Case Study

Social Media Impact on Young Female Mental Health

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Abstract

The purpose of our research is to determine the impact that social media usage has on the mental health of young females between the ages of 18 and 29 years old. To achieve this purpose, we conducted a detailed data analysis from survey datasets, focusing on depression and anxiety. Our findings show a strong correlation between the higher usage of social media and negative mental health results, among young women who engage in social media looking for validation and comparing themselves to pictures and videos with beauty filters that make models and influencers perfect accordingly to "beauty standards". From exploratory data analysis and visualization, we could identify tendencies as the time spent on social platforms with increased signs of depression and reduced self-esteem. In addition, this case study emphasizes ethical data practices and focuses on the need for preventive approaches. We propose improving education on media knowledge and promoting supportive online communities to moderate the effects of social media on this analyzed demographic.

Introduction

In the digital age, social media plays an important role in females' mental health between the ages of 18 and 29 years old. In the United States of America, 72% of people use social media Crosby (2022). This case study will examine the impact of social media usage on young females' mental health, emotional outcomes, and to analyze how different patterns of social media correlate with mental health outcomes in young females. Preliminary research paints a disturbing negative impact on young women. We wish to study various datasets, analyze and highlight the havoc they create in their life and on society.

Young females aged 18-29 spend their time on social media platforms and sharing their pictures and videos. This age group feels more pressure on good looks, body image, self-esteem, and self-comparison. They compare their pictures and videos with one another's well-crafted images on social media, which may trigger young women to compare their traits with unrealistic ones, or too-perfect-to-be-true images, which can negatively impact their self-esteem, leading to anxiety, depression, and eating disorders (Rokni, 2025; Greenwood, 2023).

Data Science Application

We are focusing on analysing females aged between 18 and 29 years old. To assess the impact of social media on mental health for young females, we will use two datasets for comparison. The datasets are being collected from Kaggle. Kaggle is a platform and online community for data scientists and ML Kaggle (2010). We are focusing on the frequency of use, and how often an individual uses social media platforms, such as how many hours per day. The mental health indicators and survey-based data are two datasets, which are self-reported questionnaires covering symptoms of mental health. For dataset one, we will focus on the column "Depressed or down" for depression, and for dataset two, we will focus on the column "Dominant Emotion" for anxiety and depression.

Problem Description

Young females are impacted and affected by social media influence. Some of the factors that are body image, social comparison, and seeking validation. These factors seem to have a connection with looking for likes and followers Vinney (2023). Social media platforms can affect mental health positively and negatively, and they can trigger mental health issues such as anxiety, depression, and low self-esteem.

Technical Details and Implementation:

Data collection: Two datasets were collected and extracted from the Kaggle platform, from surveys and questionnaires of the self-reported mental health and social media.

Data Preprocessing: For the dataset one, the columns were renamed, dropped unnecessary columns, and split the platforms column into different columns. For dataset two, the `Daily_Usage_Time (minutes)` was converted to hours, and then categorized it to match dataset one 'Time on social media' column.

Tools and Libraries: For this analysis, we are using Python with Pandas for data manipulation, and Seaborn for data visualization as libraries.

The correlation between mental health and social media usage in young females is difficult. The existing research suggests that frequent social media usage, especially for visual content, can impact body image and emotional well-being Rokni (2025). By using the self-reported data from Kaggle and focusing on time spent and feelings, this analysis could show a correlation between mental health and social media. We will investigate these patterns in our research and provide observations on how the time spent on social media can influence the impact on mental health in this specific demographic.

