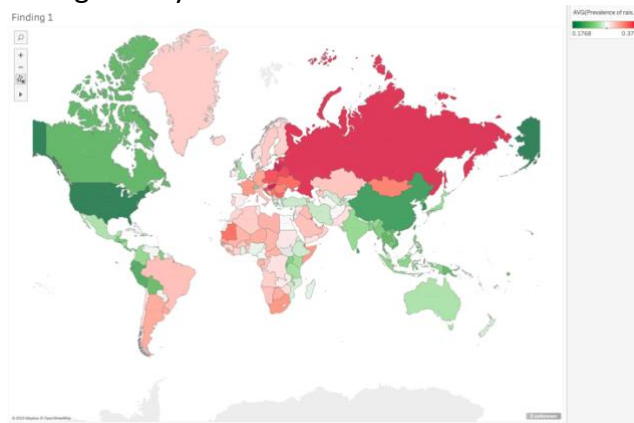## Report by Adanu Emmanuel Okoko(M00915394)

A dataset which attributes blood pressure, BMI, year , countries and sex will be analyzed to gain meaningful insights. My measurement for task 1 is Prevalence of blood pressure.

Finding 1.1 : overview of the distribution of blood pressure across different regions

What
- Geometry is the dataset type, and its data type is positions with attribute type quantitative(blood pressure) and categorical(country).

Why
- The visualization aims to show the different regions in the world and how blood pressure has prevailed at those regions.

Actions
I intend to discover/find position(s) that show similar levels of prevalence in blood pressure. The search type will be **explore** which will entail searching for characteristics without regard to their location which will commence from an overview of the entire spatial data. I am using **summarize** as the type of query since all possible targets are taken into consideration.

Targets
Understanding the geometric shape of the data. Identifying trends in the data how blood pressure varies across different regions. I'm interested in understanding how it varies across regions.

How
- The Visual encoding used is the **spatial position(**region) and color (saturation and hue). The attributes prevalence of blood pressure and country/region/world are mapped on them. An **area mark** is used.
- Such visual mapping is effective and the best fit because it easily allows the user to identify patterns, relationships and features that exist compared to other such as a bar chart. By merely having a glance at the map, you can quickly identify a distinction between certain regions and this is impossible or not easily achieved using other charts. The visual encoding uses the most effective visual channels. the most important attributes(country and blood pressure) are encoded with the highest ranked channel(spatial region) and this makes it easy to locate regions and from this we can identify patterns which in turn makes it easy to narrow down or dig deeper into trying to find more useful insights.

Findings
- It is evident that the eastern part of Europe has the highest prevalence of blood pressure with Russia leading the way. A closer look and we can notice a **decreasing trend** in the prevalence of blood pressure from the eastern part of Europe to the rest of the world. We can also see how Northern American has a lower prevalence of blood pressure compared to southern America.

Finding 1.2: Prevalence of blood pressure across eastern part of Europe.

What

- Geometry is the dataset type, and its data type is positions and item with attribute type quantitative(blood pressure) data and categorical(country)

Why

- The visualization aims to show that the eastern part of Europe has the highest prevalence of blood pressure **compared** to the rest of the world.

  Actions

  I intend to **present** position(s) that show the highest levels of prevalence in blood pressure. The search type is **look up**. I am using **summarize** as the type of query

  Targets

  Identifying **trends and outliers** in the data. The feature of interest will be shapes that visualize a high prevalence of blood pressure in the Eastern part of Europe.

How

- The Visual encoding used is the **spatial position**(region) and color (saturation) and the attributes prevalence of blood pressure and country/region/world are mapped on them. An **area mark** is used. Range slider filter was used of range 32.320%-37.725% because the number format was changed to make it more clear, label applied to make identification of certain positions easier.
- Such visual mapping is effective and the best fit because it easily allows the user to identify positions using features such as filtering (range slider)that enabled me to specify the range of blood pressure compared to others such as a line chart and reduced the positions on the map as I adjusted the blood pressure therefore filtering out countries with lower prevalence of blood pressure. The visual encoding uses the most effective visual channels. the most important attributes(country and blood pressure) are encoded with the highest ranked channel(spatial region) and this makes it easy to locate the targeted positions and region

