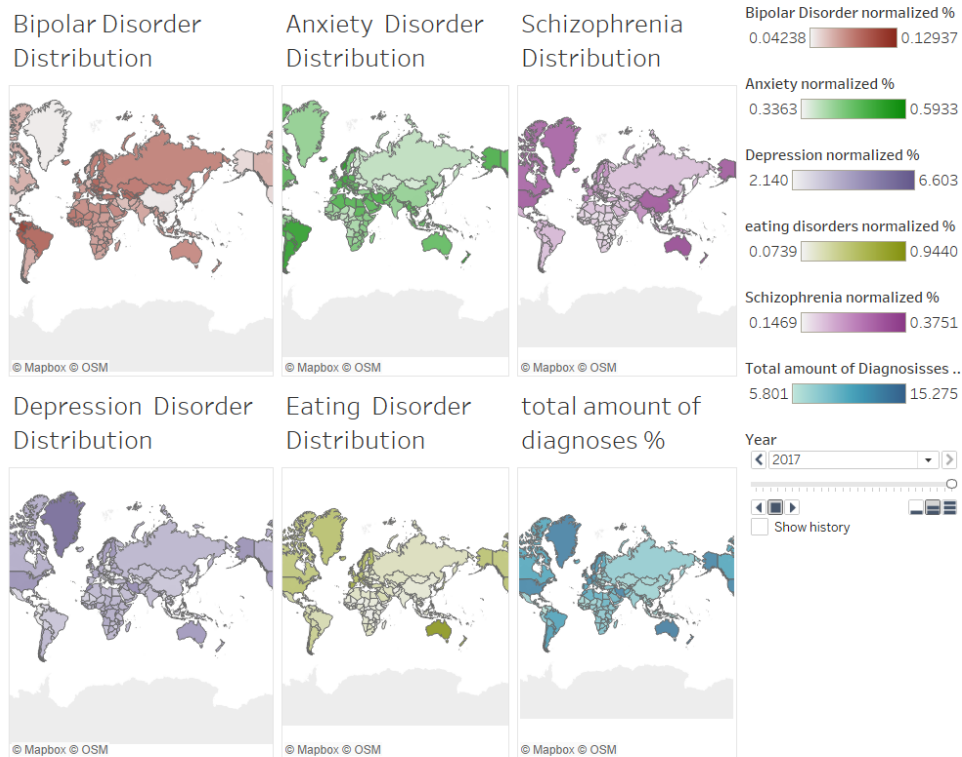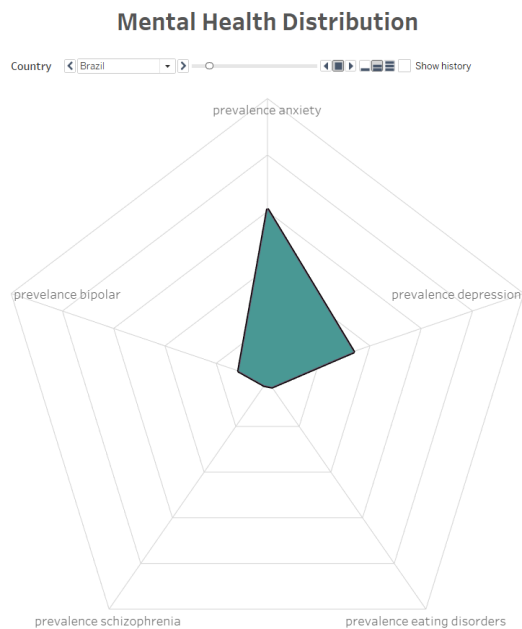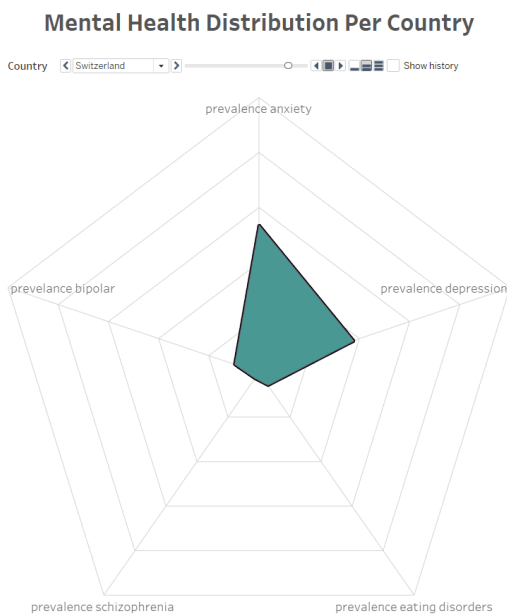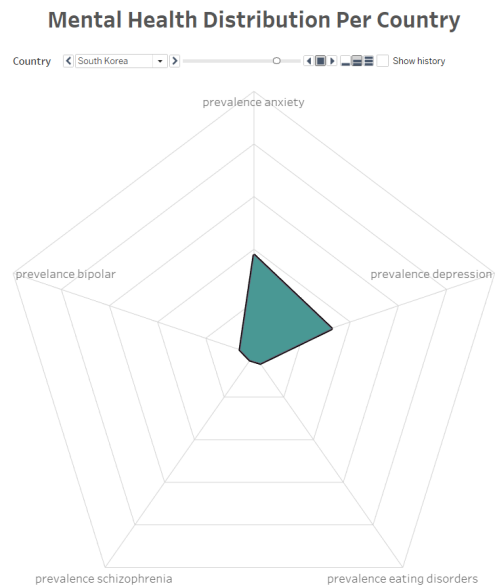# Visualisations Report
Mental Health

