

Long-term use of social media is significantly associated with the prevalence of mental illness

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Abstract. These days, people's lives would not be the same without their mobile phones, and the Internet serves as a vital conduit for communication. The creation of social media has given everyone the opportunity to express themselves, make friends, and have fun in their daily lives. However, it also has its drawbacks and can be an important factor in a person's development of mental illness. The purpose of this research is to prove that social media can have a significant impact on developing mental illness. This paper will also give measures and suggestions on how to plan the use of social media. This paper will use linear regression and select data from the outputs of surveys of different ages and questionnaire formats to examine the argument, in addition to the data selected from the Kaggle website. This provides a new perspective on the study of mental health in order to develop new psychological treatments in the future.

Keywords: Social media, mental health, linear regression.

1. Introduction

Social media has become an indispensable aspect of peoples' everyday lives in the data-driven age people live in today. By stimulating the reward area of the brain, social media releases dopamine, a "feel-good chemical" associated with pleasurable behaviours like eating, having sex, and interacting with others [1]. Both young children and very old people love and rely on mobile phones, and they are addicted to the joy and novelty that the Internet brings to them like never before. Social media platforms provide a virtual reality for them to unleash their emotions. For example, Facebook, TikTok, Instagram, and other social media apps seem to provide a mega-platform for everyone to share, socialise, create, and vent their emotions as they please. Moreover, some real-world loners prefer posting content on platforms to gain self-acceptance and recognition for their sense of self-worth, as the use of social media can lead to psychological cravings. The brain produces dopamine, a "reward" molecule, in reaction to likes, shares, or favourable replies to a post. When you eat chocolate, start a cigarette, or win money on a slot machine, the brain produces this neurotransmitter [2].

Nonetheless, Social media is the good and bad are intermingled. Social media's impact on mental health is a topic of increasing discussion due to its widespread use. The use of social media exacerbates mental health issues [3]. An increasing amount of evidence indicates that using social media excessively might increase your risk of developing a variety of mental health problems such as depression, anxiety, and loneliness. In the US, social media is utilised by 81% of young people and 69% of adults, according to the Pew Research Centre. This indicates that a significant portion of the population is more likely to

experience anxiety, depression, or illness as a result of using social media [4]. This is because most people who use social media for long periods of time suffer from Fear of Missing Out (FOMO). For example, if they are invited by a friend to go on a beach holiday but for some reason can't make it. Or if a friend doesn't invite them along at all, users may feel sad and left out as they realise that others in their social circle have also invited them along. This may make them question their friendship or self-worth [5]. The mixed quality of people who go online makes them vulnerable to malicious bullying. According to research, many other users see rude remarks on social media, and 10% of youngsters say they have experienced bullying there. Because when they share their good life, there will be some people who are envious and become resentful thus using verbal violence to attack the authors, or even maliciously smearing and rumour mongering. Because of the anonymity of the Internet, and because the authors do not know each other in the real world and take revenge, many people begin to deliberately vent the unfairness of their lives online. Social media platforms such as Twitter may develop into hubs for the dissemination of abusive content, false information, and dangerous rumours that can cause long-lasting emotional damage [6]. Some of the violent comments on the internet can also exacerbate the already existing mental illnesses of some people. Therefore, while social media provides convenience and entertainment, it also harbours potential risks that affect mental health [7, 8]. Therefore, the aim of this paper is to investigate that long-term use of social media has a significant correlation with the prevalence of mental illness.

In order to validate this argument, this paper will go through the data and use the methods of linear regression modelling in order to quantify the extent to which the frequency of social media use affects Mental health. The regression analysis will allow for the determination of the specific influence of social media usage frequency on mood and assess its significance. The goal of this is to offer fresh perspectives and facts to back up the investigation of residents mental health in the contemporary, data-driven age. By encouraging better social media usage, this paper also intends to raise awareness of the link between social media use and mental health problems among a wider audience.

2. Methodology

2.1. Data source

The information used in this literature was gathered by Souvik Ahmed and Muhesena Nasiha Syeda from the Kaggle website. This data was conducted in Dhaka, capital city of Bangladesh and published and updated in 2023 for 481 individuals.

2.2. Variable selection

A total of 477 people were selected for this study, including 215 men and 262 women. Patients ranged in age from 13 to 60. As can be seen from Table 1, this paper chooses some variables and those be independent and dependent variables respectively.

Table 1. Variable description.

Variables	Range	Symbol
Using social media?	1-3	X1
Occupation Status	1-4	X2
Your age?	12-60	X3
Gender	0=male, 1=female	X4
Social media time every day(average time)?	0.5-8 hour	X5
Social media platforms(common)?	1-4	X6
Social media to compare yourself to other	1-5	X7
Finding validation from features of social media?	1-5	X8
Difficult to concentrate on things?	0=No, 1=Yes	X9

2.3. Method introduction

The link between at least one explanatory variable and one outcome variable is modelled by linear regression [9, 10]. In addition, the independent and dependent variables selected for this study were presented in the form of questions, meaning that this paper went through the questionnaire method to study the magnitude of the impact that social media has on people's mental illness.

