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**Key Points :**

* Social media usage by country.
* Suicide rates early 2000s (around the time social media started to really gain popularity), by race, age, sex, and country/region.
* Mental health diagnosis since early 2000s (depression, anxiety, etc.).

**Introduction:**

In this explanatory analysis I will explore the effects social media has on an individual’s mental health. Over the last few decades or so social media has glued many individuals to their mobile devices, and computers. Social media was created with positive intentions to connect individuals all over the world, but like most things we overly indulge in it can also produce negative effects. I have been fortunate enough to live through both pre and post social media as we know it. Based on my personal experiences and observations I have noticed many things regarding a shift in human interactions. Pre social media, it was much more common to have in-person interactions without the constant distraction of a cellphone. Many have now developed a need to always have their phone easily accessible to receive notifications, make comments, or to idly scroll through the latest gossip. The bar graph below shows the percentage of each region’s population social media usage. Most regions have well over 50% of its population on social media. While its primary purpose is to connect individuals, the employees of these networks also have an obligation to their company to grow the platforms usage rates and maintain its relevancy. That means forming tactics to get users hooked. A few of these tactics include adding features such as likes and comments, constant display of ads, allowing options for the type of content you want to upload, etc. It’s great to be able to interact and network with loved ones, and even strangers across the globe. However, it can also be a huge distraction, and in some cases dangerous.

**Chart, bar chart, histogram

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With social media constantly pulling people in, what more and more individuals find important is drastically changing. Going viral has made its way to the top of many people’s priority list, especially young adults. In many cases users have no limit to what they will do to go viral. We all witnessed challenges, such as the crate challenge, and TikTok challenges encouraging grade school students to physically harm teachers. Although officials advised against participating, the challenges grew more and more momentum, and in some cases ended with individuals injured. People are applying an unnecessary amount of pressure on themselves to look a certain way and feel accepted by the world via social media. We live in a time where the number of likes you have; determines how important of a person you are to others. This is exactly the mindset networks capitalize from. They know and understand that some individuals will continue to post to gain acceptance, and others will continue to visit the platform to catch the latest trends. The magnitude of impact social media has on what people think of themselves could possibly send anxiety, suicide, and depression rates in the wrong direction. I was curious to see if social media usage and the 2019 suicide rates (per 100k people) have a correlation. I hypothesized that as the population’s usage by country increases, suicide rates would also increase. Based on the correlation test I conducted the two variables have very little correlation (0.16). This means the amount of social media usage in each country has very little impact on its suicide rates. The scatterplot below visualizes the lack of correlation between the two variables. The x-axis represents the percentage of a country’s population that participates in social media. The y-axis represents the suicide rates for each country. The average suicide rate is 10.20 shown by the horizontal blue line. The linear regression is represented by the pink line. A 16% correlation is evident in the lack of points fitted around the linear regression line. First glancing at the plot, I immediately noticed three outliers. The three countries with the highest suicide rates are South Korea with a rate of 28.6, Russia with a rate of 25.1, and South Africa with a rate of 23.5. Each of these countries are more than twice the average rate.

Chart, scatter chart

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To gain an understanding of how suicide rates changed over time, I explored data from Kaggle.com that tracked suicide statistics from 1985 to 2016. The bar graphs below outline the change in rates over time for four countries with high suicide rates. During the 80’s and 90’s social network users had access to AOL, Prodigy, and other platforms that granted users the ability to communicate electronically via email, instant messenger, and bulletin board messaging. Since the start of social networking, technology has made many advances, allowing the internet to rapidly grow popularity. According to, “[The Evolution of Social Media: How Did It Begin, and Where Could It Go Next?](https://online.maryville.edu/blog/evolution-social-media/)”, a blog on Maryville University’s blog site, by the late 90’s to early 2000’s other social networks such as LiveJournal and Friendster joined the internet, giving individuals access to blogging, and other general social networking tools. Eventually Myspace took over by offering features people had never seen before. The world quickly grew excited about being able to create a unique profile for themselves and interact with other profiles on Myspace. From here social networks started to compete to gain users attention. They have been very successful at getting more and more people to join. I took a close look at the data from the year 2000 and beyond to examine any possible spikes in suicide rates during this time. I was surprised to see that the data does not follow a particular trend across the four countries. The two countries that stand out for having a pattern are Russia and South Korea. Although they both seem to have high rates during the early 2000s, the data is not consistent with social media usage data. In addition to the social media usage and suicide rates having very little correlation, the primary age group for most social platforms is between 25 and 34, however on average the primary age group for suicides in both Korea and Russia is 75+. I built a linear model with suicide rates per 100,000 people as the response variable, and year, age, and country as my explanatory variables. The model returned an overall p-value of 2.2e-16 and an adjusted r-squared of 0.59. The p-value shows the model is significant, however based on r-squared the correlation between the variables is only about 60%. `

**Chart, bar chart

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Now I will shift the focus from worldwide effects of social media and narrow it down to just the United States. After observing the lack of correlation between suicide and social media usage, I decided to explore the relationship between mental health diagnosis and social media usage. I again hypothesized a positive correlation between the two variables. As I mentioned before social media often impacts how individuals view themselves, and others. Majority of social media consist of young adults ages 18-29. These are the early ages where you must learn to navigate through adulthood. Being a young adult in a world without social media is challenging enough. Adding the pressures of social media can only intensify stress. Following closely behind is the age group 30-49. I viewed a dataset from the Substance Abuse and Mental Health Services Administration website (samhsa.gov) that supported my hypothesis. In this dataset I found mental health diagnosis both severe and non-severe over the years 2008 to 2020. The plot below visualizes the data. You may notice the age group 26-49 has consistently maintained the highest mental health diagnosis throughout the years. While age group 18-25 has the least mental health diagnosis, like all the other groups, we still notice an increase throughout time.

Social media may or may not have something to do with the increase in diagnosis. To take a deeper look into the relationship I would need to join the social media usage dataset with the mental health diagnosis dataset and build a linear model with the variables. However, based on the information I observed I believe social media does have an impact on depression, anxiety, and other mental health diagnosis.

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**References:**

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