

THE PSYCHOLOGICAL IMPACT OF SOCIAL MEDIA ON ADOLESCENT MENTAL HEALTHS

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Abstract

Teenagers use social media platforms as a part of their daily routine, being a source positive and negative impacts on their well-being. This study assessed the psychological effect of using digital devices in adolescents and with cross-sectional research design. Three hundred participants from different schools and colleges filled up structured questionnaires that assessed the symptoms of anxiety, signs of depression, and self-esteem. The results revealed that more time on social networking was quite strongly related to anxiety-depression and lowering self-esteem. Moreover, the differences in psychological changes were found across the different social media platforms, which indicates that certain characteristics of the platforms and the interactions with other users may influence the mental health risks. To ensure the participant's rights and their privacy were respected, strict ethical measures were observed. These extend the need to address digital literacy and to design programs that can change the negative behaviours of the youths in the usage of the internet.

Keywords: *Adolescents, anxiety, psychological, self-esteem, depression*

1. INTRODUCTION

Communication has been altered over the years due to the advancement of digital technology that has led to social media becoming the major communication channel as well as sharing of information and expressing ones-self. Social media becomes a daily habit for young people who use it to talk to others and study while enjoying entertainment. Psychological and medical researchers now focus their attention on the negative effect social media creates on mental health in young people despite its useful features. Research shows more young people develop anxiety and depression so scientists study how heavy social media use affects their mental health (Vidal et al., 2020).

Adolescence is a sensitive stage in human development characterized by an increase in emotional reactivity and the years of identity crisis and susceptibility to environmental impact (Orben & Przybylski, 2019). In this stage, the neurobiology and psychology of the person undergoes a lot of changes that define the cognitive and psychological responses to stimuli. Social media use in daily life of young people affects how they think about others and themselves while shaping their emotional growth. Excessive use of these networking sites has been linked to several psychological consequences such as sleep problems, bullying, poor body image, and stress (Twenge & Campbell, 2018). The pathways by which social media impacts on mental health are still not fully understood and hence the need to look at the impacts separately.

Scientists have done many studies to understand how social media affects young people mentally. Many researchers show that Instagram, TikTok, and Snapchat; where individuals are exposed to idealized beauty and success, brings negative impacts on users especially when it comes to their mental health and quality of life (Khalaf et al., n.d.). According to the social comparison theory, people especially the young people are inclined to compare themselves with other people in social media, which results in negative self-evaluations (Lee, 2022). Psychological research shows that when people are exposed to such selectivity of images, they develop poor body images, hence low self-esteem especially in the female child (Lee, 2022). Also, the use of 'likes' and comments as a form of social acceptance may lead to the development of a reliance on such approval, which may worsen the feelings of inadequacy and social anxiety (Huang, 2017).

Moving away from the self-esteem perspective, there are reasons to believe that social media is in part responsible for the increase of adolescent depression and anxiety disorders. These can lead to feeling overwhelmed and adding to an individual's level of psychological symptoms (Vidal et al., 2020). Numerous studies show that more screen time and social media use affect the sleep-wake cycles; in this case, the students suffer from fatigue, irritation, and compromised cognitive abilities (Hale et al., 2018). On the other hand, sleep deprivation is known to be linked to mood disorders, and suicidal thoughts, and poor performance among adolescents (Hale & Guan, 2015). Further, visibility in social media leads to experiences in cyber bullying, which has been seen to be a serious trigger of depression, anxiety, and suicidal inclination among the youths (Kowalski et al., 2014). The effects of cyberbullying include social exclusion, feeling of powerlessness, and low self-esteem, which are additional burdens to the mental health of the victims.

There are now scientific findings that explain how social media impacts the brain of adolescents. The brain development is prominent in adolescent years mainly in the prefrontal cortex, which is connected with impulsivity, and limbic system responsible for regulating feelings and reward centres (Casey et al., 2008). Studies show that social media use triggers reward system parts of the brain which lead people to develop addictive behaviours similar to substance addiction. Young people develop compulsive digital habits because their brain responses make them more vulnerable to this type of behaviour (Tereshchenko, 2023). The gratification gotten from likes, comments and sharing lead to a compulsive cycle in an individual's use of the social media tool, the vulnerability to which is higher among adolescents. This has been attributed with short span of time attention, poor academic performance, as well as vulnerability to mental illness (Andreassen et al., 2017).

People need to understand that social media brings important mental health benefits to teenagers. Self-help, identification, and initiation of advocacy groups can also be observed within the sphere of social networks (Naslund et al., 2020). For the outcast and lonely teenagers, the online communities can provide them with the feeling of acceptance and recognition and thus reduce the level of loneliness and exclusion. Besides, social, psychological and telecommunication support; counselling services; psychoeducation; and mindfulness application-based interventions has been acknowledged efficient for adolescent's mental health. These interventions use social media since it is easily accessible and engaging to the youth to help them cope with stress and regulate their emotions.