Ethical Analysis

Ethical implications must be the main focus in all studies involving personal experiences, especially mental health. Ethical implications also concern the misuse or mislabeling of data, insufficient transparency, and ineffective data security. For example, during our initial exploration of available datasets, we found one dataset SouvikAhmed071 & Muhesena (2023) whose variables were renamed for illness names that weren't true. If this were used, it would cause bias and give a different result from reality, making a wrong analysis. These practices can lead to misleading findings, harm public trust, and affect participants negatively. They may lead to emotional concern or even exacerbate mental health issues through misrepresentation or a lack of privacy. Data can be collected from several methods, such as surveys, observations, experiments, interviews, online tracking, and others. It is crucial to collect data from reliable sources, ensuring the data is accurate, unbiased, and significant for analysis Masud (2025).

To address these concerns, three ethical principles must be followed in the data collection process. First, transparency means people and users know what information will be collected and why. This step ensures people can make decisions about sharing their information or not, and it also prevents misunderstanding or misuse of data. Second, consent is when people give permission and understand how their information will be used, stored, and shared. For example, *will this information be used inside the company, or will it be shared with others?* Lastly, data security means securely storing personal data to prevent unauthorized sharing, especially personal data such as phone numbers and passwords.

The impact of these ethical issues on young women in a sensitive study like this can lead to loss of trust, emotional harm, and the risk of exposure without consent. Researchers who fail to follow ethical standards are subject to professional consequences and have their credibility damaged. Ethically responsible practices support legal compliance and ensure trust between users and companies. Also, they follow the law, prevent potential harm or bias, and companies keep their reputation, especially in the digital age.

Evaluation of Current Practices

Digital awareness interventions: Some school districts and educational institutions offer counseling, mental health sessions, and training on responsible social media use. There is a huge variable in quality and depth in this regard. In the USA, the quality changes based on budget allocations by each state of Education (2025).

Some social media platforms do not provide a high level of intervention in terms of masking "like" counts, detecting harmful content, moderation, and reporting by their AI models. Some states in the US have laws requiring parental consent for underage social media use, and some apps provide screen time-limiting features (Newsom, 2024; Bong, 2025).

Gaps and Limitations: A one-size-fits-all approach does not address gender-specific concerns. Institutions may not have sufficient mental health resources, and in many rural or low-income areas, access to these services can be challenging. Many approaches are reactionary instead of preventive. Most intervention programs focus on children, and young women are generally not considered ADAA (2022).

Related Work: Social media is starting to be a daily activity; people are spending hours of their day there. There are some studies showing the impact of social media on people's lives and positive benefits, but also some mental health issues. One study showed that females are more likely to be affected by mental health than males. However, age doesn't have an effect. There is a theory called "Displaced Behavior", which talks about people spending more time on social media, getting into sedentary behavior, and having less time for social interaction. Social media can impact how people feel about themselves and the need to interact and maintain the social media network. Those can be related to symptoms of depression, anxiety, and stress Karim et al. (2020).

Research shows that people with extended social media usage have an increased number of anxiety and depression. If they spend more time online, they are more likely to report symptoms of depression. This is especially evident among young adults, who frequently use social media to shape and manage their online identities. The lonelier one feels,

the likelier the person turns to these platforms and spends even more time alone. Overuse of social media has been associated with several negative psychological effects, including anxiety, persistent feelings of loneliness, depression, and disruptions in sleep patterns. **?**

As mentioned in the article Naslund et al. (2020), social media is part of life for many people with any mental health condition, such as depression or other critical illnesses. They use social media platforms at similar rates as the population without mental conditions, ranging around 70% among middle-aged and older people and up to 97% among younger people. The population with mental illness uses those platforms to share their experiences, look for support, and find more information about their condition. Also, the usage can help reduce feelings of exclusion, making it possible for them to connect somehow with other people.

The use of the platform shows great results, but it can also cause worse conditions, such as depression or anxiety, for example, due to the risks of cyberbullying and hostile interactions online. These challenges show the importance of considering not only the benefits but also the possible harms related to mental health caused by the use of social media.