08/06/2021

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Agata Sowa
Joost ter Braake
Heejin Hong

Diagnoses around the world (Martijn)

This visualisation looks at the data of 5 different mental disorders. Namely, Bipolar disorder, Schizophrenia, Anxiety, Depression and eating disorders. Since these statistics very much depend on how accessible healthcare is, the data has been normalized by the total amount of diagnoses. The data has been obtained from [1]: https://ourworldindata.org/mental-health, which is a site that compiled a list of statistics from Institute for Health Metrics and Evaluation.

Mental Health Distribution Per Country

Country Netherlands   Show history

prevalence anxiety

prevelance bipolar   prevalence depression

prevalence schizophrenia   prevalence eating disorders

Mental Health Distribution Per Country

Country South Korea   Show history

prevalence anxiety

prevelance bipolar   prevalence depression

prevalence schizophrenia   prevalence eating disorders

Mental Health Distribution Per Country

Country Switzerland   Show history

prevalence anxiety

prevelance bipolar   prevalence depression

prevalence schizophrenia   prevalence eating disorders

Mental Health Distribution

Country Brazil   Show history

prevalence anxiety

prevelance bipolar   prevalence depression
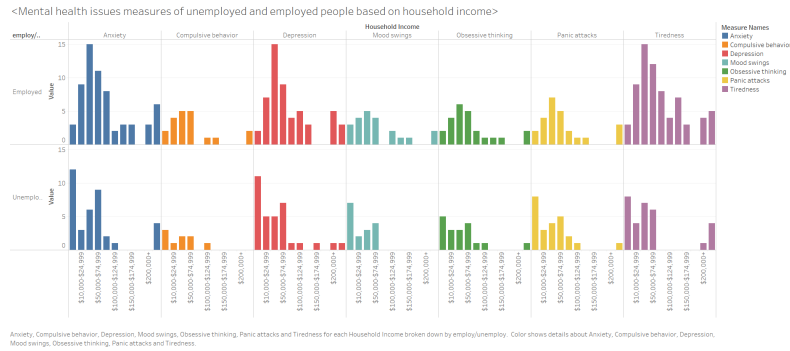
prevalence schizophrenia   prevalence eating disorders

For the second visualisation the distribution of these disorders have been visualized using a radar chart. Each country can be selected using the slider. Above, four examples have been provided. The same dataset as the previous visualisation was used. Above are some examples. It is clear that the shape of each country is roughly the same. The main differences are in depression, and anxiety. It is likely that the reason for this is because these disorders are quite dependent on external factors, instead of heredity.

