Impact of Individuals’ Engagement in Social Network-An Extensive Analysis

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Abstract

Social Network (SN) is of avail for sharing information among individuals and communities for different purposes like sharing opinions, feelings, photos, videos and many others. Since the start of the COVID-19 epidemic and the ensuing limitations, the use of Apps on smart devices has exploded. In-line with how much time is spent on SN by a person, the manifestation of physical and mental problems are found in diverse patterns. In this review a comparative account is presented linking the time spent by individuals on social network and the patterns of the resultant health problems in course of time. Most of the earlier studies categorize the users in to various groups based on the time spent on social network. Then they describe the apparent problems that are faced, under two categories, due to the extensive time spent by the users on various social network applications. Finally, the review presents a comprehensive idea of the different analytical techniques used for finding problems faced with respect to the time spent and frequency of social network use. The results on the whole present a variegated picture as regards existence of correlation between intensity of usage and incidence of health problems.

Keywords

Diverse Patterns, Health Problems, Social Network.

Introduction

Social network is ever existing in current culture and has altered the way citizens connect with persons around them. Covid-19 epidemic has grown exponentially in recent times. In India, individuals have resorted to social network as a form of entertainment. Indians spend
a normal of 4 hours time per day on social network in the first week of shutdown. This is a 77% increase over the previous week. Social media usage was on average 150 minutes each day before the ban. However, when the students were placed in lockdown for the first week, the statistics increased to 280 minutes each day, with a survey showing. 75% of respondents said they had added more time to their Facebook, Twitter, and WhatsApp usage over the prior week. Social network users mostly consumed news and communicated with their loved ones via corona virus as the country battled with a corona virus outbreak. (from Business today).

People of all ages across the world now utilize a number of different websites and programs to accomplish their daily tasks. The three unique aspects of social network have been characterized as web-based communication platforms, which are also referred to as social media.

1. It is suitable for user accounts that provide people the ability to design profiles and post information that is unique to them.
2. In addition, this system will be used to offer an unbroken, dynamic link between users.
3. Other users can view this connection and explore it with one another (Boyd, D.M., 2007). These apps, for example, Facebook, Instagram, and Snapchat....etc.,

Facebook has garnered the greatest interest in the academic writing, and Facebook has the majority active users on the world's internet, with over 4.57 billion individuals signed up for the service (Smith, A., 2018). While the apps WhatsApp, Facebook Messenger, WeChat, and Instagram all have over a billion users, YouTube is in second place with 2 billion. Below figure 1 demonstrates the shift in social media networking websites as seen throughout time.

![Figure 1: Increase of users of social network over time](http://www.webology.org)
For the most part, though, other social network sites, including Instagram and Snapchat, have seen significant increases in popularity over the past several years, particularly among younger generations. The majority of young adults (ages 18 to 24) use Snapchat (78%) and Instagram (71%), with 78% of Snapchat users using the app daily and 71% of Instagram users utilizing the site every day or numerous times each day. Social media platforms may be used to express oneself, convey one's views, and gather information, as well as to stay in contact with friends, connect with individuals who share same interests or hobbies, follow celebrities, and find romantic partners (Ellison, N.B., 2013) (Smith, A., 2011).

As of this point in time, we have identified several “active” and “passive” types of usage, which have varied relationships to psychological well-being. In particular, research indicates that activity on social media platforms is more positively correlated with well-being than inactivity. Passive usage of social media includes time spent reading or watching content generated by others; activity here, however, is concerned with social media such as publishing information, uploading photographs, like, commenting, and speaking to others (Pagani, M., 2011) (Shim, M., Lee, M., 2008). But, on the other hand, these distinctions are ignoring certain key elements, such as people's involvement with others. Work recently done by Meier and Reinecke (2020) (Meier, A., 2020) is built on ideas developed by Rafaeli (1988) (Rafaeli, S., 1998) and defines interactivity as the ability of communication partners to respond to each other. A two-way argument (for example, through video) or a two-way reaction (for example, a Facebook "like" to someone's material) are both examples of interactive communication (e.g., browsing a social media feed). Two or more parties can interact in a bidirectional or reactive manner (in which people may be responding to others but this is not necessarily bidirectional). As a result, some observers say that lively, non-social, and inactive Facebook use are best characterized as three distinct types. The greatest approach to use this place is to connect directly with people there (e.g., commenting on posts). However, no written material is used in this dynamic non-social relationship (e.g., likes, RSVP to events). Contact with others isn't required when passive content consumption is involved. A conceptual understanding must be at work here if agreement and confirmation of these concerns are needed. It also ignores interactive gadgets and platforms, as well as algorithms that respond to people's actions. To stop algorithms learning about a user's preferences and showing similar content in the future, for example. In spite of the lack of direct human interaction, there is nevertheless substantial engagement. We will focus on human-to-human interactions and interactivity rather than the “socialness” of social media because this issue is clearly relevant to computer-mediated communication.
Challenges in Modeling SMN Data

