

**Case Study**  
**Social Media Impact on Young Female Mental Health**

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**Contents**

<b>List of Figures</b>	<b>3</b>
<b>Abstract</b>	<b>4</b>
<b>Introduction</b>	<b>5</b>
<b>Data Science Application</b>	<b>5</b>
Problem Description . . . . .	6
Technical Details and Implementation: . . . . .	6
<b>Ethical Analysis</b>	<b>7</b>
<b>Evaluation of Current Practices</b>	<b>8</b>
Implementation and Evaluation . . . . .	9
<b>Recommendations</b>	<b>13</b>
<b>Conclusion</b>	<b>13</b>
<b>References</b>	<b>15</b>

### List of Figures

1	Impact of Social Media Comparison on Depression in Young Females 18-29 .	10
2	Relationship Status of Depressed Young Females . . . . .	10
3	Depressed or Down vs Social Media Usage (Young Females 18-29) . . . . .	11
4	Dominant Emotion vs Social Media Usage Category (Young Females 18-29) .	12
5	Dominant Emotion Among Young Females . . . . .	12

## **Abstract**

The purpose of our research was to determine the impact social media usage had 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 showed a strong correlation between the higher usage of social media and negative mental health results, among young women who engaged in social media looking for validation and comparing themselves to pictures and videos with beauty filters that made models and influencers perfect accordingly to "beauty standards". From exploratory data analysis and visualization, we were able to identify tendencies such as the time spent on social platforms with increased signs of depression and reduced self-esteem. In addition, this case study emphasized ethical data practices and focused on the need for preventive approaches. We proposed 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. In the United States of America, 72% of people use social media Crosby (2022). This case study examined the impact of social media usage on young females' mental health, emotional outcomes, and analyzed how different patterns of social media correlated with mental health outcomes in young females. Preliminary research showed a disturbing negative impact on young women's mental health. We studied various datasets, analyzed and highlighted the havoc they have created in their life and on society.

Young females between 18 and 29 years old spent their time on social media platforms and share 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 negatively impact their self-esteem, leading to anxiety, depression, and eating disorders (Rokni, 2025; Greenwood, 2023).

## Data Science Application

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

## Problem Description

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

## Technical Details and Implementation:

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

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

**Tools and Libraries:** For this analysis, we used 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 was difficult. Existing research suggested that frequent social media usage, especially for visual content, could 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 showed a correlation between mental health and social media. We investigated these patterns in our research and provided observations on how the time spent on social media influenced 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 could cause bias and gave a different result and making a wrong analysis. These practices can lead to misleading findings, harm public trust, and affect participants negatively. They might 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. Transparency means people and users know what information could be collected and why. This step ensures people make decisions about sharing their information or not, and it also prevents misunderstanding or misuse of data. Second, consent refers when people give permission and understand how their information could be used, stored, and shared. 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 have failed to follow ethical standards could be subjected to professional consequences and might have their credibility damaged. Ethically responsible practices support legal compliance and ensure trust between users and companies. Also, following the law prevented potential harm or bias, and companies maintained their reputation in this digital age.

## Evaluation of Current Practices

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

Some social media platforms did 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 had laws requiring parental consent for underage social media use, and some apps provided screen time-limiting features (Newsom, 2024; Bong, 2025).

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

**Related Work:** Social media had been a daily activity; people spent hours of their day on social media. There were 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 were more likely to be affected by mental health than males. However, age did not have an effect. There was a theory called "Displaced Behavior", which described that people who spent more time on social media were prompt to sedentarism than those who spent less time on social media, and had less time for social interaction. Social media impacted how people felt about themselves, and the need to interact and maintain their social media networks. Those could be related symptoms of depression, anxiety, and stress Karim et al. (2020).

Research showed that people with extended social media usage had an increased number of anxiety and depression. If they spent more time online, they were more likely to report symptoms of depression. This was especially evident among young adults, who



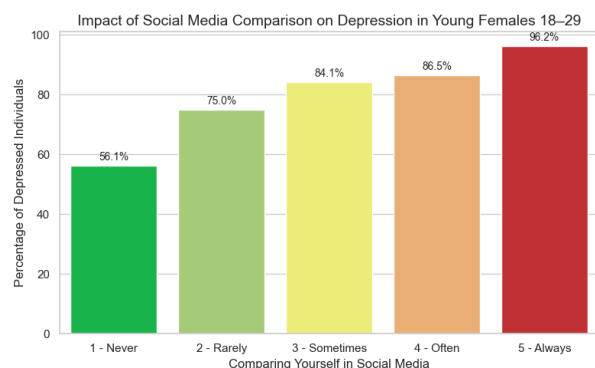
frequently used social media to shape and manage their online identities. The lonelier one felt, the likelier the person turned to these platforms and spent even more time alone. Overuse of social media was associated with several negative psychological effects, including anxiety, persistent feelings of loneliness, depression, and disruptions in sleep patterns Bashir & Bhat (2017).

