

1. Original chart

Undergraduate research context (reconstructed)

For my undergraduate research project, I needed to compare health and living conditions across countries. I chose life expectancy as one indicator and wanted to see how India compared with other countries.

I started with a bar chart. With 30 countries, the names became crowded and small differences were hard to read. For this assignment, I rebuilt the comparison using 2023 data and redesigned it as an interactive world map.

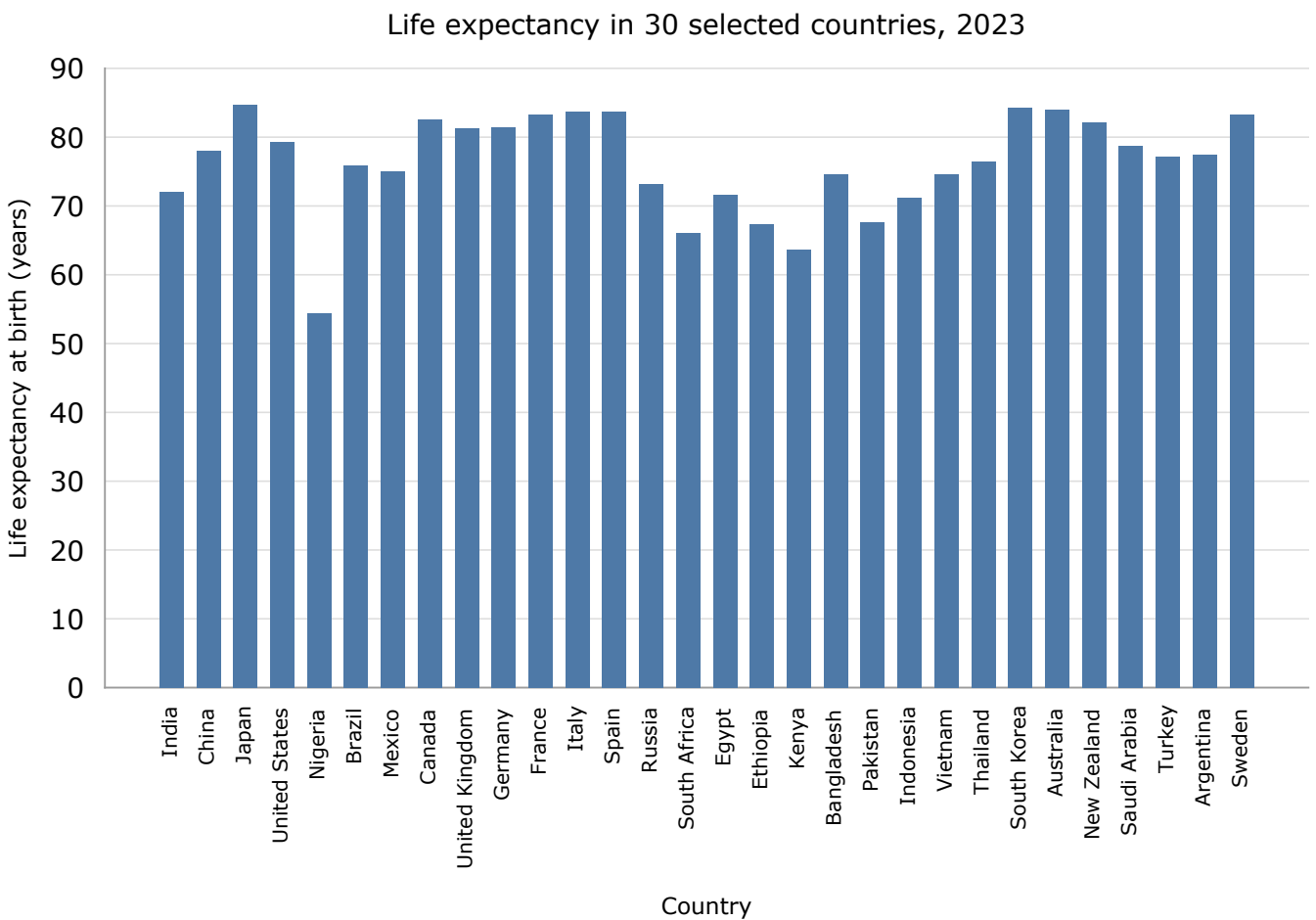


Figure 1. First version: 30 countries in 2023.

Baseline chart created for this exercise from published data.

I used Python for the original bar chart and D3.js, a JavaScript charting library, for the interactive world map and its supporting line chart.