Explaining, modelling, and interpreting human behavior are some of the biggest issues when working with social media data. Following are challenges while modelling data:

1. Most social media data, especially word and picture data, is high-dimensional and unistructural. An excellent illustration of this is the use of millions of unigram and bigram elements on social media posts.
2. Also, social media data contain both textual data (e.g., text, pictures, and likes), as well as visual data (i.e., visuals, images, and likes).
3. Due to the scarcity of precise ground truth data for supervised training, it is difficult to acquire significant amounts of behavioral data in a timely manner.

It is difficult to train a supervised machine learning model with sparsely labeled training data. To address these difficulties, complex unsupervised and self-supervised feature learning techniques were utilized. Unsupervised machine learning may make use of unannotated social media data, which is far larger than supervised data. Systems that employ unsupervised feature learning techniques, such as singular-value decomposition (SVD) (L. De Lathauwer, 2000), as well as self-supervised learning techniques based on deep neural networks, such as autoencoders (G. Hinton and R. Salakhutdinov, 2006) and neural network language models (T. Mikolov, I. Sutskever, 2013), perform better in terms of prediction accuracy. Worse still, we must do unsupervised multimodal feature fusion in order to get a unified collection of latent user characteristics. The integrated hidden characteristics are more difficult to understand.

The Role Social Network

Human beings are sociable animals. We require the companionship of people to flourish in life, and our relationships have a big impact on our happiness and mental health. Individuals who are socially connected had reduced levels of stress, anxiety, and depression, more self-esteem, and greater comfort and enjoyment. They also help prevent loneliness and live longer. While there are plenty of advantages to social relationships, having a lack of strong social ties might represent a significant risk to your mental and emotional well-being.

Social networking has emerged as an incredibly popular way to locate and interact with others in today’s digital age. Both social media and face-to-face interactions have their advantages, but it’s vital to remember that social media can never replace actual human connection. To relieve stress and boost good emotions, you must physically interact with others. The more time one spends on social network, the added one will feel lonely and
disconnected. Additionally, social media use raises the chance of developing mental illnesses including anxiety and depression. If you spend an excessive amount of time on social media and are perpetually sad, dissatisfied, furious, or irritated, you should definitely review your actions and see if you can strike a healthy balance.

1. The Positive Aspects of Social Network

While virtual connection via social media does not give the same psychological benefits as face-to-face interaction, it can bring a slew of other benefits, such as staying in touch with friends or getting assistance.

1. Using social media, you may stay in touch with loved ones all around the world.
2. Keep an eye out for new individuals with whom to make new acquaintances and meet new groups with shared interests or dreams.
3. Donate your time and money to organizations that address critical topics; get the word out about subjects that concern you.
4. When in times of adversity, look for or provide emotional support.
5. Have limited independence, social anxiety, or are a member of a marginalized group, such as living in a faraway location? After that, it's essential to establish relationships with the people in your life.
6. Find a creative and expressive outlet.
7. Seek out material that can help you find new ways to think, act, and grow.

2. The Negative Aspects of Social Network

Social media usage is very new, and therefore, there is little known about the possible long-term repercussions. Numerous studies have shown an increased risk of depression, anxiety, loneliness, self-harm, and even suicide thoughts when people spend a lot of time on social media. Despite this, social media companies are still using these results in their marketing and advertising.

Social Network May Promote Negative Experiences Such As

Being insufficiently self-confident about yourself or your looks. Even if you realize that social media photos are heavily edited, they can nevertheless inspire feelings of inadequacy about your appearance and the state of your life. It is common knowledge that other people prefer to discuss just the good things that happen to them, rather than sharing any negative experiences that everyone goes through. However, it doesn't remove the sentiments of
jealously and discontent that arise when you see how photoshopped images of a beautiful beach vacation or a new promotion in your friend's workplace look.

**Fear Of Missing Out (FOMO):** Social network such as Facebook and Instagram may serve to increase emotions of FOMO, the fear of missing out. People might worry about the negative effects missing out on particular experiences has on their self-esteem, and this can lead to anxiety and more frequent usage of social media. Sometimes FOMO may drive you to constantly check your phone, even if it means putting yourself at risk when you're driving, losing out on sleep, or devoting time to social media instead of building actual relationships.