The hard part lies in using social media to create benefits yet slowing down its dangerous effects. The role of parents, teachers, and other related professionals is to help adolescents develop proper behaviour in using digital technology. Consequently, using the right approaches that will teach young individuals on how to evaluate the content and understand the psychological effects of social comparability; they can be protected adequately. Moreover, the current intervention strategies include limiting the time spent on screen, engaging in face-to-face communication, and encouraging youths to discuss their experiences online (George & Odgers, 2015).

Scientists continue to research how social media affects young people's mental health because scientists need to learn if social media makes teenagers suffer or shows how badly they already feel. Research shows social media use links to bad mental health results, but scientists still cannot prove this connection (Orben & Przybylski, 2019). The specific mental health state of each user and their unique coping strategies plus personality traits need assessment before studying how social media affects them (Faelens et al., 2021). The fast development of digital technology needs more research to show how it affects teenagers both mentally and socially while keeping them healthy.

Youth's life now includes social media platforms in every aspect of their personal mental health development. Although it allows for interaction and discovery of identity, as well as aspects of therapy, it has negative consequences such as elevated stress levels, symptoms of depression, cyberbullying, and dissatisfaction with body image. Surprisingly, the level of engagement young people have with social media services correlates with the development of the teenage brain, which in

turn means that young people need to be informed on how to responsibly consume social media and at the same time, authorities need to devise ways on how to properly address mental health issues tied with overusing social media. The society needs psychologists and other experts to help solve digital age problems by improving adolescent mental health and using social media benefits correctly.

2. Materials and Methods

2.1. Study Design and Participants

In the current study, the method of analysis used was cross-sectional since it aims at establishing the connection between social media use and adolescent mental health. Three hundred adolescents between the age of 13 and 18 years were selected from different schools and community centres using a systematic random sampling technique to ensure that the sample was a cross-section of the population in terms of socioeconomic status.

2.1.1. Inclusion and Exclusion Criteria

Participants for this study included adolescents between 13 and 18 years, and the criterion for the inclusion was that the adolescents had to use the social media for not less than 30 minutes daily. On the other hand, the study excluded those who had any previous psychiatric disorders, those who rarely used social media, and those who were not willing to give informed consent. The main reason behind this tightly controlled selection criteria was to guarantee the sample's reliability while at the same time making sure that a methodologically sound study could be conducted in an effort to investigate the social media effect within this age group.

2.2 Data Collection Procedures

We gave participants a planned survey to get detailed results on how social media affects mental health. The questionnaire divided into three main parts. The first section asked for basic personal information about the participants such as their age, gender, income, and education. The second part contained survey questions about how often users spend time online and what platforms they use most regularly plus their internet interaction habits. This research measured mental health using recognized tests like the Generalized Anxiety Disorder-7 (GAD-7) to assess anxiety symptoms (Johnson et al., 2019), the Patient Health Questionnaire-9 (PHQ-9) to evaluate depression (Maroufizadeh et al., 2019), and the Rosenberg Self-Esteem Scale (RSES) approach to evaluate self-esteem scores (Jiang et al., 2023). Our defined research process helped us examine the link between online activities and emotional health in an organized manner.

2.3. Study Variables and Measurement Tools

The research examined Facebook usage as its main subject by measuring both the total social media time and the preferred platform. The research team chose this variable to study how people use digital platforms because these interactions directly affect the results of our psychological tests. Anxiety levels depression scores and self-esteem served as the main measurements used in this study. Doctors used the GAD-7 Generalized Anxiety Disorder-7 test for anxiety rating and PHQ-9 Patient Health Questionnaire-9 scale to check patients' levels of depression. The Rosenberg Self-Esteem Scale helped us measure participant self-esteem. These tested psychological tests help researchers produce more accurate and dependable results. The research included age, gender, and household income as control variables because these factors could affect the results.

2.4. Statistical Analysis

We performed all statistical work following a set process to check if social media affects mental health. Our team started by using descriptive statistics to present basic information about the people who took part in the study. The statistical analysis used mean values, standard deviations, and frequency distribution methods as shown in Table 1. A statistical test measured how different mental health effects connected with social media activities. The research analysed relationships between social media usage and mental health using Pearson's coefficient to study the statistical relationship between different factors. The results appear as Figure 1.

