The Mental Health Effects of Social Media

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By

Draden Gaffney

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

Signed: _____

Approved: _____ Date _____
Rider Foley, Department of Engineering and Society

Introduction

Social media has taken a large presence in most people's lives. Social media has ingrained itself as an integral part of most people's day. Everyday, 1.59 billion people spend at at least an hour on Facebook (Noyes, 2019). Some people use it for forming relationships, maintaining relationships, showing how great their life is, or to inform people of their lives. There's fear of missing out (FOMO), people feel the urge to know what's going on in other people's lives. People are interested in seeing how terrible and/or amazing other people's lives are doing instead of living their own life. Social media is easy to use. It takes very little energy to post and get quick easy hits of dopamine from likes, retweets, or comments. Whatever the reason, it warrants the need for the average human to spend 6 hours and 42 minutes online per day of which 2 hours and 23 minutes are spent on social media (Ennis-O'Connor, 2019). Internet users in 2018 have an average of 8.5 social media accounts, up from 4.8 social media accounts in 2014 (Clement, 2019). Why is there a need to have more than one form of social media?

Mental health problems are on the rise among adolescents and young adults, and social media may be a driver behind the increase. According to a new study, published by the American Psychological Association, rates of mood disorders and suicide-related outcomes have increased significantly over the last decade among adolescents, impacting females and those who are wealthier, in particular. 1 in 5 U.S. adults experience mental illness each year. "The cultural trends of the last 10 years may have had a larger effect on mood disorders and suicide-related outcomes among younger generations compared with older generations" - Twenge, who believes this trend may be partially due to increased use of electronic communication and digital media,

which may have changed modes of social interaction enough to affect mood disorders (Rosenburg, 2019). Suicide is the 2nd leading cause of death among people aged 10-34 (Nami, 2019). There is already outstanding research supporting social media having negative effects on their users' state of mind. Although the intention from these companies are to highlight the positives of social media, there is a darker side that is overlooked. The topic of my research is uncovering that darker side and asking: What are the mental health effects of social media?

Case Context

The technical aspect of social media is how tech companies are improving on keeping users interested in their sites. They're showing posts that user's are more likely to engage with. For instance, showing comments that are controversial and will start arguments and increase views of the post. Social media has invested heavily into targeted ads so it's essentially a form of personalized shopping. Another emotion social media is forcing onto users is scarcity. Platforms are creating a sense of scarcity by a snap or status is only temporarily available, encouraging users to constantly be online. These companies thrive on their users creating all the content for them and automate how that content is delivered so it gets the most interactions.

Companies are recording almost every imaginable trackable aspect of their users' information. Attach that with machine learning models and automated content tailored to every single user and that's a recipe for users to stay. As soon as a user gets on an app, they are automatically viewing content designed for them that only gets better with the more time they spend on the app.

The concepts of reward and "infotainment", material which is both entertaining and informative, are also crucial for these addictive platforms. Any media platform knows that no news is not good news. Therefore companies are striving to always provide content and prevent disappointment. The seconds of anticipation for the "pull to refresh" mechanism on smartphone apps, such as Twitter, is similar to pulling the lever of a slot machine and waiting for the win.

There was a study done, where if a user liked a certain amount of posts on Facebook, that would be good enough to predict a lot of aspects about a user. Researchers tested how well a computer could understand users as an individual by working through their Facebook likes. The research covered more than 58,000 volunteers. The statistical models aimed to predict personal characteristics by analyzing the content of each user's likes. The models could predict whether someone was homosexual or heterosexual with 88% accuracy, whether they were African American or Caucasian American with 95% accuracy, and whether they were Democrat or Republican with 85% accuracy. In 73% of cases, it could even tell whether someone was a smoker or not (Kosinskia, Stillwella, Graepel, 2013).

Another study used a similar statistical model in 2015, researchers from the University of Cambridge and Stanford decided to examine whether Facebook likes could also accurately predict a user's personality. The gold-standard personality assessment in academic psychology is known as the OCEAN model which targets the "Big Five" personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Facebook users completed a questionnaire to assess these traits, and the researchers then compared how well a computer could predict personalities next to the predictions of human acquaintances. The computer models

outperformed predicting users' personalities compared to close friends and family. In fact, the computer's performance was only matched by the best human judges of our character: our spouses (Youyou, Kosinski, Stillwell, 2016).