**Isolation:** According to a research conducted at the University of Pennsylvania, social media use really reduces symptoms of loneliness. People who decreased their social media usage reported feeling less lonely and isolated, and they felt better overall.

**Depression and Anxiety:** To be mentally healthy, people need the opportunity to interact with other people. No other method of reducing stress and improving your mood is as effective or as rapid as making direct eye contact with someone who genuinely cares about you, according to research. You should keep your social media connections to a bare minimum to avoid acquiring or worsening mental health issues like anxiety or despair.

**Cyberbullying:** Teens are around 10% of social media users, and they say that they are frequently harassed via social media. Many social network websites, such as Twitter, have the potential to act as avenues for people to disseminate harmful rumors, falsehoods, and abuse that can lead to long-term emotional damage.

**Self-absorption:** Incessant posting of selfies and musings about your own life creates an unhealthy level of self-centeredness, and it reduces your ability to interact with other persons in the factual world.

Due to recent advances in mobile and tablet technology, most of us now get our social media through smart phones and tablets. This is excellent for staying in touch, but social media is constantly available. The availability of 24/7 connection, particularly for continual alerts and messages, might stimulate impulsive behavior, impair attention and focus, and interfere with sleep.

These social media platforms were created to engage and maintain your attention, keep you online, and continuously update you. The corporations make money this way. People can get hooked on social media the same way they may get hooked on gambling, nicotine, or...
narcotics. Dopamine is released in the brain when something good happens, as when you win at a slot machine or acquire a piece of chocolate or smoke a cigarette. Rewarding people just encourages them to spend more time on social media, even if it has a negative impact on other parts of their lives. The figure 2 below shows the various issues by categorizing the problems into two different types.

Fig. 2 Types of problems with social network usage

3. Mental Health Problems

i. Although technologies such as social media are implemented to connect people, in other circumstances, they may instead isolate individuals. A study of young adults found that individuals who utilized social media often felt 3.2 times more socially isolated than their non-social media friends.

ii. There were three categories of psychological discomfort that individuals who considered themselves to have more unfavorable social interactions online, especially through social comparison, might experience: somatization, sadness, and anxiety.

4. Physical Health Problems

1. Eyestrain: To overuse a portable tablet, smart phone, or computer might make you suffer from physical difficulties such as eyestrain. Possible eye strain may occur. Digital eyestrain is commonly characterized by blurred vision and dry eyes. In addition to eyesight strain, people might also have discomfort in the head, neck, and/or shoulders due to eyestrain. Looking too near or too far away might exacerbate eyestrain.

2. A major source of poor posture among computer and mobile device users is based
on improper postures when using those gadgets. This may result in musculoskeletal problems over time. When many technologies focus on promoting a “down and forward” user position, which translates to a person who is bent forward and gazing down at the screen, it is sometimes referred to as “down and forward.” Holding the camera at such an angle puts undue stress on the neck and spine.

3. Issues with sleep: Using gadgets too close to bedtime may cause problems with sleep. This effect is due to the fact that blue light, such as that emitted by mobile phones, e-readers, and computers, excite the brain.

4. Sedentary activities are the norm when it comes to digital electronics. As a result, using these technologies for longer periods of time fosters a more sedentary lifestyle, which has been linked to obesity.

Compressive Study of Social Network

Each of the study samples has its own set of characteristics, which are detailed in Table 1. The methods utilized, the data samples used, the amount of time spent or the frequency with which they were conducted, as well as the challenges encountered, were all different in each study. On Facebook, Whatsapp, and Instagram, the vast majority of research is conducted. The statistical analysis method used in this study includes regression, the mean, the chord, the linear relationship, and the standard deviation, among other things. In contrast to the vast majority of studies, very few studies have been conducted on physical health problems and illnesses. Several studies found a link between the amount of time spent or how frequently a substance was used and a variety of health issues.