Proposed Solutions

The analysis of social media's impact on young female mental health provides some observations. Understanding the behaviors and feelings, then comparing them with time spent on social media can present significant correlations with negative impacts on mental health, like worries, body image and feeling down or depressed. Create a community of support groups in which women can meet to express their feelings, concerns, pains, and be educated in depth about the usage of social media platforms. By developing a positive social media campaign or influencers focusing on mental health awareness.

By applying exploratory data analysis and data visualization, it is possible to identify patterns on mental health in young females and social media usage. To improve the mental health impact on social media for young females, there should be strategies and interventions.

Implementation and Evaluation

To investigate and understand the impact of social media usage on young females' mental health, we collected, cleaned, and prepared a dataset filtered for women aged 18-29 years old. The dataset included different rows, such as time spent on social media, sleeping issues, and feeling depressed or down. We conducted research to deepen our understanding more about the impact of social media usage on young females' mental health and to support our case study. We also added the results of our exploratory data analysis (EDA) through charts and graphs, such as correlations between social media usage and its impact on young females' mental health.
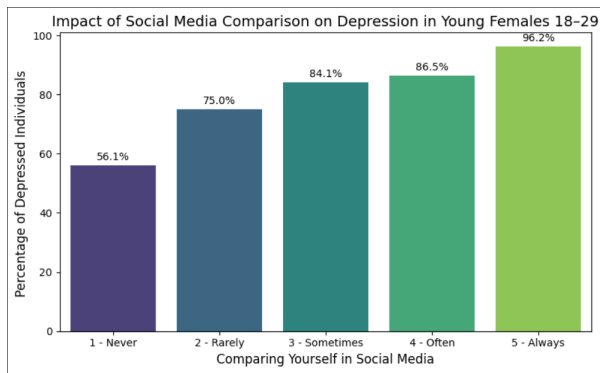
Figure 1

Impact of Social Media Comparison on Depression in Young Females 18-29
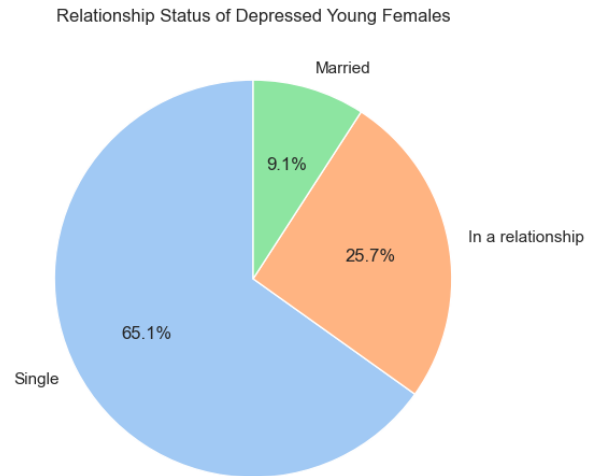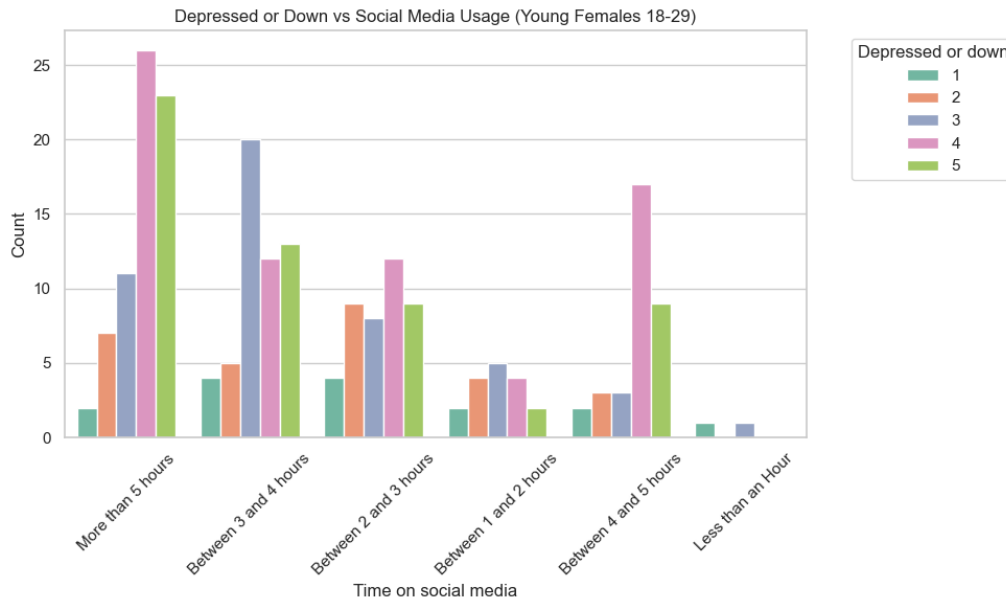