[1] Ritchie, H. (2018, 20 januari). *Mental Health*. Our World in Data. https://ourworldindata.org/mental-health
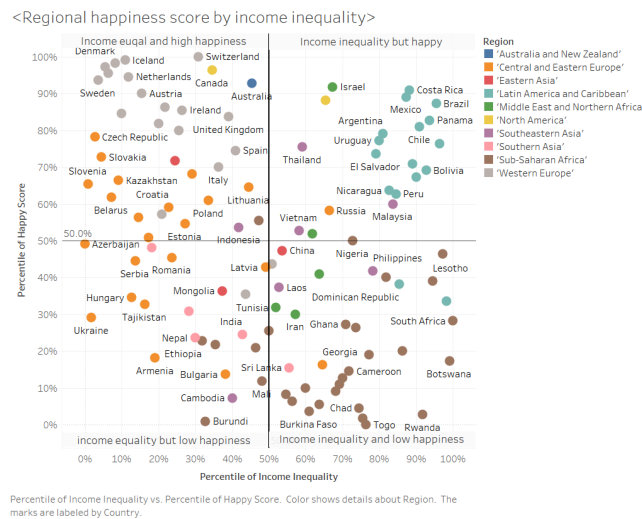
External effects on mental well being (Heejin)
Among the many factors that affect mental health, we wanted to find out if money and jobs cause mental health problems. As a result, unemployment didn't mean more mental health problems. Rather, Tiredness measures are higher than people are employed. But people with low income recorded more anxiety and depression than employed people.
Data : Unemployment and mental illness survey | Kaggle

<Mental health issues measures of unemployed and employed people based on household income>

Anxiety, Compulsive behavior, Depression, Mood swings, Obsessive thinking, Panic attacks and Tiredness for each Household Income broken down by employ/unemploy. Color shows details about Anxiety, Compulsive behavior, Depression, Mood swings, Obsessive thinking, Panic attacks and Tiredness.

We also wanted to find a country where income is equal and has a high happiness index. According to the graph, most Western European countries were in that field, and interestingly, Japan was the only one in East Asia.
Data from :Income and Happiness Correction | Kaggle

<Regional happiness score by income inequality>

Percentile of Income Inequality vs. Percentile of Happy Score. Color shows details about Region. The marks are labeled by Country.

Depression (by Agata Sowa s2335301)
Depression scored very high in the category of employed people. Therefore, we wanted to take a look at how it is distributed around the world.

Prevalence of depression by country in 2017

Prevalence - Depressiv..
2.196   6.234

© 2021 Mapbox © OpenStreetMap
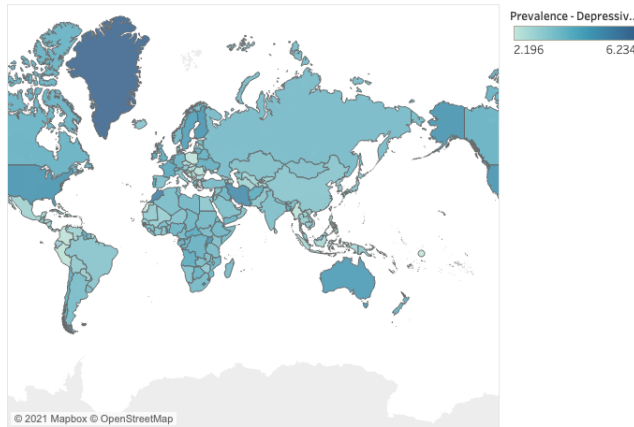
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Prevalence - Depressive disorders - Sex: Both - Age: Age-standardized (Percent). Details are shown for Entity. The data is filtered on Year, which ranges from 2017 to 2017.

Based on the map, we can determine four countries with the highest percentage of people suffering from depression. Those are Lesotho (5.64 % of all population), Morocco (5.41%), Iran (5.16%), Uganda (4.92%). The region with the highest score is Greenland with 6.23, but we will not consider it in the following part of the report, as Greenland is not a country. Moreover, Lesotho is also not on the following chart as its population was too small to showcase the dependencies.
Data from https://ourworldindata.org/.

