**Project Proposal**

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**Overview**

Research has shown that most mental health disorders are more commonly found in women than men, and the pattern seems consistent across most countries. This project is intended to determine whether the pattern is valid and to analyze the driving factors attributable to mental illness for women across the world.

**Data**

The data would be primarily obtained from World Health Organization and Our World in Data and the World Bank. I would include three categories of data: basic country information, mental health data, and challenges to mental health.

1. Country Information

The table of World Development Indicators: Size of the economy from the World Bank provides a series of development data. The table is downloadable, and I would include only the data of population, gross national income per capita and GDP per capita across countries for this analysis.

Since this project would focus on the pattern between genders, the table of World Development Indicators: Women and Development would also be included. A general pattern of the economic and social gap would be determined by observing women’s participation in the labor force, middle and upper management, and parliaments.

It is not feasible to determine expenditures specifically on mental health per capita, because of limited data and statistics. However, from the World Bank, I would obtain the data of per capita expenditures on health, and out-of-pocket health expenditures per capita. By calculating health expenditure per capita over gross national income per capita, a big picture of cost associated with health would be useful for the analysis.

1. Mental Health Data

To start with, I would like to gather data of the prevalence of mental health disorders for both genders and by genders from Our World in Data. In order to have a detailed look, the prevalence rates of different types of disorder by gender would also be obtained. These data tables would be scraped via Python. The consequence of mental health would be quantified by the suicidal rate per 100,000 populations. The data would also be obtained from Our World in Data.

In addition to prevalence rates and suicide rates, the World Health Organization provides data of human resources for mental health. I plan to include the number of psychiatrists, nurses, social workers, and psychologists working in mental health sector per 100,000 population. A separate table from WHO shows government expenditures on mental health sector and whether the countries have stand-alone policy or plan on mental health. These two tables from WHO are also downloadable, but I would like to only include the most recent year for the analysis.

1. Risk for Mental Health

The main focuses here are the proportion of women subjected to violence by a current or former intimate partner, and the proportion of women aged 20-24 years who were married or in a union by the age of 15. These data would be downloaded from the site of WHO.

Besides, the table of Poverty rates at national poverty lines from the world bank would provides insights on whether or not mental health has a relationship with poverty.

**Methods**

1. Data Manipulation

First of all, I would limit the data to only UN member states in this analysis to avoid any issues with territorial disputes and to ensure consistency.

In the process of combining datasets, only relevant information would be included, and some data would be changed to different units. For instance, the per-capita expenditures on health would be calculated as the proportion of gross national income per capita.

For the comparison between genders, I would calculate the absolute difference of prevalence rates between genders in each country, and the difference of the average prevalence rates between genders. For the driving factors attributable to women’s mental health, the primary method would be constructing a correlation matrix.

1. Data Visualization

The project would include several data visualizations. I would include bar charts for comparisons between genders. In order to determine the factors driving female mental health issues, I would start with a heatmap of correlations. In addition, I would also visualize the top 3 factors that have the most influences on mental health.

1. Statistical Learning

At the current stage, I plan to estimate a OLS model to explain the relationship between female mental health and the leading factors.

**Criteria**

The project aims to determine whether there is a distinct pattern on mental health between genders and if so which factors drive the pattern. A successful outcome would be that the model could make materially and statistically significant predictions.

**Work Cited**

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