Findings

- Applying the range slider filter made it very clear that the spatial positions on the eastern part of Europe have the highest prevalence of blood pressure with the exception of a few outliers such as Kuwait, Mauritania, Djibouti, Mongolia and Bermuda. This will lead me to investigate the Eastern part of Europe further.
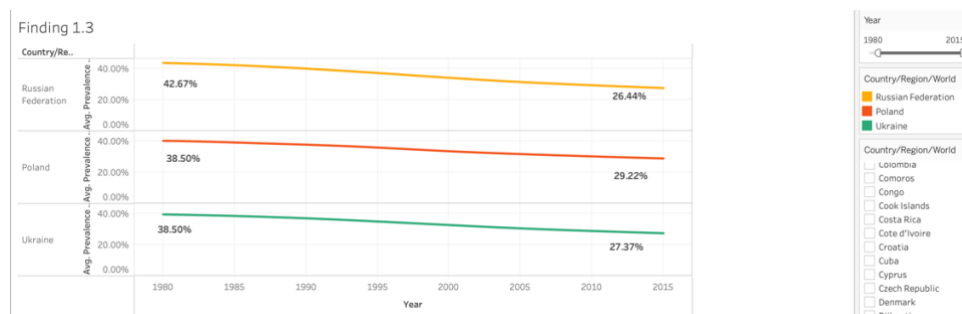
Finding 1.3: Prevalence of blood pressure over a period of time.

- Table is the dataset type, and its data type is attribute of type ordered quantitative(year and blood pressure) and categorical(country) .

Why
- The visualization aims to show a trend in the prevalence of blood pressure over a period of time in the eastern part of Europe.

Actions

I intend to consume the information already generated. I added an **annotation** to call out specific points on the line chart. The search type is **browse.** I am using **compare** as the type of query

Targets

Identifying trends in the data such as increases or decreases in the distribution of the prevalence of blood pressure attribute over a period of time

How

- The mark is **a line**. **A line chart** with vertical position quantitative(blood pressure) and horizontal position(year), color hue. Filters like drop down menu was used to filter out some countries from the visual encoding and a range slider filter was used to adjust the year.
- The **line chart** is a good fit for the findings because it best highlights the decreasing trend over a period of time.
- The visual encoding uses the most effective visual channels. Showing country with the color hue makes it easy to distinguish one country from another.

Findings

There is a gradual **decreasing trend** in the prevalence of blood pressure between 1980 and 1995. From 1995, the decrease is much steeper up until 2015. Overall, we can say that over the last 35 years, the prevalence of blood pressure has decreased significantly which means these countries have made progress in their efforts to lower the blood pressure of its citizens. I will investigate further and see the blood pressure of men and women in this region. My measurement is blood pressure.
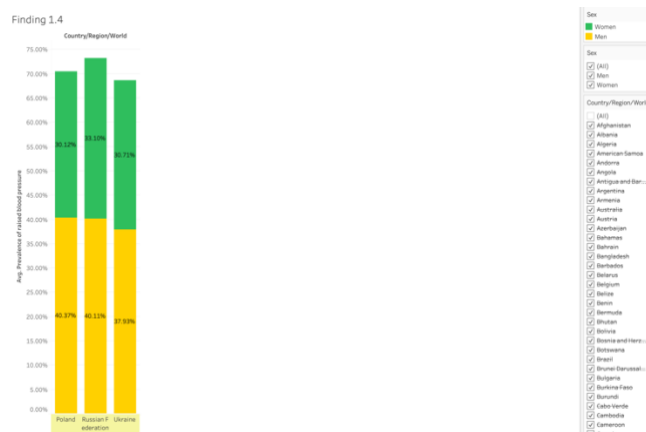
Finding 1.4: Prevalence of blood pressure across men and women in parts of Eastern Europe.

What
- Table is the dataset type, and its data type is items and attributes with attributes categorical(country) and quantitative(blood pressure).

Why
- The visualization aims to show **a comparison** between men and women in the prevalence of blood pressure in some eastern part of Europe.

I intend to **discover** whether men or women have a higher/lower prevalence of blood pressure in parts of eastern Europe. The search type is **locate.** I am using **compare** as the type of query

Targets

Identifying if there is a **similarity** between men and women in the distribution of blood pressure across some cou8ntries in the eastern part of Europe.