Another way social media is keeping users engaged is through gamification. The concept of gamification is currently thriving. Social media apps now have scores, meaningless awards, scoreboards to compare user's against their friends, and offers rewards for using the app more. On some platforms, users invite more of their friends to get extra points, and once their friends are part of the network it becomes much more difficult for the user or their friends to leave.

Groups and forums in social media promote active participation. Notifications and active icons keep people notified of each others' availability and activities in real-time so that some start to become compulsive checkers. This includes "two ticks" on instant messaging tools, such as Whatsapp. Users can see whether their message has been delivered and read. This creates pressure on each person to respond quickly to the other.

STS Framework

Social media is a new technology that hasn't been properly studied to see whether the positives outweigh the negatives. Look at smoking, for centuries it was viewed as voguish and healthy. With 45% of the world's population using social media, it affects us as a society (Ennis-O'Connor, 2019). The internet is the newest form of communication bringing society to new heights of connectedness. The concept of people today being only clicks away from

interacting with anyone is in the infancy stages of development and the research of the topic has yet to even take its first steps.

The research will be focused on how individual people's mental health has been affected as well as how social media is affecting society as a whole. The framework I am utilizing is unintended consequences (Collingridge, 1980). Social media was created to form connections with people. To be a place of community (Zuckerberg, 2017). Within all societies though, there are flaws and unintended consequences of their implementation. The impact of technology cannot be easily predicted until it is extensively developed and widely used.

This research is important due to a multitude of studies already existing today that point out the negative effects of social media. One of the first studies published about the Internet, showed that Internet use in general significantly affects social relationships and participation in community life (Kraut et al., 1998). In the paper, the authors found that increased time spent online is related unintentionally to a decline in communication with family members, as well as the reduction of the Internet user's social circle, which may further lead to increased feelings of depression and loneliness. This work was later followed by several other publications where it was suggested that computer use has negative effects on children's social development. The time children and adolescents spend in front of the computer screens has significantly increased (Pantic, 2014). This has led to the further reduction of intensity of interpersonal communication both in the family and in the wider social environment. Although social networks enable an individual to interact with a large number of people, these interactions are shallow and cannot adequately replace everyday face-to-face communication (Pantic, 2014).

The ability to interact with so many people is so seductive because it allows for the illusion of companionship without the demands of friendship (Turkle, 2012). Certainly, social media has had a profound effect on how people interact with their social networks. One way that social media is changing how young adults interact with their networks of relationships is by changing the privacy of these relationships. The relationships people have with others on Facebook are visible to many, often resulting in a loss of privacy within personal relationships (Guadagno, 2013). Although being able to keep up with information about a friend's life via social media may be viewed as a way to remain close, this lack of privacy may actually backfire. It has been shown that monitoring others' activities on social media has inadvertently lead to negative relationship outcomes such as online and offline relational intrusion (Lyndon et al., 2011).

Studies have shown that having user's information be public results in users constantly comparing themselves to their friends and perfectly photoshopped influencers. They see their flaws and where they fall short. The intention of bringing images and videos on to social media was to provide a greater context, however, it has unforeseeable consequences and caused users to take drastic measures and have eating disorders in attempt of losing weight to match their peers. There was a survey of 1787 adults aged 19-32 about social media use and depression. The survey uncovered that there was a significant positive overall positive association between social media use variables and eating concerns (Sidani, 2018). An eating disorder treatment center in Chicago revealed that 30–50% of its teen patients used social media as a means of supporting their eating disorders (Staff, 2016).

Social media is a powerful research tool for companies who want to know what users' are thinking. Companies are able to track a huge amount of information. Social media has a multitude of ways for seeking information from actually storing the data, scraping over the web, data mining, or measuring user behavior (Curran, 2018). There have been many unethical attempts to get even the slightest competition on. Recently, Facebook got caught using contractors to transcribe voice messages on messenger to be used as data points in models (Molina, 2019). Those models will then be used to provide targeted content to users. When this much effort is being put into seducing users to stay on the site, the effects of such effort should be studied. It will be difficult to change this technology when it has become so entrenched into social media company's business model.

Research question and methods

What are the health effects of using social media? With all the time spent on social media, shouldn't its users have a solid understanding of the possible effects? I utilized a survey, case studies and interviews to get quantifiable and qualitative data to analyze and answer my question.

