

# Global Gender Development

Ruth Anne Sullivan

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## 1 Introduction

The question I hope to answer is how women's human development index relates the levels of education, income, and Internet access in the region. I also wanted to see if there were any relationships that could relate to the global literacy rate.

The data that I am using is collected from the United Nations on various topics that are related to human development. Most of my data came from the Human Development Report released by the United Nations Development Programme. [1] The next sources I used were under the general data that was collected by the United Nations. The amount of people who have access to the Internet was one of my sources. [2] The other was the literacy rate of 15-24 year-olds. [4]

When I first collected the data, I knew the human development index was sorted by gender, but had several different variables. I collected other data such as the amount that people were able to use the Internet to see if I could reference and relate it to Gender Development. I also collected the literacy rate for males and females from 14 to 25 that contained the percent that was able to read by country.

I was interested in global issues and the status of women globally. I wanted to see the data that the United Nations collected on women's position in recent years and see how it looked on a global scale. We hear about the many violations of women's rights in different countries. The graphs will not show the violation for individual human rights, but try to attempt to show the status of women in the world by looking at the global picture. I looked at each category under the data for the United Nations. I chose data from more recent years. The Human Development Index had the most data points, but literacy rate and the Internet access were other sets of data that I wanted to try and relate the information.

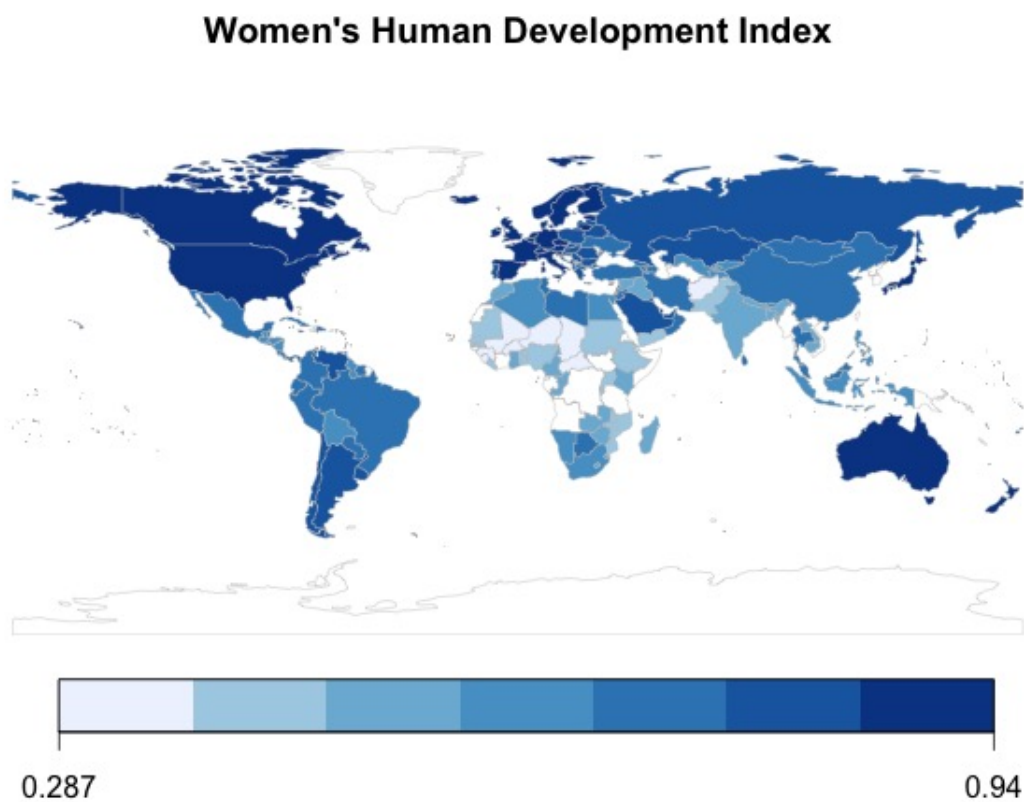
I cleaned some of the data by removing fields without values and changed a couple of the columns to decimals from percents. The closest I came to filtering the data was displaying it either by gender or region. I did not focusing on individual regions and more focused on comparing either the gender or region by displaying the results next to each other.

After I gathered my data into a csv file, I wanted to be able to sort some of my data into regions. I found a file online with countries by regions and placed it into a csv file. I then created a merging algorithm using python to find the country from my united nations data and add its region to the last column. I chose python since it was easiest, most efficient code to do this from the training I received this semester.

After my csv files had the regions, I uploaded my files to R. I chose R because I have the most experience with it and since there are so many different options to display the data. R has several different applications that can be use to display data in a professional manner. I did not create any websites or applications with R since I created my data as images that could be used in papers and articles where this data could be displayed to convey a message. I created several different graphs to tell a story and instead of making interactive graphs to find a country, I displayed some of the data on choropleth maps. These graphs are made to be in color and a couple of them have trouble showing up as clearly in black and white. I wanted to use colors since they are more bold and easier to tell, but if needed the R code could convert them to black and white if printing without color. Below you will see the different ways I visualized the data using R.