Life expectancy at birth is based on death rates in a given year. It is not a prediction of how long a particular person will live.

Data: UN World Population Prospects (2024), processed by Our World in Data.

Source and definitions

2. Critique: reading the original chart

The first chart answers a basic question: how did life expectancy differ across 30 selected countries in 2023? I reviewed it by trying to find a country, read its value and compare it with the others. These tasks exposed the following problems.

The country names take effort to read

All 30 country names sit below the bars. I rotated the names to make them fit, but readers still need to read a vertical name and then find the top of its bar. Longer names, such as the United States and South Africa, take more space. The redesigned map has an alphabetical selector and a country profile with horizontal text.

The order makes comparisons slower

The countries are not sorted by value or alphabetically. India appears first, while countries with similar values are spread across the chart. Readers must scan back and forth to compare distant bars. A sorted horizontal bar chart would help with ranking. I chose a map for the geographic view and added a table that orders the selected countries by their values.

The bars do not show exact values

The vertical axis gives the unit and a scale from zero, but there are no values above the bars. Readers have to estimate where each bar ends between the gridlines. That makes close values hard to compare. The redesigned country profile and table show one decimal place. For example, India is shown as 72.0 years in 2023.

The title gives the topic but no finding

The original title states the measure, year and selected-country scope. This is useful, but it does not tell the reader what to look for. The new map adds a title with the life expectancy range for the selected year. I keep the year, unit and coverage visible so the finding has context.

I would keep the original chart's zero baseline and single bar colour. Bar length is easy to compare on a common scale, and extra colours would not help when every bar represents the same measure.

Data: UN World Population Prospects (2024), processed by Our World in Data.

Source and definitions

2. Critique: purpose and context

Reading the bars was only part of the problem. I also wanted to show where countries were, how values changed and how a selected country compared with the world. The original chart did not support those questions.

The country list hides geographic patterns

The bars show country names but give no sense of location. Readers need their own knowledge of geography to connect nearby countries. I used a world map to make those locations visible. The light-to-dark scale shows broad differences, while a country selector gives access to small territories that are hard to find on the map.

One year cannot show progress or setbacks

The original chart shows only 2023. It cannot tell a reader whether a country's value rose gradually, fell in a particular year or recovered after a drop. I added a year slider, a small country trend and a comparison line chart. These views show changes in the published series. They do not, by themselves, explain what caused a change.

The comparison needs a wider reference

The original 30-country list has no world estimate, and India uses the same colour as every other country. In the redesign, I start with India selected and show its difference from the published world estimate. The comparison view includes the world as a reference. The original 30 countries are an illustrative selection; they do not represent every country.

The redesign has limits too

Map colours are less precise than bar lengths, and larger countries attract more attention. I therefore show exact values in the profile and table. The comparison view limits the selection to five countries plus the world so the lines remain readable. This means readers cannot inspect all 30 original countries together in that view.

I kept the original 2023 values and their units. The new design changes how readers explore the data and adds countries and years. It does not turn this selected-country comparison into evidence about the causes of longer lives.

Data: UN World Population Prospects (2024), processed by Our World in Data.

[Source and definitions](#)

3. Redesigned visual: interactive website

Open the interactive world map

dvdm3.vivekjindal.xyz

Click this panel to view and use the redesign.

Please open the website to review the redesign. Select a country, move the year slider and compare countries.