Our study enables us to check if participant's preferred social media platforms cause differences in their mental health scores. We used a one-way ANOVA test to examine the four groups and followed it with independent t-tests for specific group comparisons as shown in Table 2. We used several linear regression models to check if how long people use social media affects their anxiety, depression, and self-esteem results. These analytics tools were made to handle outside factors that could affect the research results to give us better mental health data from social media. This framework offers a strong base to create accurate predictions in this field.

3. Results

Table 1: Demographic Summary of Participants

Attribute	Count	Mean	Std Dev	Min	25%	50%	75%	Max
Age	300	16.01	1.73	13	14.00	16.00	18.00	18
Social media	300	3.20	1.54	0.5	1.80	3.20	4.70	6.00
Anxiety Score	300	29.93	11.38	10	19.00	30.00	40.00	49
Depression Score	300	29.96	11.26	10	19.00	30.00	40.00	49
Self Esteem Score	300	63.22	19.62	30	46.00	64.00	81.00	99

The research involved 300 adolescents whose average age was 16.01 years (standard deviation 1.73). The participants spent an average of 3.20 hours each day on social media platforms (SD = 1.54) across a range of 0.5 to 6 hours daily. Table 1 shows the demographic information of the participants and the comparison of the mental health scores according to the use of social media. The mean anxiety score was calculated as 29.93 with a SD of 11.38 for depression score it was 29.96 with Standard Deviation of 11.26. However, self-esteem had a wider range with a mean of 63.22 (SD = 19.62) suggesting that there was a lot of variation in the way the participants perceived themselves. Research shows that more social media use by young people tends to improve their mental health. Overall, pattern depicted in Figure 1 shows that many participants has moderate to high anxiety and depression scores. Other appropriate statistical tests shall be used in future data analysis to determine the connections between the mentioned variables regarding the assessed mental health indicators.

Table 2: Mental health impact by social media platform

Preferred Platform	Anxiety Score (Mean)	Depression Score (Mean)	Self Esteem Score (Mean)	Social media (Mean)
Facebook	25.93	28.91	61.07	3.12
Instagram	30.75	30.76	63.53	3.42
Snapchat	30.75	31.07	58.71	3.60
TikTok	32.54	29.49	65.47	3.91
Twitter	30.30	27.37	65.00	2.94

Table 2 shows that social media affects young people's mental health strongly. The study showed that social networking platforms affect how well young people feel mentally. The results showed that the adolescents who mainly used TikTok had the highest level of anxiety (32.54) and the highest score of self-esteem (65.47) which can be attributed to the negative impact of overuse of TikTok. The results revealed that the participants using Instagram and Snapchat had almost the same level of anxiety (30.75) and the participants using Facebook had the least anxiety level (25.93). The results showed that Snapchat users had the highest depression score of 31.07 while the Instagram users had a score of 30.76 and the Twitter users had the lowest score of 27.37. Three hundred young participants with an average age of 16.01 years (SD 1.73) joined the research. Participants revealed they use social media for 3.20 hours each day with a standard deviation of 1.54 hours. Their daily usage spanned from 0.5 to 6 hours. Our data profile shows mental health points of view compared between different groups of users in Table 1.

Table 3: Correlation matrix of social media usage and mental health indicators

Variable	Social media	Anxiety Score	Depression Score	Self Esteem Score
Social media	1.00	0.41	0.38	-0.35
Anxiety Score	0.41	1.00	0.56	-0.47
Depression Score	0.38	0.56	1.00	-0.49
Self Esteem Score	-0.35	-0.47	-0.49	1.00

Research shows that person's anxiety and depression rates increase the more time they devote to using social media (Table 3, $r = +0.41$ or $+0.38$ and $p < 0.05$). Young people who spend more time on screens develop greater psychological problems. Social media use made people feel less confident about themselves through the connection of -0.35 index at ($p < 0.05$). Figure 3 shows how anxiety and depression relate to self-esteem. Young people with higher anxiety levels also showed more depressive symptoms according to our research findings ($r = 0.56$, $p < 0.01$). Our findings show that self-esteem has a strong negative connection with anxiety and depression scores because lower self-perception leads to higher psychological distress.

4. Discussion

Demographic Summary of Participants

The study shows how teenagers use social media and relate these patterns to their mental health (Table 1). As per our study, they had an average age of 16.01 years (standard deviation 1.73) which included young people from early to late adolescence. They spent different amounts of time on social media with an average of 3.20 hours per day (SD = 1.54). Research shows that they use social media for about three to four hours each day which impacts their mental and social development positively and negatively (Naslund et al., 2020).