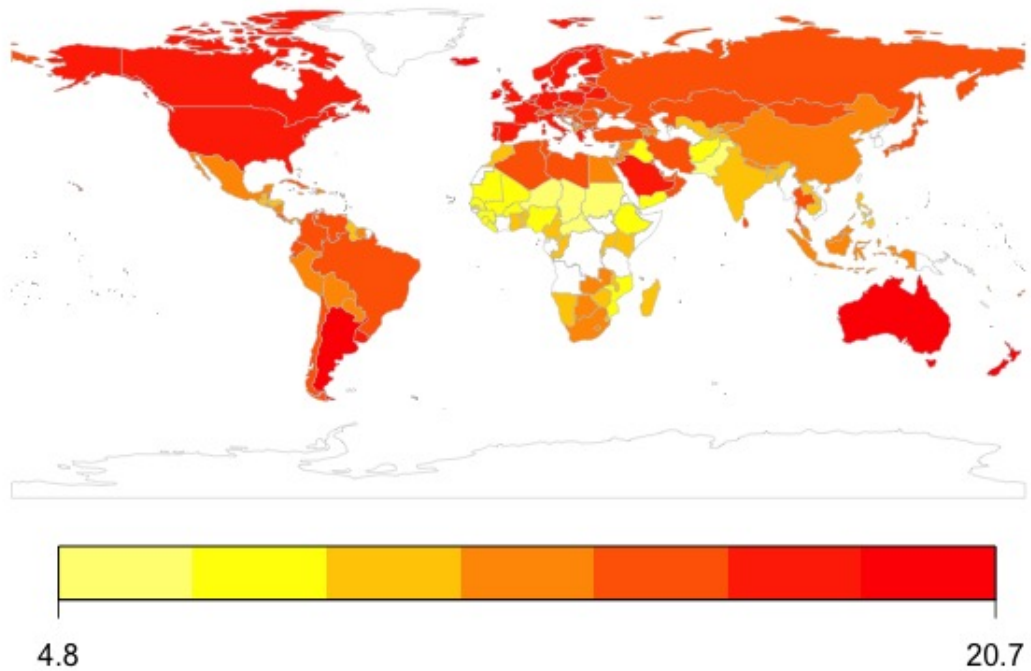
## 2 Human Development Index

We start by looking at the global human development index for women across the globe. As expected, the more developed countries have higher scores.