<table>
<thead>
<tr>
<th>Author &amp; Year</th>
<th>Data Sample</th>
<th>Time Spent On SMN</th>
<th>Method</th>
<th>Problems Analysed/Identified</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michele Settanni, Davide Marengo, 2018</td>
<td>A total of 310 students in grades 6–11 from the Piedmont and Lombardy regions of northern Italy were recruited for the study.</td>
<td>0.5-2.78 Hours</td>
<td>All of the study measures were subjected to descriptive statistics (mean and standard deviation), The ADHD subscale of the Italian self-report version was used to assess students’ symptoms of attention deficit hyperactivity disorder (ADHD).</td>
<td>The presence of TP was not found to be associated with any significant correlations with demographic variables, Facebook-related variables, or ADHD symptoms. Furthermore, future TP demonstrated a small negative correlation with symptoms of ADHD.</td>
<td></td>
</tr>
<tr>
<td>Aalbers G, Richard J. McNally, 2018</td>
<td>The study recruited 132 undergraduate psychology students (91 females, 41 men) using an online study participation platform.</td>
<td>2 Hours</td>
<td>Participants were asked to complete a 12-item questionnaire on their smartphones seven times each day for 14 days, evaluating PSMU, depressive symptoms, loneliness, and stress.</td>
<td>Tiredness Sadness Loneliness Concentration Disinterest inferiority Despair Stress</td>
<td>The findings of a 125-student experience sampling research found that PSMU did not predict depressive symptoms, loneliness, or stress. Due to this, people who reported feeling tired or lonely were more likely to utilize social media.</td>
</tr>
<tr>
<td>Sarah M. Coyne, Adam A. Rogers, 2018</td>
<td>Participants included 500 adolescents between the</td>
<td>1-4 Hours</td>
<td>Preliminary data were</td>
<td>Anxiety and Depression</td>
<td>The findings revealed that there is no evidence that</td>
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http://www.webology.org
<table>
<thead>
<tr>
<th>Year</th>
<th>Authors</th>
<th>Methodology</th>
<th>Time Allocation</th>
<th>Findings/Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>Kira E. Riehm, MS; Kenneth A. Feder</td>
<td>Waves 1, 2, and 3 of the PATH project were used to recruit participants.</td>
<td>0.5-6hrs</td>
<td>An analysis of multinomial logistic regression found links between daily social media use and internalising, externalising, and co-morbid issues. Internalising and externalising problems were more than three times higher in those who spent more than three hours on social media.</td>
</tr>
<tr>
<td>2019</td>
<td>Taylor Heffer1, Nan Zhao, Niall McCrae, Betul Bi, Niall McCrae</td>
<td>Starting in 2017, 597 Ontario primary school pupils (50.8%) were polled annually for two years.</td>
<td>1-5 hrs</td>
<td>A cross-lagged route analysis was performed in M Plus 7 (Muthén &amp; Muthén, 2012). Both examples used teenagers and young adults.</td>
</tr>
<tr>
<td>2019</td>
<td>David A. Ellisía, sr. Brittany I. Davidson, Carrie Leaman</td>
<td>Each participant had an iPhone 5 or later and had been using the newest iOS for at least a week.</td>
<td>Median time 232 min</td>
<td>Each participant was assigned to one of two groups (high or low).</td>
</tr>
<tr>
<td>2019</td>
<td>David Blackwell, Carrie Leaman</td>
<td>There were 207 in total (50 men, 155 women, and two people who indicated that their gender was “other”).</td>
<td>NR</td>
<td>In both cases, hierarchical regressions were used.</td>
</tr>
<tr>
<td>2017</td>
<td>Geir Scott Brunborg and Jasmina Burdzovic Andreas</td>
<td>For the survey, a total of 1326 students were approached for participation.</td>
<td>2-6 hours</td>
<td>The statistical analyses were carried out using STATA version 14.</td>
</tr>
<tr>
<td>2019</td>
<td>Ingibjorg Eva Thorisdottir, 1,2 Rannveig Sigurvinsdottir</td>
<td>A survey of Icelandic teenagers (N = 10,563) documented the prevalence of social media use.</td>
<td>1-6 hrs</td>
<td>Examine bivariate relationships using Spearman correlations that have been calculated.</td>
</tr>
<tr>
<td>2021</td>
<td>Maartje Boer *, Gonneke W.J.M. Stevens</td>
<td>This research comprised 2226 students in their first two years of high school.</td>
<td>0 to 40 times per week, depending on the number of visits.</td>
<td>Panel model with random intercept and cross-lagging (RI-CLPM).</td>
</tr>
<tr>
<td>2020</td>
<td>Maartje Boer, Gonneke Stevens</td>
<td>A study of 543 Dutch 11–15 year olds was performed.</td>
<td>0 to 40 times per week, depending on the number of visits.</td>
<td>Cross-lagged panel model with two variables and random intercept (RI)</td>
</tr>
<tr>
<td>2020</td>
<td>Fengsu Hou1, Fengying Bi</td>