How

- The mark is **a line**. A **stacked bar chart** with vertical position quantitative(blood pressure) and horizontal position(country), color hue for the sex attribute. Filters like drop down menu was used to filter out some countries from the visual encoding, checkbox filter was used as well.
- The stacked bar chart is a good fit for the findings because it best identifies the pattern between the categorical attribute sex compared to other charts such as a text tables or line charts.
- The visual encoding uses the most effective visual channels. Showing sex with the color hue makes it easy to distinguish between men and women line.
-

Findings

There is a discrepancy between the blood pressure of men and women in the eastern part of Europe with men having a clearly noticeable higher prevalence of blood pressure.
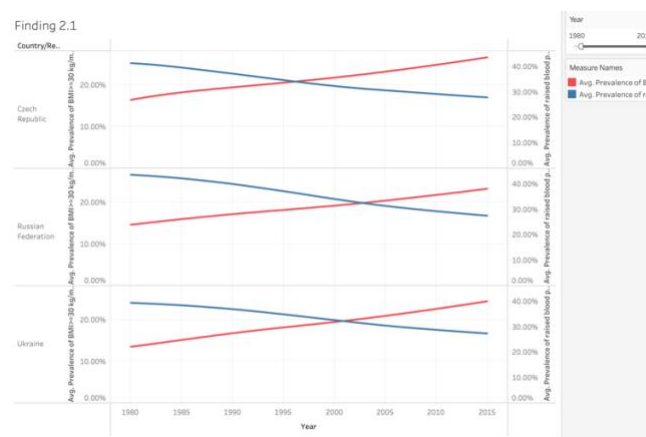
Finding 2.1: Prevalence of blood pressure and BMI over a period of time in Czech, Russia and Ukraine.

What
- Table is the dataset type, and its data type is attribute of type ordered quantitative(bmi and blood pressure) and categorical(country)

Why
- The visualization aims to show a trend between the prevalence of blood pressure and the prevalence of bmi over a period of time in the eastern part of Europe.

Actions

I intend to **consume** the information and **discover** anomalies or discrepancies. The search type is browse. I am using **compare** as the type of query

Targets

Identifying **increases or decreases** and also if there is **a similarity** in the distribution of the prevalence of blood pressure and bmi attribute over a period of time

How
- The mark is **a line**. A **line chart** with vertical position quantitative(blood pressure and bmi) and horizontal position(year), color hue to distinguish between both blood pressure and bmi. Filters

like drop down menu was used to filter out some countries from the visual encoding and a range slider filter was used to adjust the year.

- The line chart is a good fit for the findings because it best highlights the trend between both quantitative attributes over a period of time. The visual encoding uses the most effective visual channels. Showing the distribution using a line chart over a period of time is the best way to analyze the bmi and blood pressure attributes.

Findings

There is a negative correlation between the blood pressure and the bmi. Over the years(1980-2015), as the bmi increased, the blood pressure decreased. Now I will investigate further to find out which sex contributes more to both distributions.
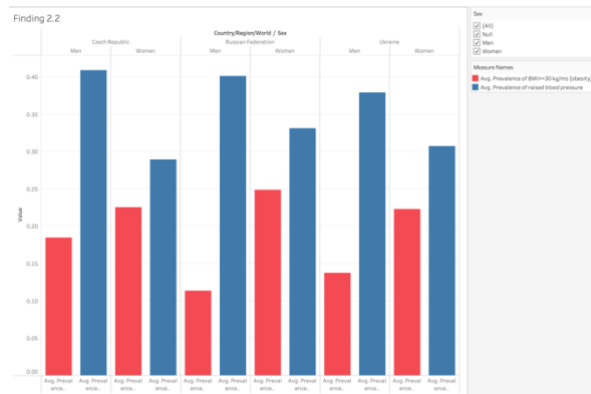
Finding 2.2: Prevalence of blood pressure and BMI across men and women in Czech, Russia and Ukraine.

What

- Table is the dataset type, and its data type is items and attributes with attributes categorical(country and sex) and quantitative(blood pressure and bmi).

Why

- The visualization aims to show a comparison between men and women in the prevalence of blood pressure and bmi in some eastern part of Europe.

  Actions

    I intend to discover the relationship between men or women in the distribution of the prevalence of blood pressure and bmi in parts of eastern Europe. The search type is **locate.** I am using **compare** as the type of query

  Targets

    Identifying a discrepancy or similarity in the distribution of blood pressure and bmi between the sex.

How

- The mark is **a line**. A **bar chart** with vertical position quantitative(blood pressure and bmi) and horizontal position(country and sex), color hue for the quantitative attribute. Filters like drop down menu was used to filter out some countries from the visual encoding, checkbox filter was used as well.
- The bar chart is a good fit for the findings because it best identifies the patterns between the quantitative attributes bmi and blood pressure compared to other charts such as a pie chart or line charts.
- The visual encoding uses the most effective visual channels. Showing bmi and blood pressure with the color hue makes it easy to distinguish between both distributions and identify similarities or discrepancies.

Findings

Men have a higher prevalence of blood pressure compared to women while women have a higher bmi than men in these countries located in the eastern part of Europe.