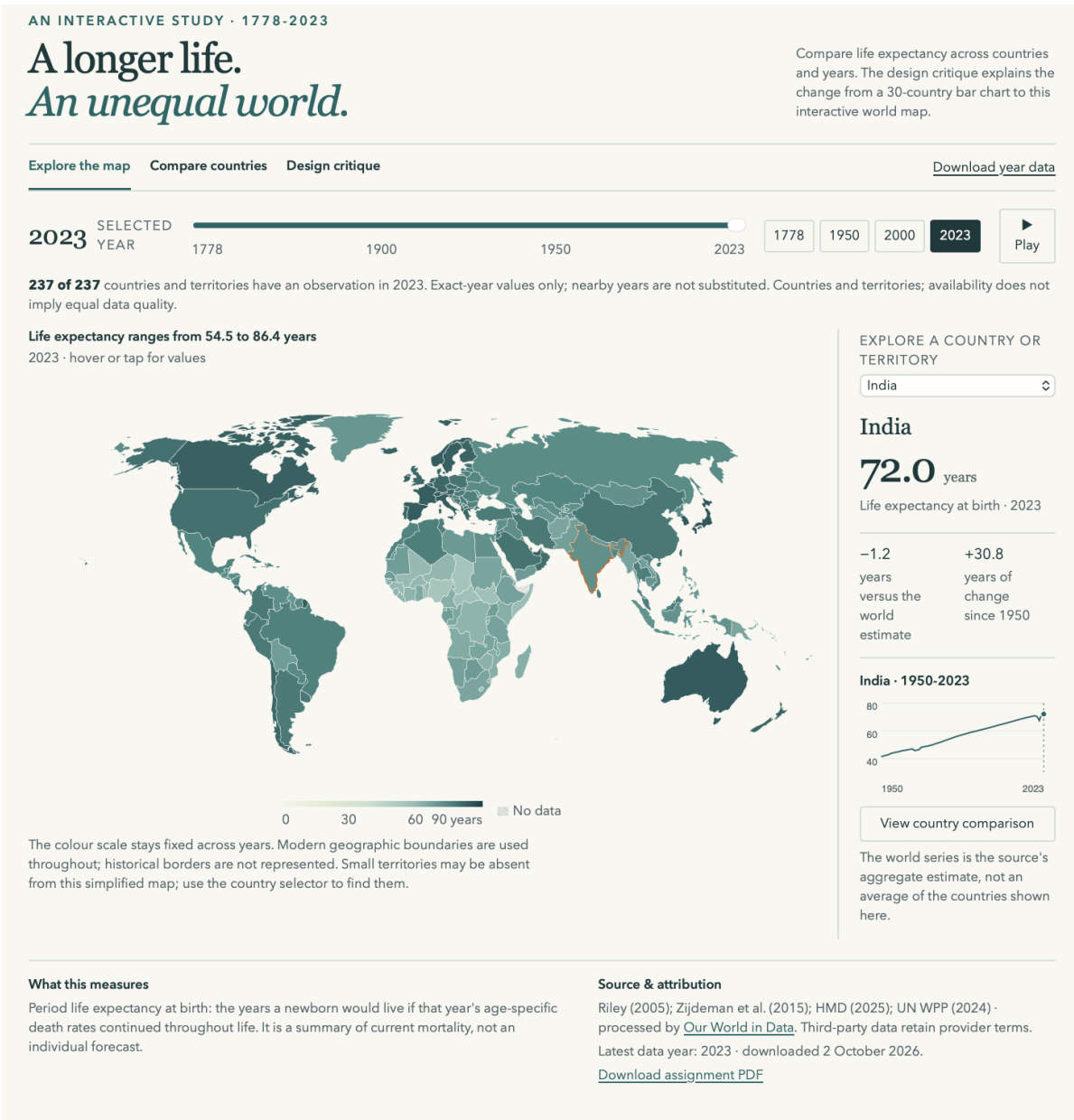


Figure 2. Map view with the year slider and country profile. Click the image to open the website.

Data: Riley; Zijdeman et al.; HMD; UN WPP, processed by Our World in Data.

Source and definitions

4. Supporting country comparisons

The comparison view lets readers choose up to five countries, change the starting year and read exact values in a table. Open the website and choose Compare countries.