Figure 2

Relationship Status of Depressed Young Females

Above, the chart on the left demonstrates how often young females compare themselves to social media and how depressed they feel. More than 96% of young women who constantly compare themselves on social media have feelings of depression. As the frequency of young women who compare themselves on social media increases, the depression rate approaches 100%. On the right, the chart shows the relationship status, 65% of them are single, almost 26% are in a relationship, and 9% are married.

Single women often check social media posts to share comments or likes. When they see negative comments or dislikes on their posts, it hurts their feelings and leads to behavioral change because of their fear of ridicule or judgment from peers. Then, they exhibit focus issues at school or work and sleeping problems, which in turn feed anxiety and depression. Overall, this impacts areas like their self-esteem, learning, and connections as shown in the graphic above Vinney (2023).

In some studies, excessive time spent on social media has been associated with psychological issues like depression. The following graphic illustrates that individuals who use one hour of screen time per day have the lowest impact on depression, while individuals who spend an extensive amount of time on social media experience an impact on social activities, such as physical or interpersonal interactions Liu et al. (2022).

Figure 3

Depressed or Down vs Social Media Usage (Young Females 18-29)

The results above were extracted from the first dataset used in this case study. Also, to compare the results and obtain more insights into our study, a second dataset was used that produced more results related to the same health issues, and through exploratory data analysis.
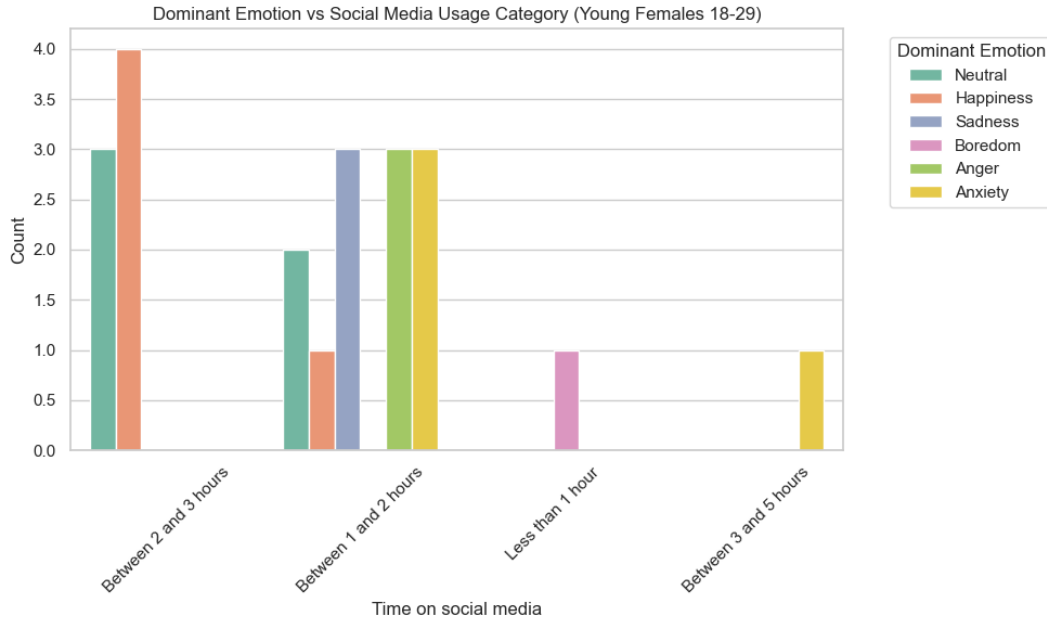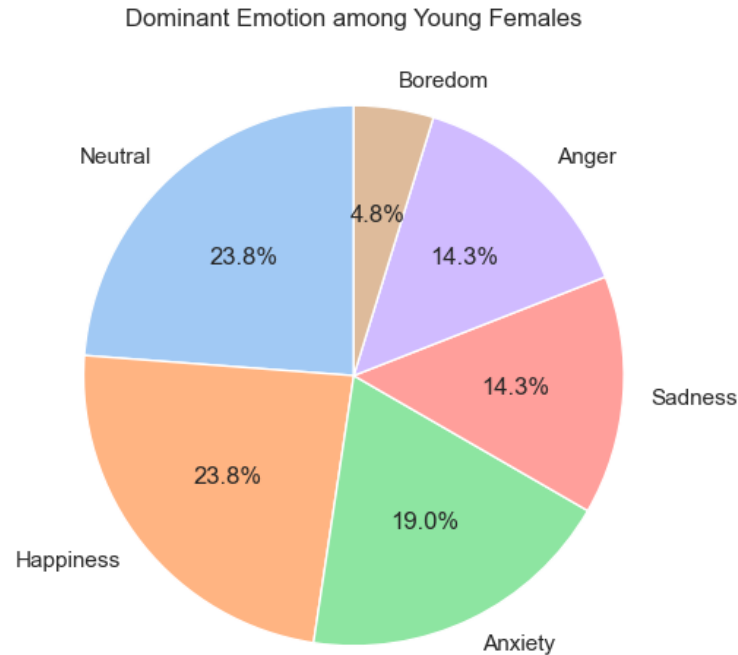
Figure 4

Dominant Emotion vs Social Media Usage Category (Young Females 18-29)

The World Health Organization mentions the symptoms and patterns of emotions that can lead to depression; some of them are sadness, anxiety or worry, not enjoying their life National Health Service (2023).