As mentioned in the article Naslund et al. (2020), social media was part of life for many people with any mental health condition, such as depression or other critical illnesses. They used 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 used those platforms to share their experiences, look for support, and find more information about their condition. Also, the usage helped reduce feelings of exclusion, making it possible for them to connect somehow with other people.

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

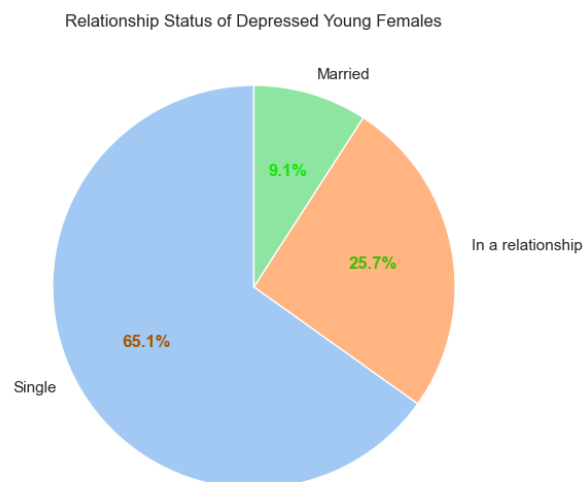
## **Implementation and Evaluation**

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**

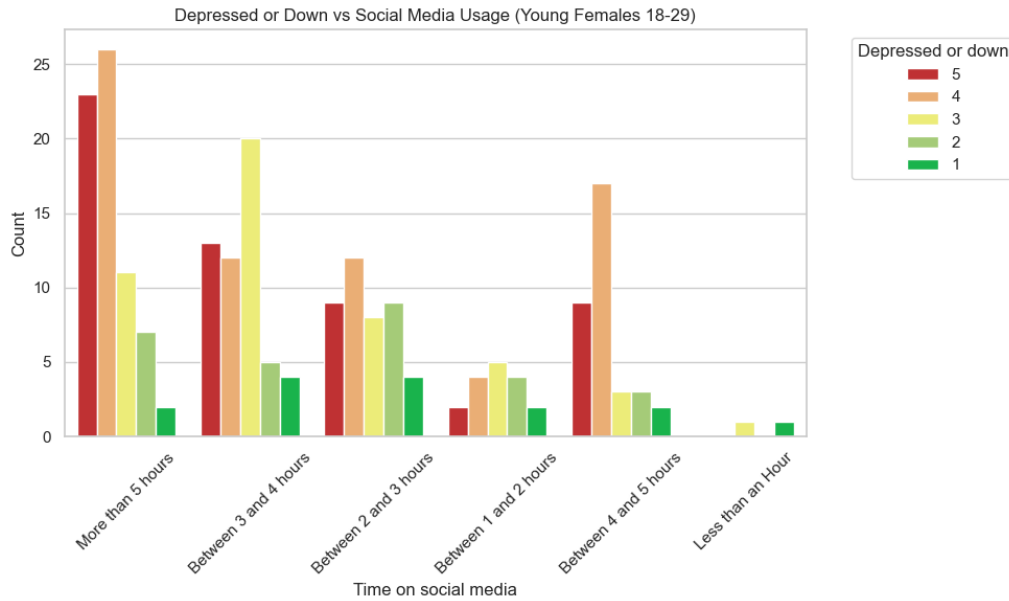
*Relationship Status of Depressed Young Females*

Above, the chart on the left demonstrates how often young females compared themselves to social media and how depressed they might have felt. More than 96% of young women who constantly compared themselves on social media had feelings of depression. As the frequency of young women who compared themselves on social media increased, the depression rate approached 100%. On the right, the chart showed the relationship status: 65% of them were single, almost 26% were in a relationship, and 9% were married.