<td>3088 social media participants in China. Participants answered sociodemographic and epidemic questions.</td>
<td>30-60 minutes on COVID related information on SMN</td>
<td>used Chi-square and ANOVA to describe data and linear regression to investigate depression and anxiety.</td>
</tr>
<tr>
<td>2019</td>
<td>Betul Keles, Niall McCrae</td>
<td>The total sample size across all investigations was 21,231 people.</td>
<td>2 hours</td>
<td>Cohort and cross sectional depression, anxiety and psychological distress were assessed.</td>
</tr>
<tr>
<td>2019</td>
<td>Guangyu Zhou</td>
<td>A total of 512 Chinese college students (62.5)</td>
<td>0-12 hours</td>
<td>Multiple linear regression</td>
</tr>
<tr>
<td>Year</td>
<td>Authors</td>
<td>Sample</td>
<td>Methodology</td>
<td>Analysis</td>
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<tr>
<td>2020</td>
<td>ELLIE LISITSA, KATHERINE S. BENJAMIN, 2020</td>
<td>A total of 1674 individuals (mean age 36.4 years, standard deviation 12.2 years; 87.1 percent female) were recruited through social media sites such as Facebook and Twitter.</td>
<td>NA</td>
<td>Double Mediation Model</td>
</tr>
<tr>
<td>2020</td>
<td>Wong HY, Mo HY, 2020</td>
<td>306 participants</td>
<td>1-6.3 hours</td>
<td>The bivariate relationships between IGDS9-SF, BSMAS, and PSQI scores and DASS-21 domains were examined.</td>
</tr>
<tr>
<td>2020</td>
<td>Rasmussen, E., Punyanunt-Carter, 2020</td>
<td>546 college students aged 18-34 (M = 20.82, SD = 2.09) from a big southern university took part.</td>
<td>1-2 hours</td>
<td>Relationship between emotional management issues and social media use</td>
</tr>
<tr>
<td>2017</td>
<td>Sasikia Y. M. Mérelle, Annet M. Kleiboer, 2017</td>
<td>Data collected by two Dutch municipalities in 2013-2014. The study included 21,053 secondary school pupils.</td>
<td>0-20 times of visit per week</td>
<td>On the basis of the information gathered, a cross-sectional analysis was carried out.</td>
</tr>
<tr>
<td>2020</td>
<td>Elliss, W. E., Dumas, 2020</td>
<td>Canadian teenagers filled out online surveys regarding their stress levels because of the COVID-19 issue.</td>
<td>10 min to 10 hours</td>
<td>Two hierarchical regression analyses were performed to examine the relationships between predictor variables and depression and loneliness syndrome.</td>
</tr>
<tr>
<td>2019</td>
<td>Viner RM, Gireesh A, 2019</td>
<td>In England, there are 1286 young people between the ages of 13 and 16.</td>
<td>0-4 times per day</td>
<td>Secondary examination of publicly accessible Our Futures research data studied the link between youth social media use and subsequent mental health and well-being, as well as the processes involved.</td>
</tr>
<tr>
<td>2017</td>
<td>Kardefelt-Winder, Daniel, 2017</td>
<td>A big cohort study with more than 13,000 children aged 5 in the United Kingdom</td>
<td>NA</td>
<td>The literature reviewed was published in peer-reviewed journals.</td>
</tr>
</tbody>
</table>
### Conclusion

Our study examines the impact of social network sites on users in a variety of age groups ranging from those over the age of five to those over the age of fifty years. Despite the fact that some research findings point to the collective and expressive benefits of using social media, a number of studies have found a link between people's use of social media and their...
physiological and physical problems, including the COVID pandemic period. Consider the following example: a study on the collection of selected participants was from PATH study waves 1 who are spending time between 0.5 hour and 6 hours was discovered that more than three hours of social media use per day, particularly internalising issues, may increase the risk of developing mental health problems (Kira E. Riehm, MS, 2019). According to a study of 1674 people (mean age 36.4 years, standard deviation 12.2 years; 87.1 percent female), young people were more lonely than older people throughout the pandemic, and they also showed a greater increase in social media use as well as a decreased desire to seek social support during the pandemic (Ellie Lisitsa, Katherine S. Benjamin, 2020). Additionally, Viner RM and Gireesh A (2020) concluded that the mental health effects associated with highly frequent social media usage in females are caused by a combination of exposure to cyberbullying and displacement of sleep or physical activity, but that alternative mechanisms appear to be at work in boys, according to the findings of their investigation. Finally, this extensive research on social network usage provides a comprehensive picture of the problems that will arise as a result of increased time spent on social network platforms.

References