3. Results and discussion

3.1. Model results

From Table 2, it can be seen that the formula of the model is as follows: How often do you feel depressed or down? = $-0.606 + 0.609 \cdot X1 + X2 - 0.014 \cdot X3 + 0.189 \cdot X4 + 0.048 \cdot X5 + 0.000 \cdot X5 + 0.000 \cdot X6 + 0.343 \cdot X9 + 0.206 \cdot X7 + 0.074 \cdot X8$, the value of model R-squared is 0.358, implying that X1, Occupation Status, X3, X4, X5, X6, X9, X7, X8 can explain 35.8% of the variation in 18. how often do you feel depressed or down? F- Test of the model ($F=28.904$, $p=0.000<0.05$) was found to pass, indicating that X1, X2, X3, X4, X5, X6, X9, X7, X8. How frequently do you feel low or depressed? The D-W values for X8 are in proximity to 2, indicating a lack of autocorrelation in the model and an absence of correlation between the enhanced model and the sample data.

Table 2. Model results.

	Nonnormalized coefficient		Standardization coefficient Beta	t	p	Collinearity diagnostics	
	B	SE				VIF	Tolerability
Constant	-0.606	1.262	-	-0.480	0.632	-	-
Using social media?	0.609	0.626	0.037	0.973	0.331	1.036	0.965
Occupation Status	0.200	0.055	0.141	3.612	0.000**	1.114	0.897
Your age?	-0.014	0.007	-0.096	-1.928	0.054	1.793	0.558
Gender	0.189	0.085	0.112	2.226	0.027*	1.827	0.547
Social media time every day(average time)?	0.048	0.028	0.064	1.690	0.092	1.049	0.953
Social media platforms(common)?	0.000	0.002	0.005	0.125	0.901	1.066	0.938
Difficult to concentrate on things?	0.343	0.041	0.352	8.456	0.000**	1.258	0.795
Social media to compare yourself to other	0.206	0.040	0.221	5.120	0.000**	1.351	0.740
Finding validation from features of social media?	0.074	0.044	0.070	1.699	0.090	1.237	0.808
R 2	0.358						
Adjust R 2	0.345						
F	$F(9,467)=28.904, p=0.000$						
D-W value	2.039						

Dependent variable = 18. How often do you feel depressed or down?

* $p<0.05$ ** $p<0.01$

3.2. Discussion

One can observe the final analysis: It does not affect the dependent variable, as indicated by the regression coefficient of X1 being 0.609 ($t=0.973$, $p=0.331>0.05$).

X2 is expected to have a considerable positive impact on the dependent variable, according to the regression coefficient value of 0.200 ($t=3.612$, $p=0.000<0.01$) for the data. Given that age has a regression coefficient value of -0.014 ($t=-1.928$, $p=0.054>0.05$), age does not significantly positively affect the dependent variable.

With a regression coefficient value of 0.189 ($t=2.226$, $p=0.027<0.05$) for gender, the dependent variable is significantly influenced positively by gender. Regression coefficient value of X5 is 0.048 ($t=1.690$, $p=0.092>0.05$), suggesting that it has no discernible beneficial influence on the daily media question, "How often do you feel depressed or down?" has no effect on the dependent variable. Though its regression coefficient value of 0.000 ($t=0.125$, $p=0.901>0.05$) suggests that it has no effect, "How often do you feel depressed or down?" shows a significant correlation with X6.

In relation to the question "How often do you feel depressed or down?" there will be a significant positive influence on the link, as indicated by the regression coefficient value of X9 ($t=8.456$, $p=0.000<0.01$). Using $t=5.120$ and $p=0.000<0.01$, the regression coefficient value for X7 is 0.206. That implies that the question of "how often do you feel depressed or down?" will be significantly impacted by that. would significantly improve the response to the question, "How often do you feel depressed?" RCV for X8 is 0.074 ($t=1.699$, $p=0.090>0.05$), suggesting that it has no significant influence on the dependent variable.

After putting the analysis together, it can be seen that the dependent variable would significantly benefit from X2, X4, X9, and X7. However, the dependent variable is not significantly impacted by X1, X3, X5, X6, X7, or X8.

4. Conclusion

In this study, linear regression was used to explore the correlation between long-term social media use and the prevalence of mental disorders by collecting data through an online questionnaire after concluding that prolonged use of social media increases the likelihood of people suffering from mental disorders. The survey shows that people are often influenced by social media in their daily emotions, which increases stress. In this regard, this paper would like to make some suggestions: It is important to limit the amount of time minors spend using social media each day and encourage social media platforms to introduce automatic reminders and limits. At the same time, mental health education and services should be strengthened to increase the accessibility of mental health resources and provide online and offline psychological counselling support. In addition, social media companies should take social responsibility for reducing the dissemination of harmful content and developing positive mental health content. Comprehensive response plans should be developed through cross-sectoral cooperation; the State should actively produce corresponding policies; public awareness should be raised, community support networks should be established and joint efforts should be made to improve the overall mental health of society.

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