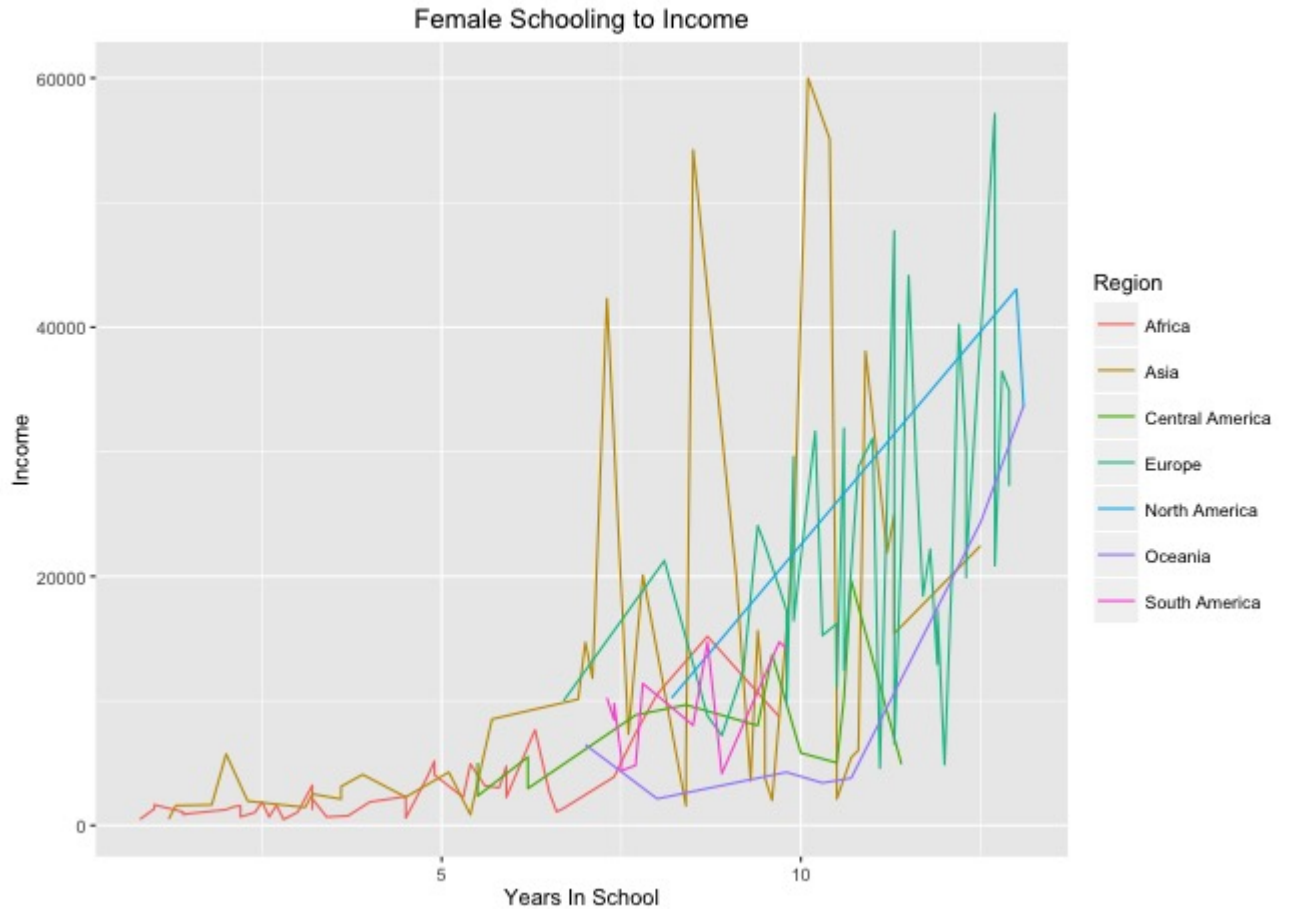


The graph looks at the average amount of years in school. The higher developed countries have higher education rates and follow a similar pattern as human development index.

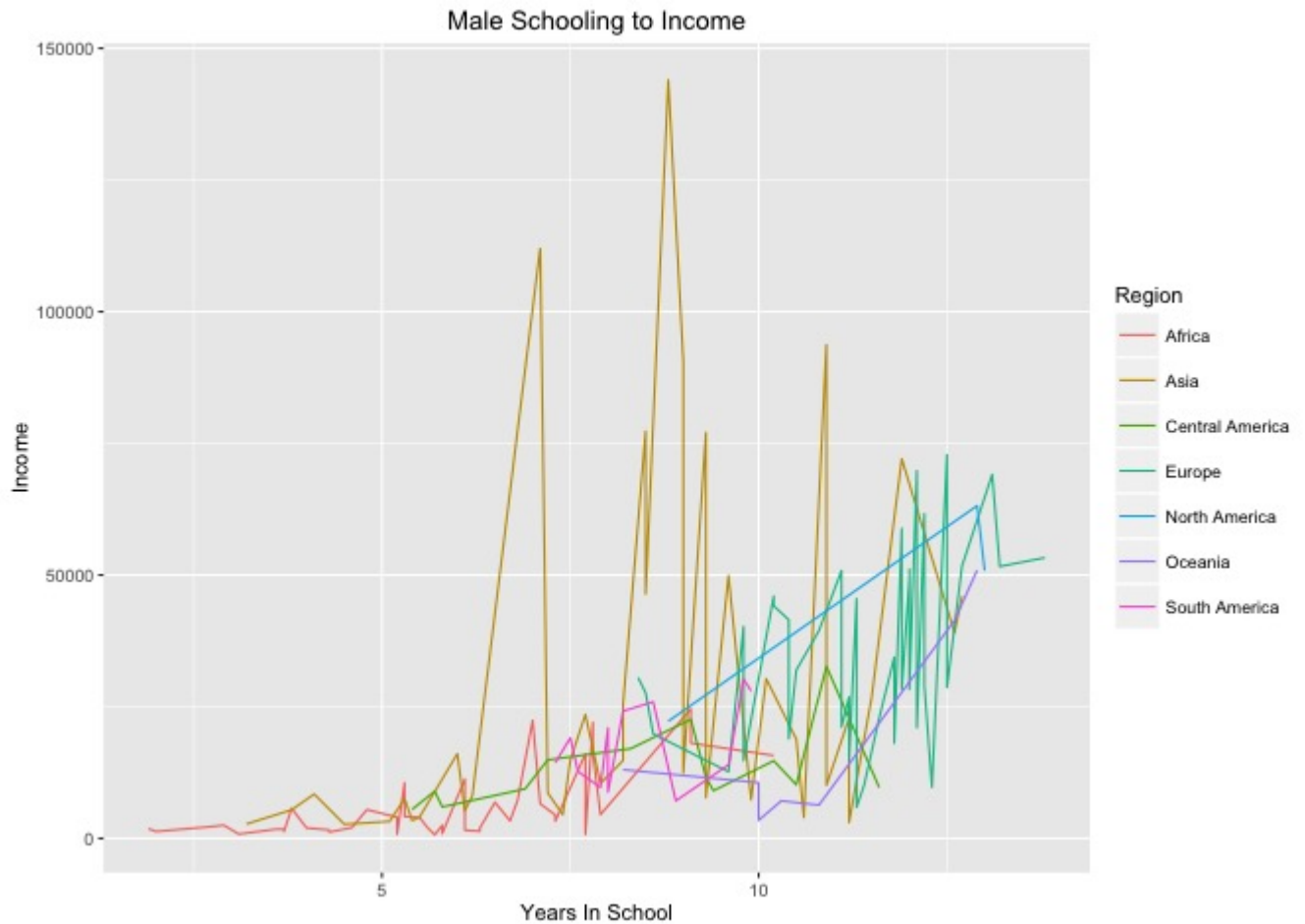
### **Average Amount Years Females Spend In School**