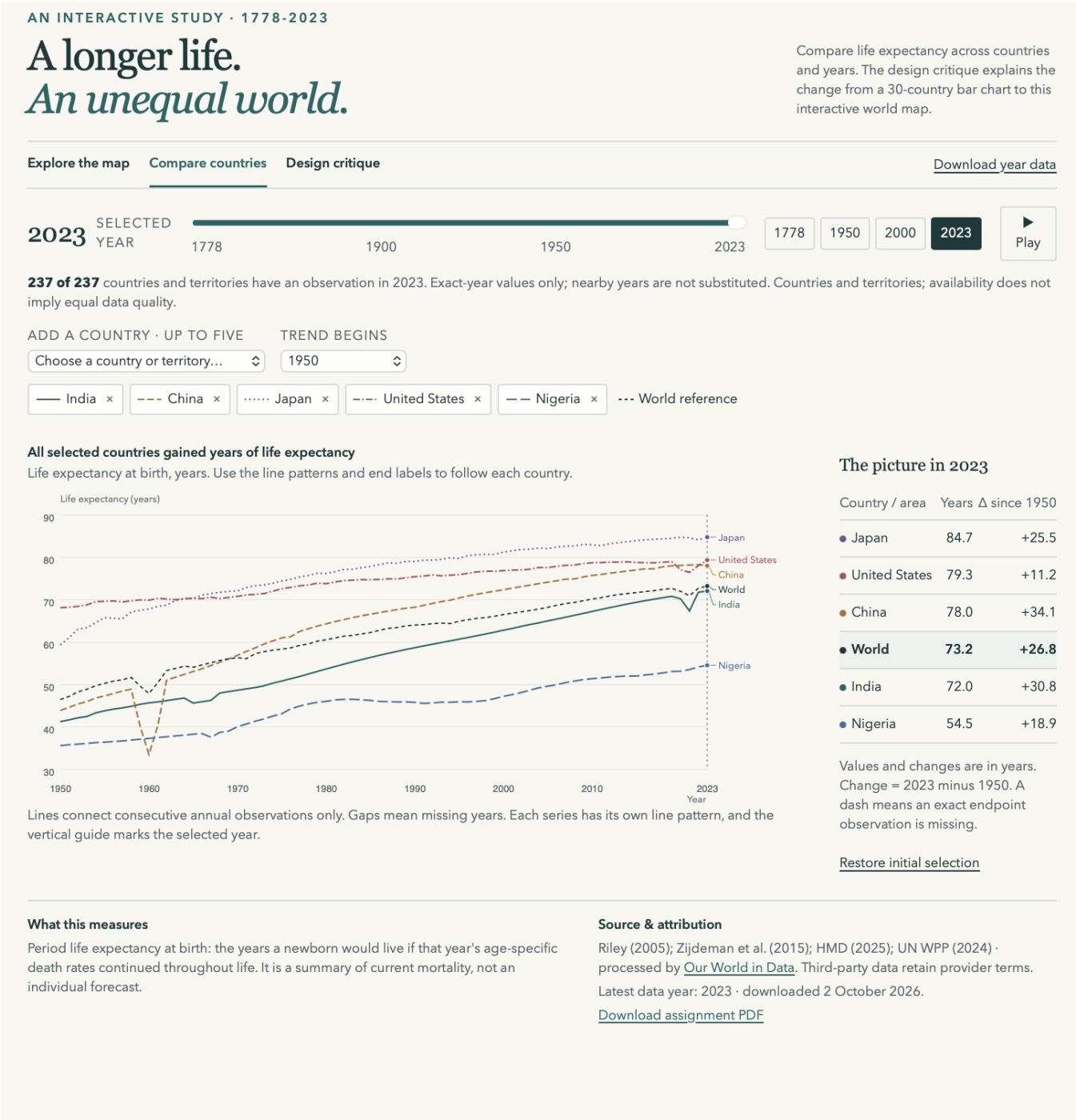


Figure 3. Website screenshot showing the country controls, trends and comparison table. The line patterns help readers follow each country.

Data: Riley; Zijdemann et al.; HMD; UN WPP, processed by Our World in Data.

Source and definitions

5. How the new charts work

How to read the world map

I used D3.js to build the map. Darker colours mean higher life expectancy; lighter colours mean lower values. The colour scale stays the same when the year changes, so the same colour always has the same meaning. Hatched areas mean no data for that year. Readers can move the year slider, press Play or select a country. The map gives an overview of geographic differences.

What the country profile adds

The profile shows the selected country's value, its gap from the world estimate and its change from the stated starting year. In the screenshot, India is at 72.0 years in 2023, about 1.2 years below the world estimate. Its gain since 1950 is 30.8 years. The small line chart shows the country's longer history.

How the comparison chart works

Readers can select up to five countries and choose a starting year. The horizontal axis shows time and the vertical axis shows life expectancy in years. Line patterns and names at the ends of the lines help readers follow each country. The world line stays available as a reference. Hovering or tapping reveals values; gaps indicate missing years.

How to read the values beside the lines

The table shows each selected country's value for the selected year and its change from the starting year. In the example, change means the 2023 value minus the 1950 value, measured in years. A gain of 30.8 years is not a percentage increase. The shaded world row separates the reference from the selected countries. The world estimate comes from the source, rather than an average of the selected countries.

What the data allow me to say

The screenshots show published estimates for 2023, the latest year in this dataset. I downloaded the data in 2026. Early years have sparse coverage. Missing years stay blank, and the map uses modern borders. Life expectancy summarises a year's death rates; it is not a prediction for an individual. The charts show differences and changes, but other evidence is needed to explain their causes.