Single women often checked social media posts to share comments or likes. When they saw negative comments or dislikes on their posts, it hurt their feelings and led to behavioral change because of their fear of ridicule or judgment from peers. Then, they exhibited focus issues at school or work and sleeping problems, which in turn fed anxiety and depression. Overall, this impacted 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 was associated with psychological issues like depression. The following graphic illustrated that individuals who used one hour of screen time per day had the lowest impact on depression, while individuals

who spent an extensive amount of time on social media experienced an impact on social activities, such as physical or interpersonal interactions Liu et al. (2022).



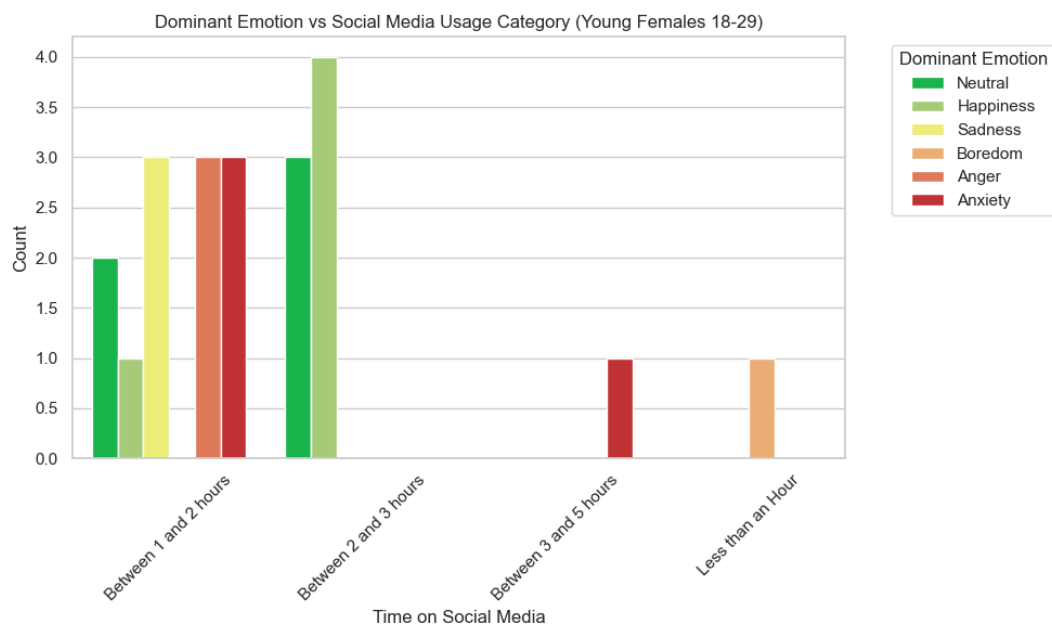
**Figure 3**

*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.

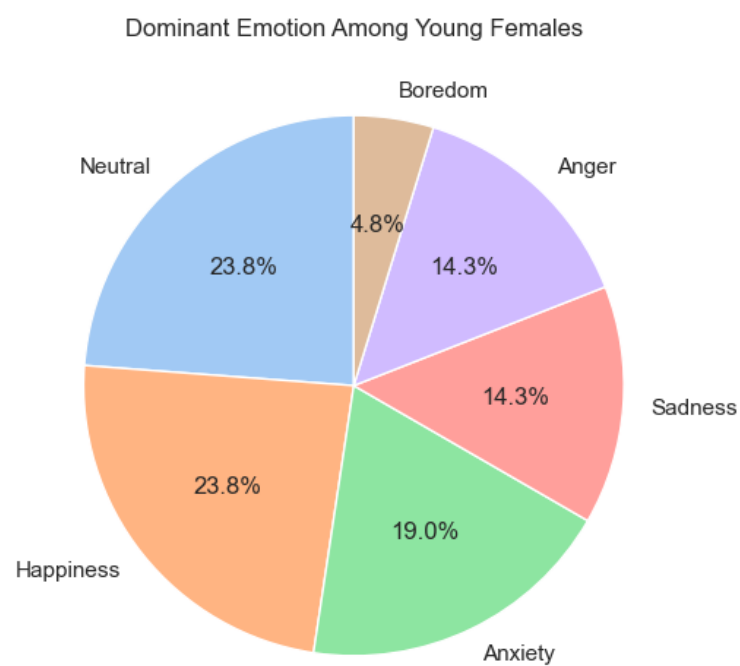
The World Health Organization mentioned the symptoms and patterns of emotions that could have led to depression; some of them were sadness, anxiety or worry, not enjoying their life National Health Service (2023).