We will now look at the relationship to the amount of years spent in school to income by region for women. The average income caps at \$60,000 with Asia having the highest income average with Europe as a close second. Asia has low income with high income jumps, which shows a lot of variance in the region. Africa has the lowest average income and amount of years in school. In the Appendix, there are some maps of how the income varies in a few of the different regions.

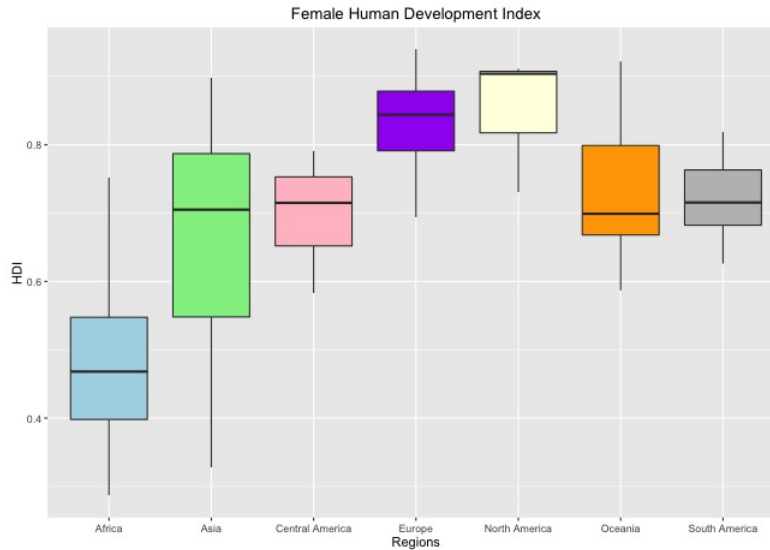


The income and years in school for men is different then the women's graph. The first thing to note is that men's average income caps at \$150,000, which is \$90,000 different than the women's average income. Africa is still the lowest, while the other regions are more intermixed.

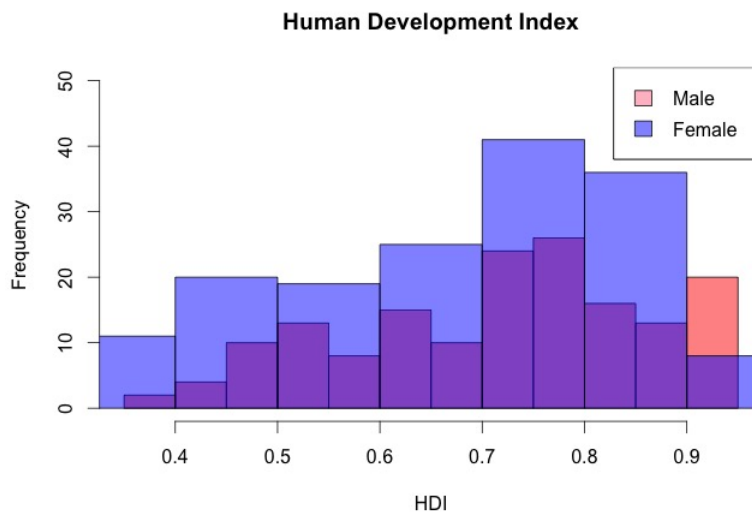


This shows that men on average are paid more than women, which is important when considering gender development. This needs to be considered when looking at a country. Countries in North America and Europe will not have as high of gender pay differences, while countries in Africa and some different parts of Asia have large disparities that make it harder for women to be treated equally in society.

