

Analysing the Crude death Rates and Standardised death rates

First we researched information about age death rates and age standardised death rates, their meanings and differences we place into an excel sheet and convert to CSV.

We can see that that data is per 100,000 meaning that we operate as if there were 100,000 individuals in the population, Hence, Population = 100,000 times the number of age groups

To get the crude death rates, we summed up the death rates for both countries and divided by their population (per 100,000) respectively. rounding off their rates to 3 decimal places

Futher research into an Age standardised death rates shows that for each age group in the standard population distribution, we need to know the proportion of the population that falls within that age group

With this additional information, we can calculate the age-standardized death rate using a weighted average approach.

We would multiply the death rate in each age group by the corresponding weight in the standard population distribution, sum these values across all age groups, and then divide by the total population of the standard population. This process ensures that the calculated rate is adjusted for differences in the age distribution between populations and allows for meaningful comparisons between populations with different age structures.

these disparities in rates can be due to disparities in disease awareness and management, Health care Infrastructures and more.

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In [1]: import pandas as pd
import numpy as np
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In [3]: df = pd.read_csv(r"C:\Users\Tekno\Downloads\book i.csv")
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In [35]: df.head(2)
```

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Out[35]:
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	Age group (years)	Death rate, United States, 2019	Death rate, Uganda, 2019	Per(100,000)
0	0-4	0.04	0.40	100000
1	5-9	0.02	0.17	100000

```
In [6]: df['Age group (years)'] = df['Age group (years)'].str.replace(',', '-')
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In [41]: # Derive the total death rates
total_deaths_us = sum(df['Death rate, United States, 2019'])
total_deaths_ug = sum(df['Death rate, Uganda, 2019'])
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In [17]: total_deaths_us
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Out[17]: 2164.74
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In [16]: total_deaths_ug
```

```
Out[16]: 2058.62
```

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In [18]: population_us = 100000
population_ug = 100000
```

```
In [44]: # define the crude death rates and round off to 2 decimal place
crude_death_rate_us = total_deaths_us / population_us
crude_death_rate_ug = total_deaths_ug / population_ug
crude_death_rate_US = round(0.021647399999999997,2)
crude_death_rate_ug = round(0.0205862,2)
```

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In [45]: print(f'The crude death rates are {crude_death_rate_US} for the United States and {crude_death_rate_ug} for Uganda')
```

The crude death rates are 0.02 for the United States and 0.02 for Uganda

```
In [36]: # Calculate the weighted average of death rates for each country
weighted_avg_us = (df['Death rate, United States, 2019'] * df['Per(100,000)']).sum() / df['Per(100,000)'].sum()
weighted_avg_uganda = (df['Death rate, Uganda, 2019'] * df['Per(100,000)']).sum() / df['Per(100,000)'].sum()

print("Age-Standardized Death Rate (US):", round(weighted_avg_us, 1))
print("Age-Standardized Death Rate (Uganda):", round(weighted_avg_uganda, 1))
```

Age-Standardized Death Rate (US): 120.3

Age-Standardized Death Rate (Uganda): 114.4