I conducted a survey to bring in quantitative data that focused on people's mental state and social media usage. The survey had 90 responses overall, though there were options to opt out of certain questions. The survey takers age ranged from 14 - 83 years old with the majority being college aged students and gender consisted of 49.1% female and 50.9% male. The survey asked about social media usage, quality of sleep, productivity, physical exercise, depression, irritation, cyberbullying, self-esteem, and other factors. The goal was to be able to differentiate

aspects of people who use and don't use social media. Another goal was to be able to have a correlation between social media usage and if there is a linear correlation between any of the factors mentioned above.

Case studies on the effects of social media to user's self-image, confidence, emotional stability, sleep schedule, productivity and other aspects offered evidence of research in which detailed consideration is given to the development of a particular person, group, or situation over a certain amount of time. I was looking into trends from the time period of before social media and what has changed since its arrival. The goal was to be able to use these studies to prove that there are detrimental health effects from direct use of social media. I looked at health studies that correlate social media use to quality of sleep, self-esteem/body image, depression, anxiety, promotion of risky behavior, the effect on social relationships and others. The objective was to prove that social media is the root cause for the changes in people's health, not some other cause. While I have already done a preliminary search, I wanted to be able to paint broad strokes on what social media does to us as a society. Social media relies on network theory and I planned to use it to examine the spread of health-related behaviors. I looked into studies that measure social media usage and the user's level of happiness, self-confidence, depression, self-image, overall well-being, and other characteristics that might appear in the study. I also analyzed how social media affects user's quality of sleep, time taken away from other activities, physical consequences, and potentially more.

Interviews provided first hand experiences of the effects of social media. I had 6 interviews overall, half being social media users and half non social media users. Half were female and half were male. Three of them were 50+ years old and the other three were college

students. Having personal testimonials provided explicit examples of certain health effects that I used to back up with case studies to show it's not a one off event. I interviewed college students who do and don't use social media to compare the two. The reasoning was to be able to show the contrast of what social media does to the human psyche. Overall, all forms of research build off each other and all have similar answers in terms of results. The case studies were mainly to see what is already out there and what are the current benchmarks of measurement and give an idea of what to ask on the survey. The survey provided data on what trends and correlations there that I could focus on during the interviews.

Results

The results show that social media does have negative health effects on one's mental health. First looking at the survey, the most used social media apps were Instagram (90%), Snapchat (85.6%), Facebook(82.2%), Twitter (47.7%), then Tiktok (20%). Only 2% of survey takers do not use social media. One of the strongest results showed that 89.9% of people are distracted by social media when trying to be productive. This leads to unhappiness and lower self esteem as people waste away their time. This lower level of self-esteem and unhappiness is shown in the statistics of figure 1.

Seeing these posts, users had higher responses of depression, jealousy, and lower self-esteem compared to those that didn't. One of the most dramatic statistics was 93.2% of

When you see someone post about the intriguing events going on in their life, are you depressed by the idea that your life isn't as cool
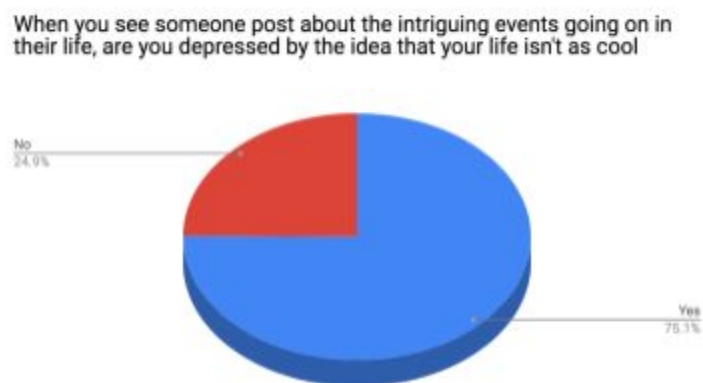
No
24.9%

Yes
75.1%

Figure 1

responders stated that after using social media they have felt worse, angry or isolated. On the opposite side, people who have quit or don't use social media also responded with feeling isolated.