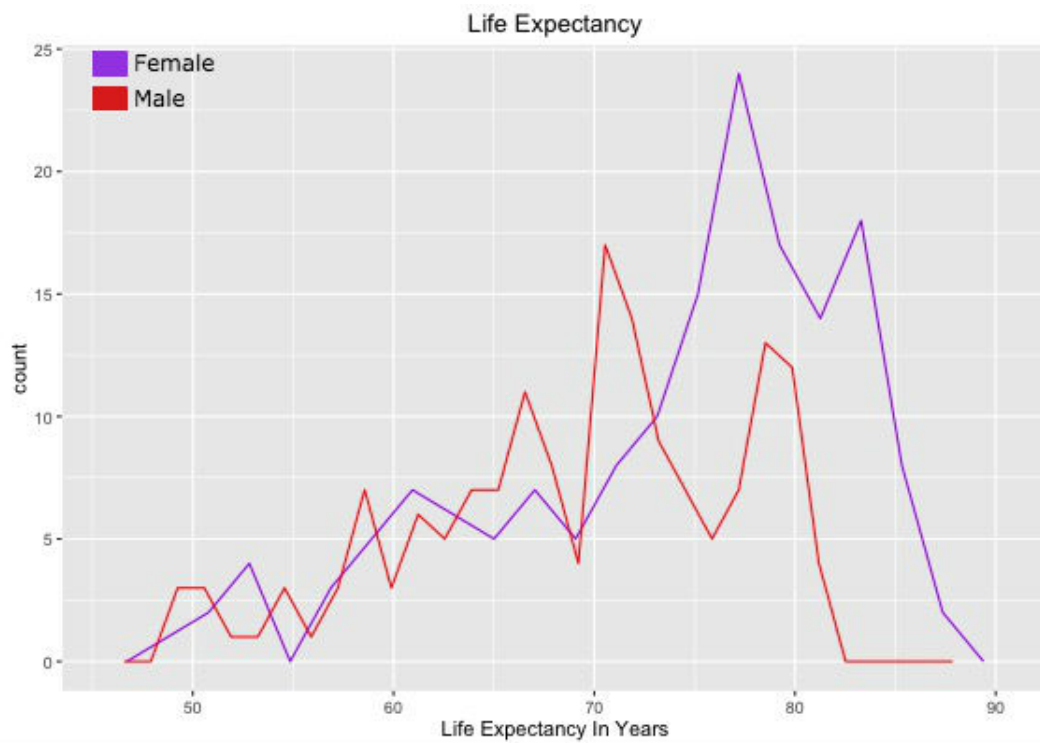
The human development index for women's box-plot shows a great deal of variance. Africa is still the lowest, but Asia has low to high scores showing that the region has the most amount of variance.



As we compare the over all human development index, we can see that overall women do have many high human development, it also accounts for the lowest values. The histogram is good at comparing the differences between genders and seeing the different frequencies of human development.



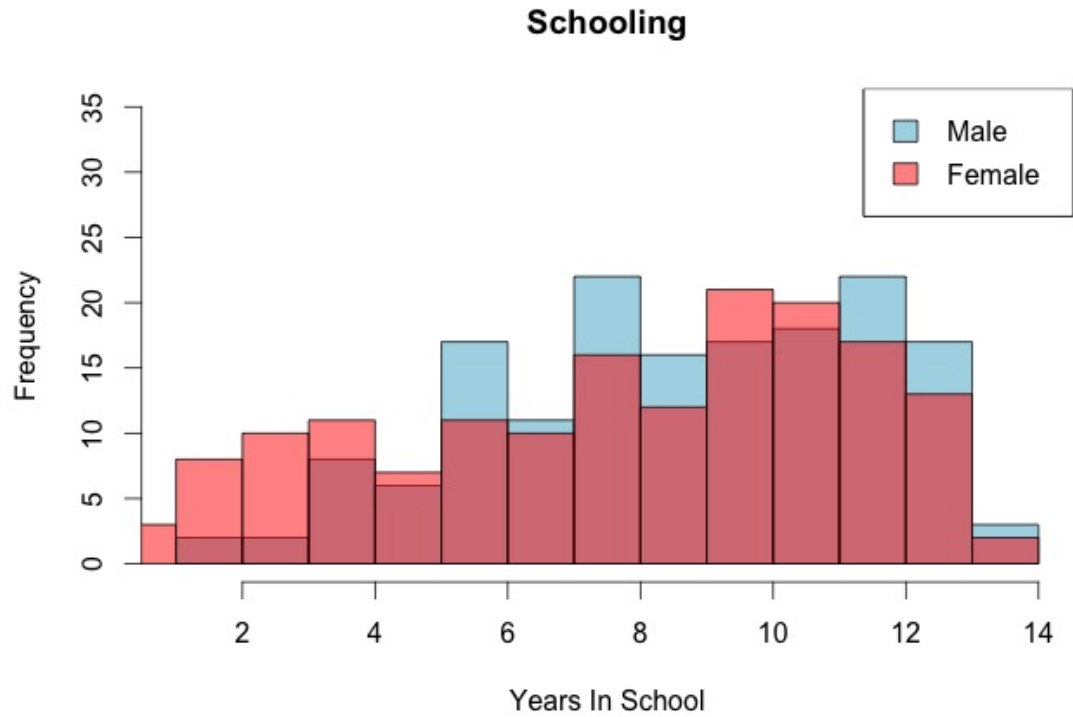
Despite the fact that women's education, income, and human development is usually lower than a man's, the life expectancy for women is on average longer than a man's life.