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



**Figure 4**

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



**Figure 5**

*Dominant Emotion Among Young Females*

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

Throughout the results of this analysis, it was possible to understand how different social media usage impacted the mental health of young females between 18–29 years. Health professionals and even parents could 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.

### **Recommendations**

The analysis of social media's impact on young female mental health provided some observations. Understanding the behaviors and feelings, then comparing them with time spent on social media, presented significant correlations with negative impacts on mental health, such as worries, body image, and feeling down or depressed. We recommend creating a community of support groups in which women can meet to express their feelings, concerns, and pains, and be educated in depth about the usage of social media platforms. Also, developing a positive social media campaign and influencers focusing on mental health awareness, explaining that beauty filters had been used on pictures and videos.

By applying exploratory data analysis and data visualization, it was 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.

### **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 examined the impact of social media usage on the mental health among young women in this age group.

Previous studies suggested 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 showed how digital behaviors correlated with mental health issues. We aimed 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 provided compassionate strategies to promote beneficial social media usage and positive mental health effects for young women.

## References

- ADAA. (2022). *Low-income*. Retrieved from <https://adaa.org/find-help/by-demographics/low-income>
- Bashir, H., & Bhat, S. A. (2017). Effects of social media on mental health: A review. *International Journal of Indian Psychology*, 4(3), 125–131.
- Bong, K. (2025). *What is screen time parental controls 2025: Quick and easy guide*. Retrieved from <https://impulsec.com/cybersecurity-news/what-is-screen-time/>
- Crosby, J. (2022). *How social media affects women's mental health: Negatives vs. positives*. Retrieved from <https://thriveworks.com/blog/how-social-media-affects-womens-mental-health-negatives-vs-positives/>
- Greenwood, M. (2023). *The impact of cyberbullying on mental health*. Retrieved from <https://www.news-medical.net/health/The-Impact-of-Cyberbullying-on-Mental-Health.aspx>
- Kaggle, I. (2010). *Kaggle*. Retrieved from <https://www.kaggle.com/> (Accessed: 2025-04-22)
- Karim, F., Oyewande, A. A., Abdalla, L. F., Ehsanullah, R. C., & Khan, S. (2020). Social media use and its connection to mental health: a systematic review. *Cureus*, 12(6).
- Liu, M., Kamper-DeMarco, K. E., Zhang, J., Xiao, J., Dong, D., & Xue, P. (2022). Time spent on social media and risk of depression in adolescents: A dose-response meta-analysis. *International Journal of Environmental Research and Public Health*, 19(9), 5164. Retrieved from <https://doi.org/10.3390/ijerph19095164> doi: 10.3390/ijerph19095164
- Masud, A. A. (2025). *Ethical data collection: What it is, principles use cases*. Retrieved from <https://www.questionpro.com/blog/ethical-data-collection/>

- Naslund, J. A., Bondre, A., Torous, J., & Aschbrenner, K. A. (2020). Social media and mental health: benefits, risks, and opportunities for research and practice. *Journal of technology in behavioral science*, 5(3), 245–257.
- National Health Service. (2023, July 5). *Symptoms – depression in adults*. Retrieved from <https://www.nhs.uk/mental-health/conditions/depression-in-adults/symptoms/> (Accessed: 2025-04-30)
- Newsom, G. (2024). *Governor newsom signs landmark bill to protect kids from social media addiction, takes action on other measures*. Retrieved from <https://www.gov.ca.gov/2024/09/20/governor-newsom-signs-landmark-bill-to-protect-kids-from-social-media-addiction-takes-action-on-other-measures/>
- of Education, C. D. (2025). *Mental health*. Retrieved from <https://www.cde.state.co.us/cdesped/mentalhealth>
- Rokni, N. (2025, February 12). *The pros and cons of social media for adolescent girls*. <https://drexel.edu/medicine/academics/womens-health-and-leadership/womens-health-education-program/whpep-blog/pros-and-cons-of-social-media-for-adolescent-girls/>. (Published by Drexel University College of Medicine. Accessed: 2025-04-22)
- SouvikAhmed071, & Muhesena. (2023). *Correlation between sm and mental health*. Retrieved from <https://www.kaggle.com/code/souvikahmed071/correlation-between-sm-and-mental-health/notebook>
- Vinney, C. (2023). *What is the impact of media on girls' mental health?* Retrieved from <https://www.verywellmind.com/what-is-the-impact-of-media-on-girls-mental-health-5270556> (Accessed: 2025-04-22)