Distribution of depression in sex and age categories in 3 countries with the highest depression prevalence in 2017

Component
■ Morocco
■ Iran
■ Uganda
■ Male
■ Female
■ 10 - 14 age
■ 15 - 49 age
■ 50 - 69 age
■ 70 + age
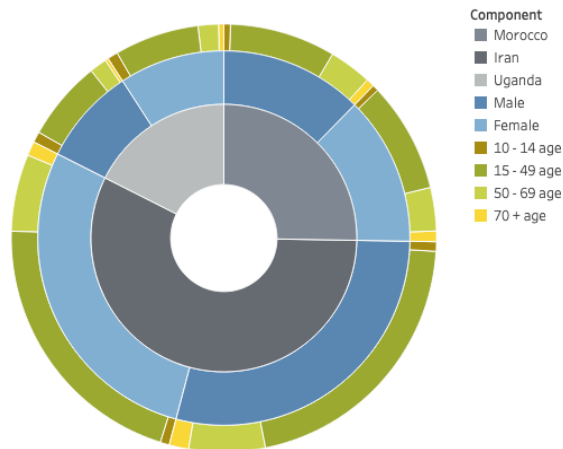
X vs. Y. Color shows details about Component1. Details are shown for Level1 and Path (bin). The view is filtered on Component1, which keeps 33 of 33 members.

The country with the highest number of people suffering from depression is Iran, followed by Morocco, and then Uganda. The proportion in sex for all of the mentioned countries is close to 50/50. Depression occurs in the 15-49 age groups the most, and the second most depression-prone group is 50-69 for all the countries, followed by 70+. The only country that this

is not the case, is Uganda where there are more diagnoses in the 10-14 group than 70+. This can be explained by the fact that Uganda has a very young population.

Data from https://ourworldindata.org/ and age distribution from https://www.populationpyramid.net/

Anxiety (by Kristian Tijben)

Anxiety Prevalence compared to Life Satisfaction per country in 2017
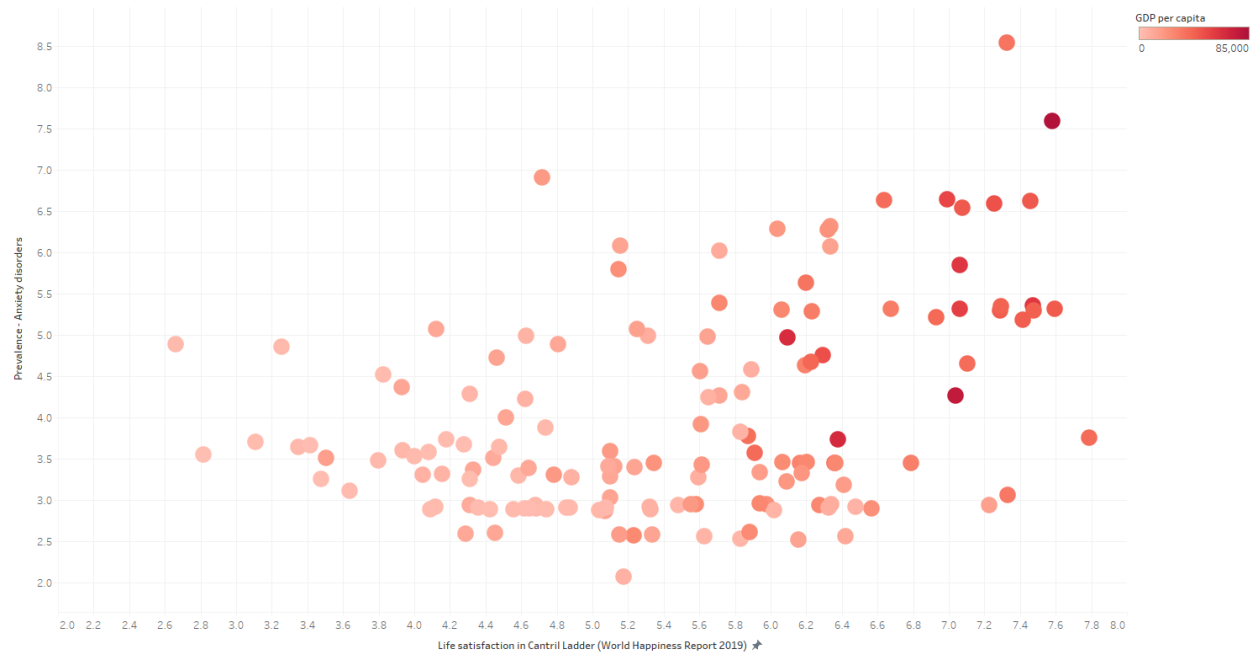
Sum of Life satisfaction in Cantril Ladder (World Happiness Report 2019) vs. sum of Prevalence - Anxiety disorders - Sex: Both - Age: Age-standardized (Percent). Color shows sum of GDP per capita. Details are shown for Entity. The data is filtered on Year, which ranges from 2017 to 2017. The view is filtered on sum of Life satisfaction in Cantril Ladder (World Happiness Report 2019) and Entity. The sum of Life satisfaction in Cantril Ladder (World Happiness Report 2019) filter keeps non-Null values only. The Entity filter keeps no members.