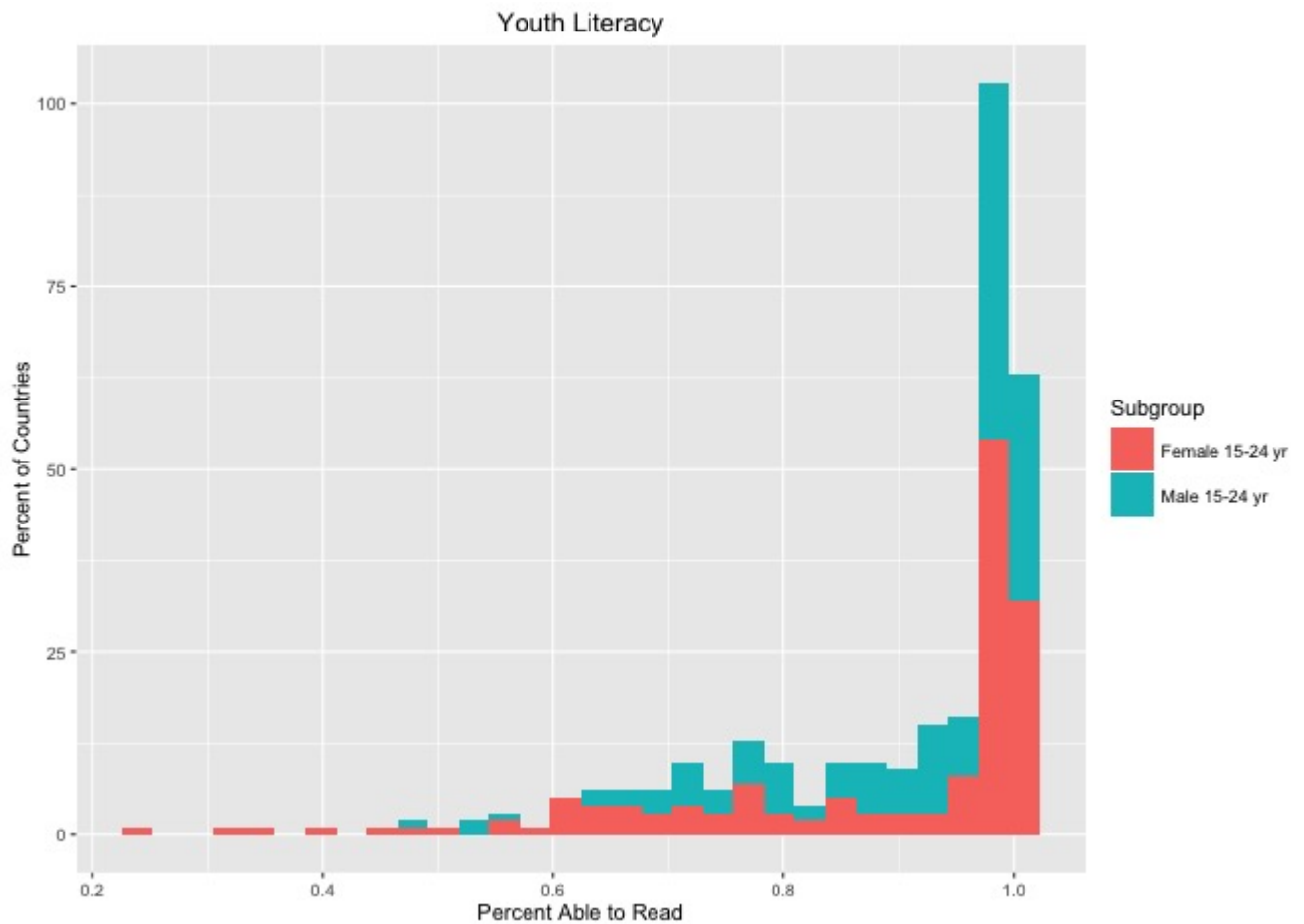


### 3 Literacy

This histogram brings us back to looking at the years spent in school by men and women. While women are recorded with some high amounts of education, it is usually lower than a mans, and women account for a higher percentage of the low scores. This shows a disparity in education that needs to be changed.

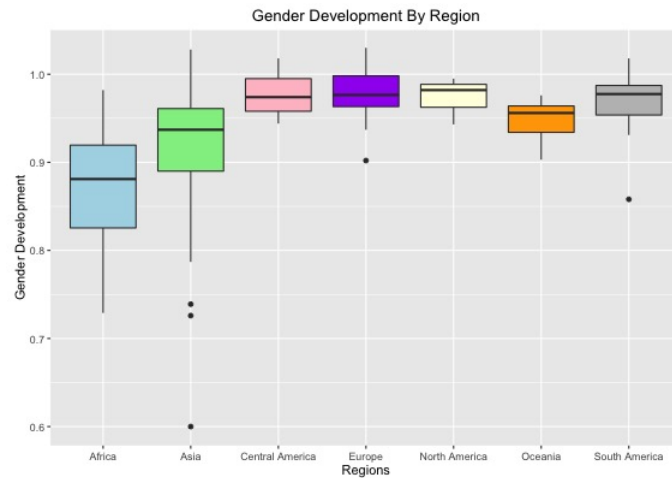


Seeing that on average, women spend less time in school than men, it makes sense that the literacy rate of women is lower than men's rate. Women have the most amount of countries where only a small percentage of women are able to read. There are still many countries with many women who are able to read, but the fact that there are so many unable to read shows the lack of education of women in many countries.