While dataset one presented a correlation between time spent on social media and depression, dataset two shows that individuals using social media between two and three hours present a neutral or happy emotion, individuals using social media for less than a hour present boredom, and individuals using social media between one and two hours and between three and five hours present emotions associated with depression.

Below, the pie chart shows that more than 50% of individuals present depressive symptoms or dispositions of depression.

Figure 5

Dominant Emotion Among Young Females

Throughout the results of this analysis, it was possible to understand how different social media usage impacts the mental health of young females between 18-29 years. Health professionals and even parents can use this data to help identify the problems and risks of misuse of social media and help them promote healthier habits within the select group.

Conclusion

While social platforms offer ways to keep people connected, promote inspiration, and share their personal achievements, they can also develop emotional and psychological effects on users. This case study examines the impact of social media usage on the mental health among young women in this age group.

Previous studies suggest that frequent exposure to unrealistic content can trigger feelings of anxiety and low self-esteem. Young females in this age group feel pressure to achieve "beauty standards", leading to comparisons with idealized images and videos online.

This can affect negatively self-esteem and contribute to more serious mental health issues, which include depression, anxiety, and eating disorders (Rokni, 2025; Greenwood, 2023).

Our analysis focused on mental health and social media usage datasets to uncover patterns that show how digital behaviors correlate with mental health issues. We aim to understand not only the limits of the problem but also the contributing factors for this matter. Through the data science and ethical analysis perspective, this study provides compassionate strategies to promote beneficial social media usage and positive mental health effects for young women.

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