When you see pictures posted of a person who has the body type that you desire, do you put yourself down or think negatively about your

No (Male)
17.7%

Yes (Female)
41.0%

Yes (Male)
28.2%

No (Female)
13.1%

Figure 2

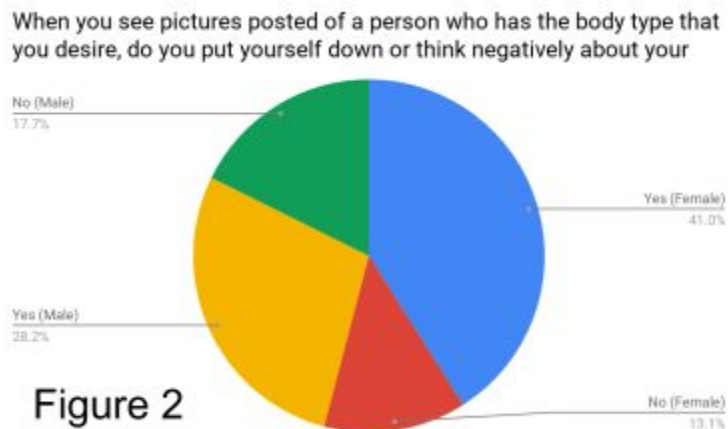Looking at figure 2, 59.2% of respondents stated they put themselves down after seeing a body type they desire. That means the majority of photos people see that they deem attractive ends hurting themselves. Instagram alone is filled with over 40 billion photos (Aslam, 2020), imagine how many of those are of Instagram models. Instagram is now a platform for men and women to showcase their beauty in effort to gain modeling agencies attention. When survey takers were asked if they untag themselves from a photo when a friend posts a picture of them that they deem as unattractive, 80.3% of people said yes. This broadcasts that people are only trying to show off their highlight reel and act shallow on social media. This is also inline with the response to another question where 80% of users care about how many likes people get on a new post. All of the people reported caring about likes or being upset about other people's body type reported higher levels of anxiety and depression. Social media is a breeding ground of comparing oneself to others. Teddy Roosevelt once said, "Comparison is the thief of joy". When users are getting glimpses of other people's lives, it doesn't paint the full picture. No one publicizes their whole truth, yet people are comparing themselves entirely to a mirage of perfection.

Some of the weaker results of the survey was that 34.4% of people have a harder time falling asleep directly after using social media. Lack of sleep can affect a person to have depression and have mood swings. In my interviews, staying up and scrolling on social media was a main reason for less sleep and taking a longer time to fall asleep. This was founded by canadian researchers showing more time on social media leads to less sleep, interrupted sleep, and having a harder time to fall asleep (Loney, 2018).

66.6% of responses said that social media leads to shallower relationships. Responses went on to state that social media can help form deep bonds between a select few acquaintances but for the majority of friends/followers it is a shallow relationship. This is also backed by Pantic who stated that social media is not an adequate substitute for face-to-face communication (Pantic, 2014).

The majority of people in my survey have not quit or taken a break from social media before as seen in figure 3. For the people

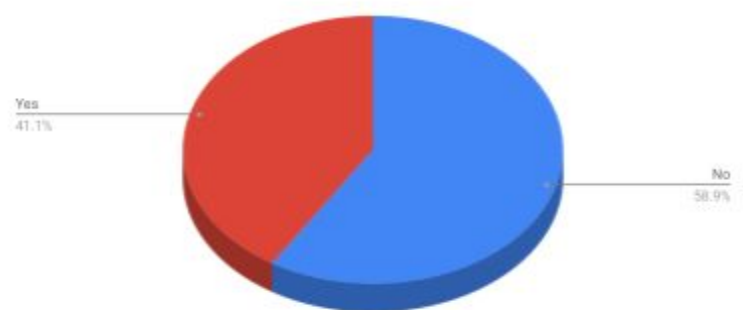Have quit social media before

Yes
41.1%

No
58.9%

Figure 3

that have quit using social media there was an overarching theme that they felt more relaxed but felt like they were missing out. User's felt as if they had more free time and were more productive. They also reported to have less anxiety and felt refreshed. People described themselves as more present and clear of thought. The main reason for people to come back to social media was a feeling of being left out of the loop. It is very easy to see the direct

consequences of using social media such as being invited to an event on Facebook, facetiming a group of friends on snapchat, or going on a date with a girl from directly messaging her on Instagram. Compare this to not using social media and having more free time to hangout with friends or have new experiences that expands one's network. It's very hard to compare the two and quantify which scenario is better for forming relationships but it is easier to identify the first-hand consequences of using social media.

One interesting result from the survey was that only 24.1% of people have been cyber bullied on social media. Still a high percentage that can have negative effects on a person's life but I was surprised it was not higher. People who reported to have been cyber bullied expressed being upset or angry after the event.