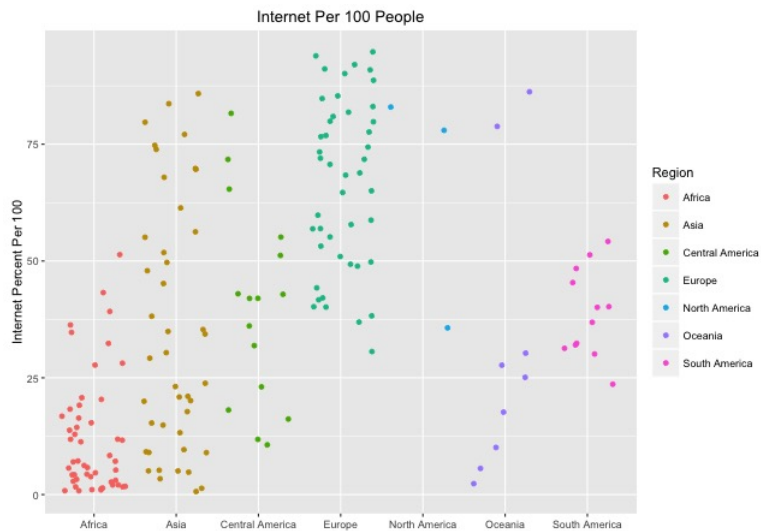


## 4 Internet

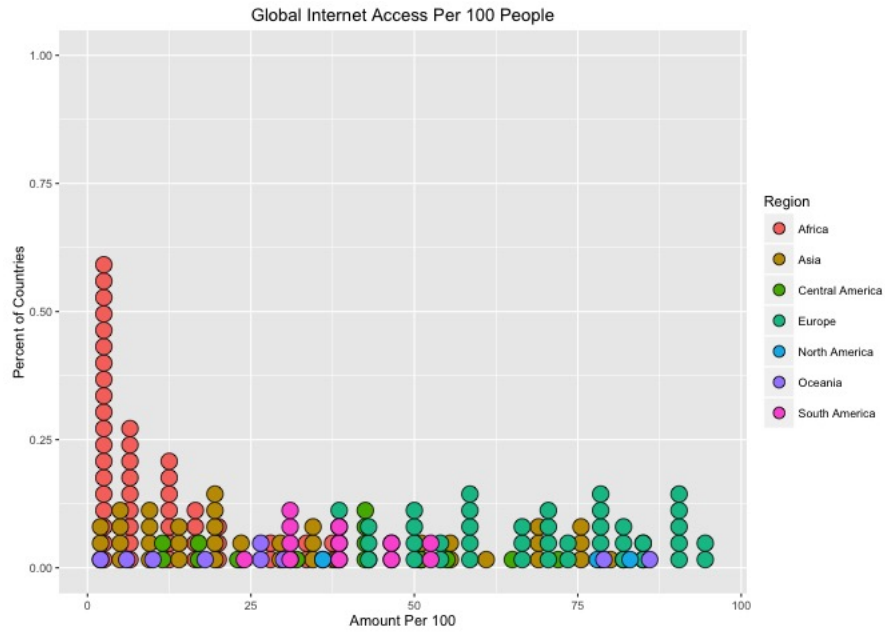
Before we look at the Internet levels, we will look at global gender development levels. The gender development for the regions is a quick way to see what regions are the most and least developed regions with the outliers. Europe, Central America, and North America as the most developed country and Africa is the least developed country.



Using the gender development from regions above, we can compare it with the amount of people who have access to the Internet per 100 people in those regions.



One can see that the lower gender development levels correspond to lower access to the Internet. Countries with lower access to the Internet will usually imply that they are poorer countries since the Internet is more of a luxury item especially considering the technology needed to show and provide access. The other Internet graph below is an easier comparison to generally how many people have access to the Internet.