In the visualization above, the anxiety prevalence per country is plotted against the life satisfaction of that country. In addition, color is used to show the GDP per capita of that country. This is an attempt to show that anxiety is not dependent on how "well" a person is doing, since anxiety seems to be as prevalent, if not slightly more prevalent, in countries where happiness and GPD per capita is higher.
The sources used for this visualization are as follows:
https://ourworldindata.org/mental-health#anxiety-disorders for the anxiety prevalence per country.
https://ourworldindata.org/happiness-and-life-satisfaction for the life satisfaction rating.
https://ourworldindata.org/economic-growth for the GDP per capita data.

Anxiety Prevalence, Human Rights Score, Life Expectancy and GDP per Capita over the years in the Netherlands
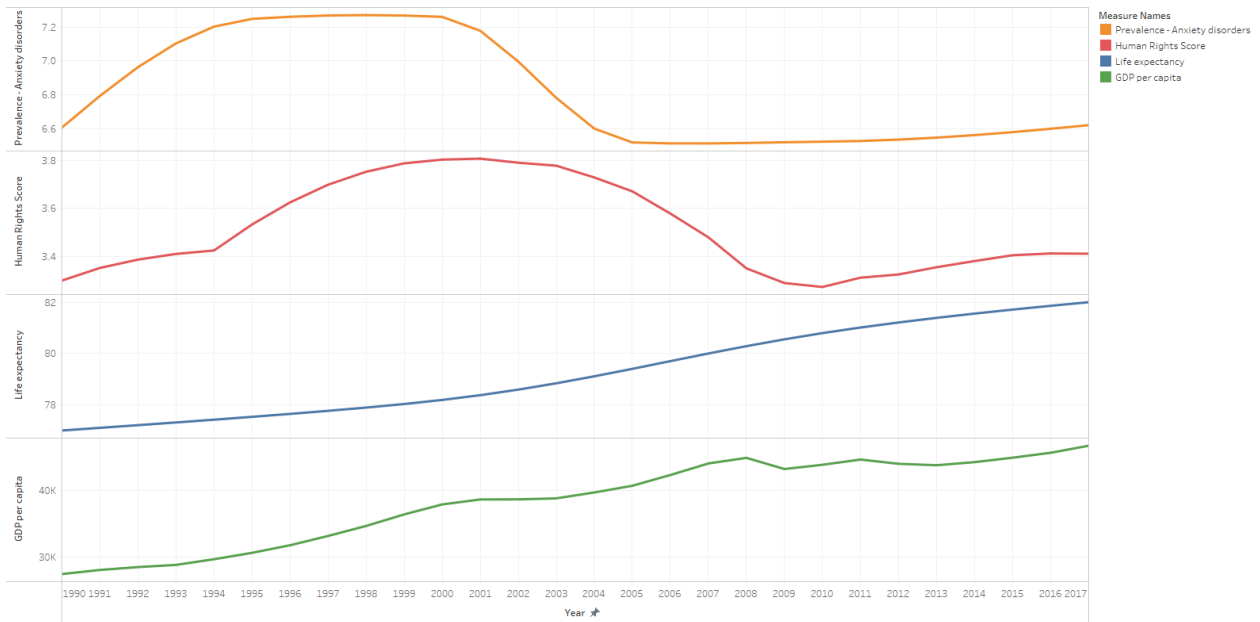
The trends of Prevalence - Anxiety disorders, Human Rights Score, Life expectancy and GDP per capita for Year. Color shows details about Prevalence - Anxiety disorders, Human Rights Score, Life expectancy and GDP per capita. The data is filtered on Entity, which keeps Netherlands. The view is filtered on Year, which ranges from 1990 to 2017.

