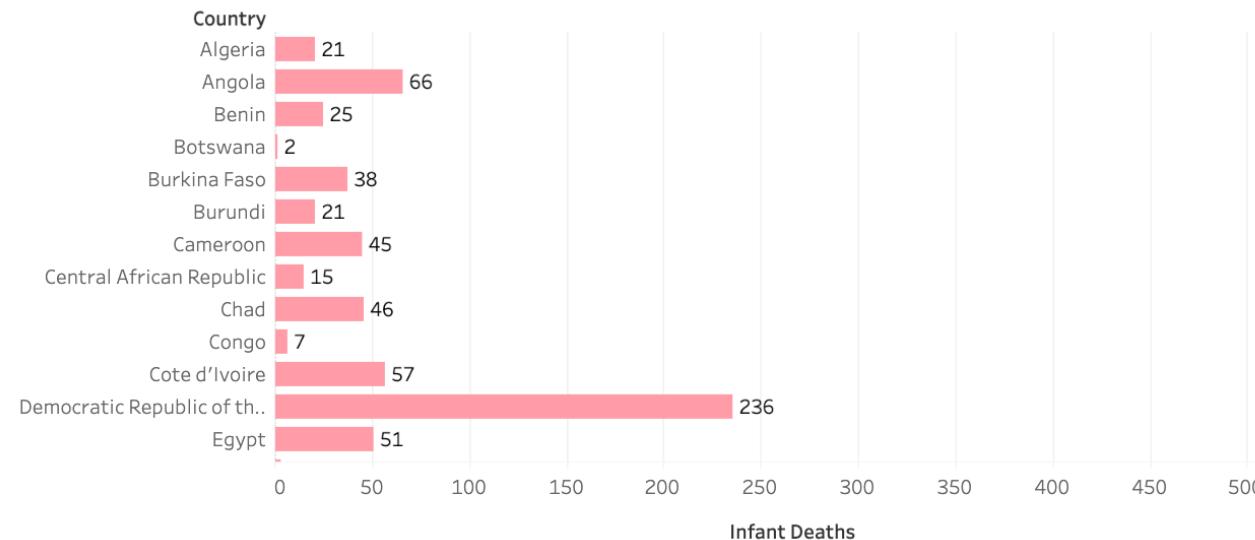
Visual findings

GRAPH 1: Visually, we can see that there are high levels of infant deaths.

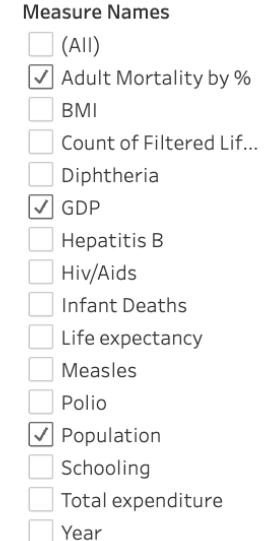
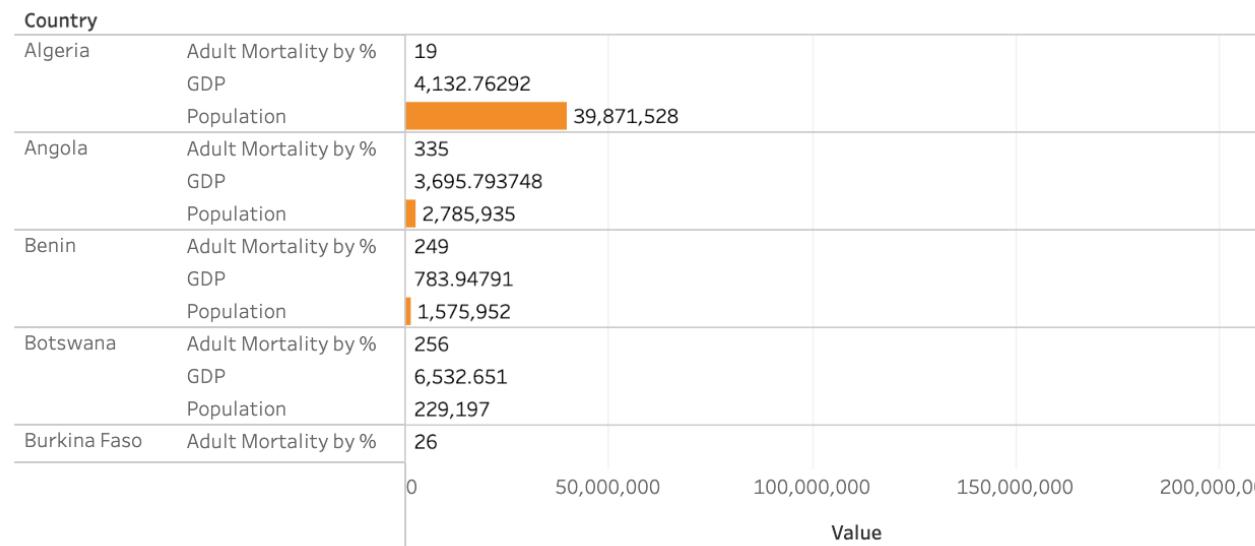
In conclusion, visually this does not really indicate anything other than support assumptions.

GRAPH 2: Visually the data shows that there is no obvious relationship with low GDP and high adult mortality by %, instead we would have to calculate the percentage to total population before presenting the data visually.

Total infant deaths per 1,000 across 47 states in Africa.



A Graph of Adult mortality, GDP and Population.



Conclusion

Development within Africa is very difficult to monitor with the figure presented. However, with extra research and comparison to Western figures, I got to see a more accurate depiction of how bad the figure look.



Take-home.

Educationally:

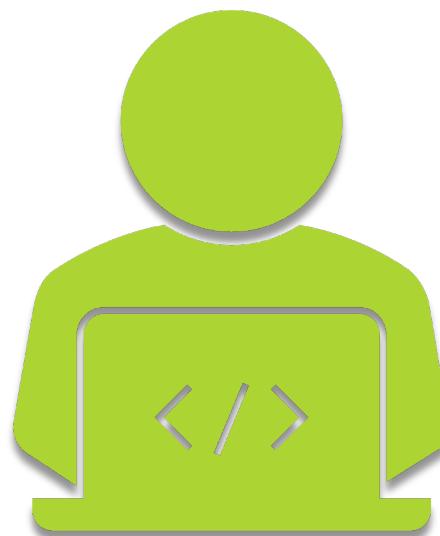
- SQL, Python and Excel are translation tools, once you learn to understand how to use them more, you can understand what the data says in the bigger picture. It has been difficult but very interesting.

Personally:

- Learning with different groups of people has been refreshing. Which has been a highlight during this bootcamp.

Career:

- Excited to transition. AI and Data Analysis will be interesting.



Elisa Tladi