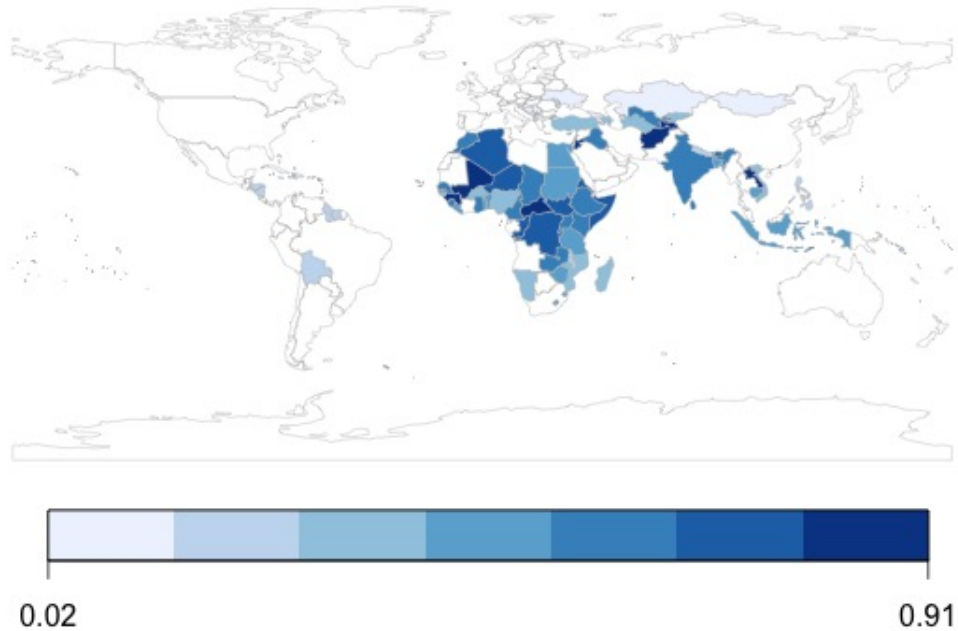


## 5 Conclusion

The Human Development Index does correspond and show that women have lower incomes and less education. This is a well known fact, but it is good to know the actual levels and the regions with the biggest issues. South America was on average higher than I thought it would be considering that there are still many countries struggling with great levels of poverty. The lack of education also comes out with the amount of women who are unable to read. It is hard to promote equality and increase women's Human Development Index when they are uneducated and unable to read to be able to become informed. Regions with access to the Internet tend to be richer with higher gender development. The Internet has many educational tools, but if there is no access or your unable to read, it is useless. These graphs answer a question by giving a more updated look on the progress in the world today and the regions that need to be targeted for improvement. The next steps would be to compare individual countries to each other to get a better idea of the problems within the country to understand there individual problems.

The lack of education and smaller incomes puts women on unequal footing making it to discrimination and abuse women in different ways within these countries. There are many horror stories of the abuse of women that come out of third world countries such as rape, genitalia mutilating, and physical abuse. The information that we have found from previous information will help explain why the graph below has such high levels in places. This report was released by the United Nations and shows how harmful the lack of education can be. [?]

## Believe Husband Has Right To Beat Wife



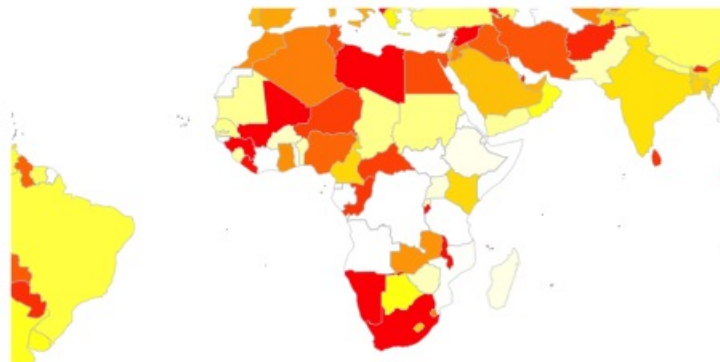
This abuse happens in first world countries, but only has an extremely low percentage of people who believe it is okay. The fact that some of these countries believe this behavior is acceptable shows how the lack of education and inequality are also damaging to women's belief of self worth. This information highlights the overall issues and shows the need for change.

## References

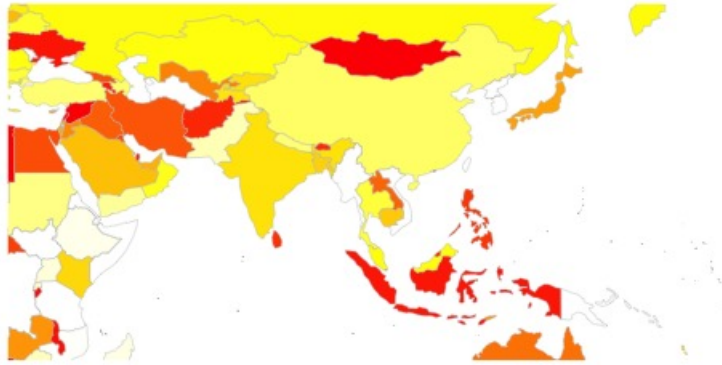
- [1] UNITED NATIONS DEVELOPMENT PROGRAMME, “Gender Development Report” <http://hdr.undp.org/en/composite/GDI>.
- [2] UNITED NATIONS, “Internet Users” <http://data.un.org/Data.aspx?d=SOWC&f=inID%3a72>.
- [3] UNITED NATIONS, “Literacy rate of 15-24 year-olds” <http://data.un.org/Data.aspx?d=SOWC&f=inID%3a10>.
- [4] UNITED NATIONS, “Proportion of population who consider a husband to be justified in hitting or beating his wife” <http://data.un.org/Data.aspx?d=SOWC&f=inID%3a229>.

## A Appendix: Income By Region: Red is Low Wages

**Average Female Income in Africa**



### Average Female Income in Asia



### Average Female Income in South America