In the visualization above, the anxiety prevalence, the human rights score, the life expectancy and the GDP per capita is shown from 1990 until 2017 in the Netherlands. There is no clear relationship between the graph of anxiety prevalence and any of the other graphs, which once again goes to show that improvement of a country does not necessarily mean that the anxiety rating is dropping.

The sources used for this visualization are as follows:

https://ourworldindata.org/mental-health#anxiety-disorders for the anxiety prevalence per country.

https://ourworldindata.org/human-rights for the human rights score.

https://ourworldindata.org/life-expectancy for the life expectancy.

https://ourworldindata.org/economic-growth for the GDP per capita data.

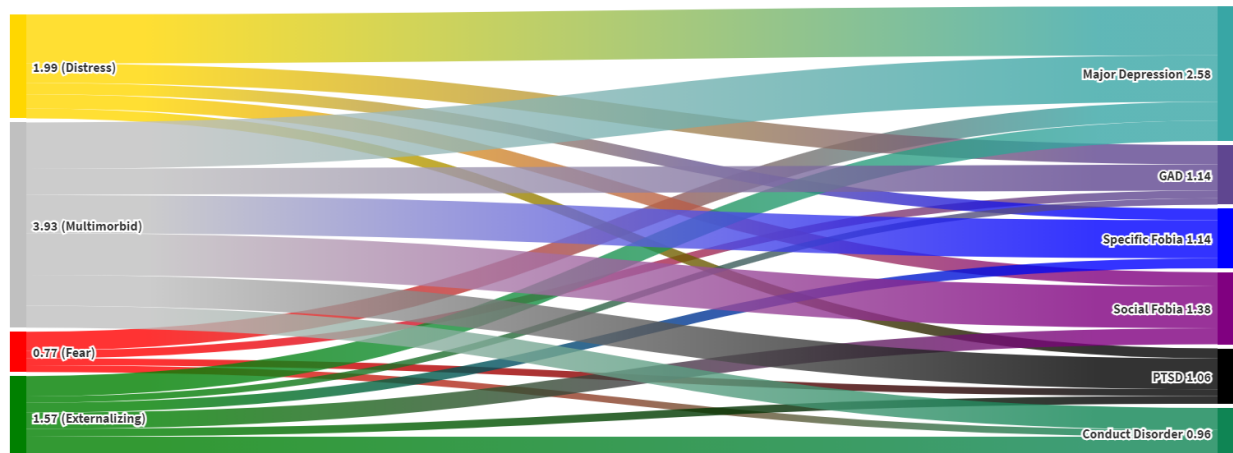Comorbidity — Joost ter Braake (s2012979)