The interviews were inline with the survey statistics. Some of the things people did not like about social media was that it is a highlight reel and not many negative aspects or ever shown on these platforms. One student stated, "Social media hurts my productivity, I'm constantly checking it and it interrupts my work flow. Most times I use social media I am scrolling through Facebook or Instagram aimlessly with no purpose (Crystal, 2020)". At the end of each interview, I would ask if social media has lowered or raised the interviewees self-esteem and unfortunately everyone said that it has lowered their overall self-esteem. Although there were a lot of negatives mentioned, some of the positives stated of using social media was "... it allows for me to stay informed with friends, helps raise awareness, keep up with the news, and it is a form of my personal entertainment (Alexander, 2020)".

Discussion

One of the first studies published about the Internet, showed that Internet use in general significantly affects social relationships and participation in community life (Kraut et al., 1998). In the paper, the authors found that increased time spent online is related unintentionally to a decline in communication with family members, as well as the reduction of the Internet user's social circle, which may further lead to increased feelings of depression and loneliness. This is inline with the results of my research where the majority of respondents felt social media creates shallow relationships. Facebook's mission is to bring the world closer together, yet an unintended consequence of the platform is having hundreds of friends that users barely know.

Survey respondents felt as if they knew someone well online but could not interact with them in person due to there being a lower level of comfortability in an offline setting. Kraut's work was later followed by several other publications where it was suggested that computer use has negative effects on children's social development. The time children and adolescents spend in front of the computer screens has significantly increased (Pantic, 2014). This has led to the further reduction of intensity of interpersonal communication both in the family and in the wider social environment. Although social networks enable an individual to interact with a large number of people, these interactions are shallow and cannot adequately replace everyday face-to-face communication (Pantic, 2014). People feeling that their relationships online are shallow is in agreement with what my research has shown as well as social media creating a sense of loneliness and depression for it's users.

One of the major limitations was having access to people who don't use social media. Most of the people who reported they didn't use social media were really old people where I had to help them fill out the survey or people who have quit social media but said they were likely to

relapse. The survey was also lacking in questions and having the survey takers be honest with themselves. The questions relied on the user's honesty, and some of the results were so surprising to the point I believe people answered dishonestly to please their own egos. Some of the questions' results were outliers to other paper's results that didn't use self-reporting i.e. the fact that in my survey 24.1% of people have experienced cyberbullying while the national average is 36.5% (Broadband Search, 2020). This illustrates the point that social media has conditioned the human psyche to be uncomfortable with itself to the point it had to lie. Also my psychological theory of creating survey questions and analyzing were lacking in terms of knowledge.

For the survey I would have used more text based answers instead of multiple choice. However, for the questions I did that on, some of the answers were very lacking. I also would have liked to make the survey longer, but ran out of questions to ask that would provide insight even after looking at other similar surveys. I always would have liked to get a group of people varying in age to quit social media for a certain time period to see how they feel after the time period. An experiment instead of a personal reflection survey would be a much stronger showcase for whatever the results may be.

The main take away from my research that I can apply to my engineering practice is to think of possible unintended consequences. Every product offered causes user's to feel certain emotions. I will make sure to highlight how user's might have negative reactions to a product and bring it to my future teams attention. I will keep the user's mental health at the forefront of my design process. After looking at social media, I've learned a lot of people really enjoy using it and that it does have so many positives that people view it as worthwhile even with the

negatives. At the end of the day it is the users who decide if the product provides a net positive impact on their life.

Conclusion

Social media does have negative impacts on one's mental health. The broader significance of the research is that most people use social media yet no one really thinks about the effects of it. People mindlessly scroll through their feed when they could be bettering themselves spending the time in a healthier manner. Social media is a stepping stone into virtualizing everything a human can do. Social media companies are heavily investing in virtual and augmented reality in effort to take their users to the next level of virtualization. The next step in my research is for more money to be put into research on viewing the impacts of social media. More data needs to be collected and analyzed in hopes of social media's effects gaining more attention. Research should be focused on the pros and cons of social media and see if one side outweighs the other. A take away from my research is to be conscious about one's actions. Just because most people are doing it and there are positives associated with it, doesn't mean someone has to participate. Do your own analysis of the pros and cons and don't be afraid of going a different path. Not all social media is unhealthy, but in today's world people are so caught up in everyone's life and afraid of missing a single moment that they are blind to what they could be doing without it.

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