Mental Disorder Classes with potential Comorbidity to DSM-IV Disorders

Directional Cord Diagram: (Classes) imply an estimation of the probability (in %) that any individual in a class would be diagnosed with the given disorder within their lifetime (Excluding data for p < 0.1)
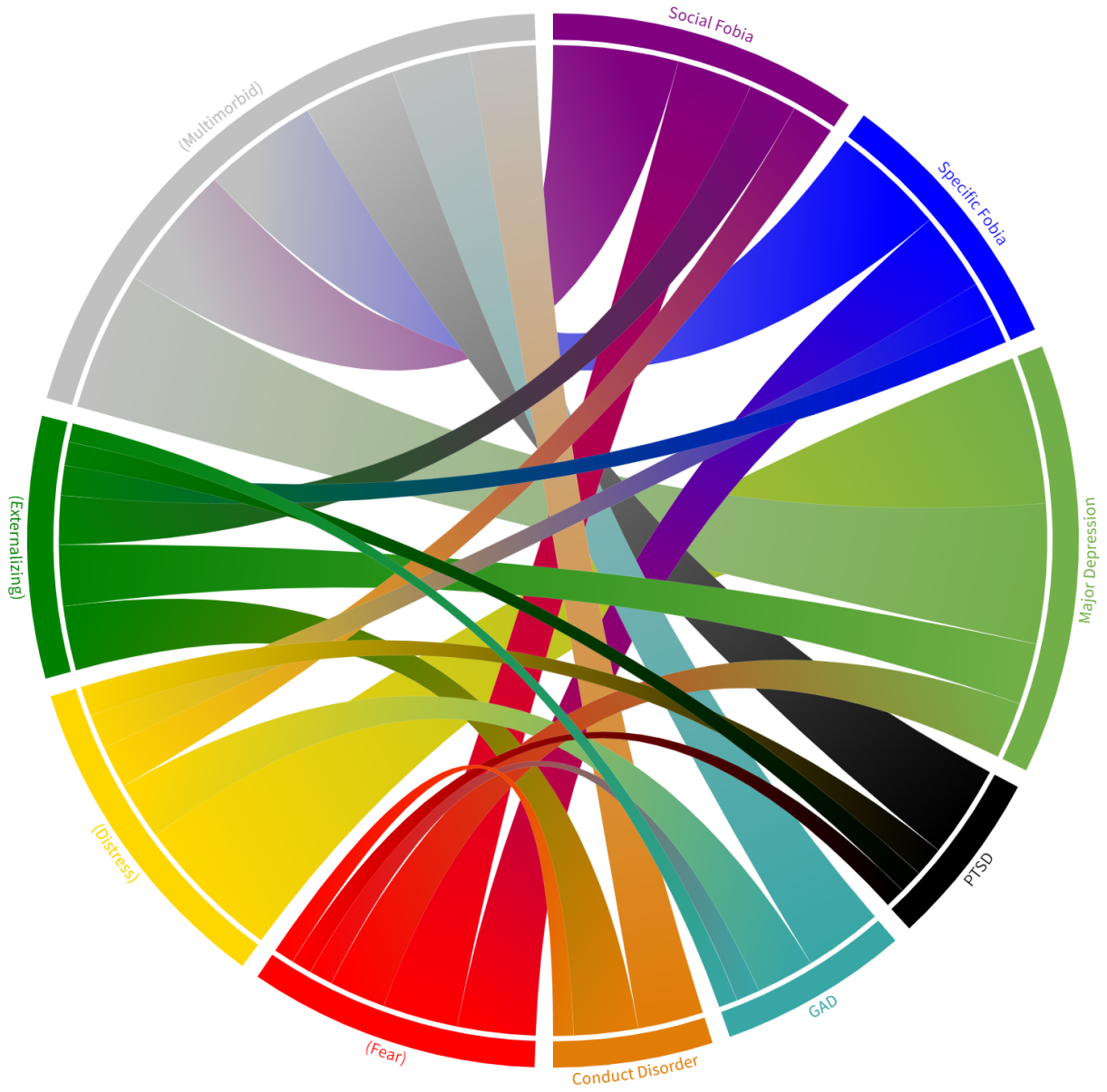
Given 4 individuals, one of each classification, how many instances of each diagnosis do we on average expect?

1.99 (Distress)

3.93 (Multimorbid)

0.77 (Fear)

1.57 (Externalizing)

Major Depression 2.58

GAD 1.14

Specific Fobia 1.14

Social Fobia 1.38

PTSD 1.06

Conduct Disorder 0.96

Cord Diagram: https://public.flourish.studio/visualisation/6366626/
Sankey Diagram: https://public.flourish.studio/visualisation/6367072/
Source: https://doi.org/10.1016/j.comppsych.2010.10.006, Fig 4.

Significantly large datasets on Comorbidity are rare due to what is required to carry out such wide-scale longitudinal studies. The National Comorbidity Survey (NCS-R in this case) is one such study, upon which much other research is based, including the source study which derived these classification from it. For the sake of clarity and readability of the visualization data was rounded to the nearest integer and probabilities < 0.1 and the substance abuse topic were excluded. Colours were further tuned for contrast and clarity. Description included with the visualisation per feedback.

A Sankey Diagram allows the asking of different types of questions due to the nature of this visualization, which sums all in and outgoing streams, which allows for the answering of the given question.