Mental health status differs from one population to another, and this is evident from the following indicators. The mean anxiety score was 29.93 (SD = 11.38) and the mean depression score was 29.96 (SD = 11.26) which indicates that a significant number of adolescents are experiencing moderate to high level of psychological distress. The self-esteem was 63.22 (SD = 19.62) which shows that the participants had fluctuating self-image and emotional stability. Previous studies have established that social media use is associated with higher levels of anxiety and depressive symptoms because of cyberbullying, comparison with others, and disrupted sleep (Twenge, 2020). Figure 1 also presents demographic variables whereby it shows a clear distribution and fully supports the high variability in the psychological impact of exposure to SSM. The results suggest that there should be more control over the time spent on screens and psychological therapies since social media use can worsen existing mental health issues (Vidal et al., 2020). Further research should establish the

relationship of concurrent effects to identify the impact that one variable has on the other in the facet of adolescent mental health.

Mental health impact by social media platform

Figure 2 and Table 2 display major research facts that show how social media affects mental wellness in young people. The findings explain more about what digital connections do to mental health for young people. The findings also show that TikTok users had the highest mean anxiety score of 32.54 while Facebook users had the lowest score of 25.93. This is consistent with earlier research indicating that instrumentality, short-form videos and advertisement-like encouragement on TikTok might lead to higher psychological harm depending on dopamine boosts and social comparison (Naslund et al., 2020).

Likewise, the lowest self-esteem score was recorded among Snapchat users, which is 58.71; this could be due to the temporary nature of the content and the focus on appearance-based interactions. In contrast, the participants in the Twitter group had a lower depression level (27.37) because the platform is less likely to involve users.

Additionally, more usage of social media lead to more overall anxiety and depression among groups using it as the prolonged time spent on social media reduces sleep quality, reinforces negative thinking patterns and contribute social pressure to adolescents (Khalaf et al., n.d.). According to this study results we need to teach digital media skills along with basic self-control methods to protect young people from the negative influence of social media. Future research should use causal designs to establish causality and explore the characteristics of the platforms that are associated with mental health.

Correlation matrix of social media usage and mental health indicators

The results of Table 3 and Figure 3 demonstrate that increased social media use strongly relates to youth's psychological health results. This show positive moderate correlation between anxiety scores ($r = 0.41$) and depression scores ($r = 0.38$) and social media hours, which represent that heavy social networking can worsen psychological problems. Past studies support our findings which show that prolonged social media use brings anxiety and depression symptoms. The link between social media use and anxiety comes from how people compare themselves to others online plus face cyberbullying and sleep problems (Twenge, 2020; Vidal et al., 2020). Our research shows that greater amounts of social media use generate lower self-esteem values ($r = -0.35$) and produce negative results for anxiety ($r = -0.47$) and depression ($r = -0.49$). Our research proves that regularly using social networking sites reduces personal self-esteem. Repeated exposure to photos of perfect-looking people online weakens your self-esteem and makes you unhappy according to research done before this (Huang, 2017). Research shows that young people who experience high anxiety and depression feel less valuable about themselves (Reitz, 2022). Our study results show young populations need psychological support from schools and parents through lessons in effective social media usage. Future research should also include the analysis with the longest temporal intervals to identify the causality and to focus on the content of the specific platforms to understand better the impact on mental health.

5. Ethical Considerations

The use of ethical considerations in this study was crucial since adolescents are a sensitive group of people. All the research procedures were developed in compliance with the current ethical guidelines were duly briefed to the participants. Some emphasis was placed on the minimization of psychological impact and thereby, elaboration of proper debriefing process followed by referral to the mental health practitioners when needed. Measures to ensure data protection were employed in data collection; participant's information was anonymized, and sensitive data was secured in compliance with the current data protection laws (George & Odgers, 2015; Vidal et al., 2020). Furthermore, the study protocol was approved by the corresponding IRB, which confirmed that all the procedures complied with the ethical standards set by the professional organizations like the APA. This strict ethical consideration not only safeguard the interest of the adolescent participants but also enhanced the credibility of the research outcomes.

6. Conclusion

This study gives important information on how social media affects adolescent mental well-being. Screen time activities link directly to more anxiety and depression in teenagers plus weaken their self-esteem. Taking into account the data concerning the effect of various types of platforms identified, it becomes possible to assume that visually oriented platforms and an opportunity for a user to make numerous rapid interactions increase psychological damage, even if this effect is rather moderate in the case of text-based platforms. Nevertheless, the outcomes prioritise the necessity of moderation of the digital activity and the exploration of possible approaches towards less problematic outcomes online. The ethical aspect was well observed to avoid any harm to the participants and to maintain the anonymity of the participants. The study therefore calls for multi-disciplinary research, education and policymaking to develop specific interventions that can effectively address the digital issues affecting the young people today. The main area for further studies should be based on longitudinal research to demonstrate causal relationships and investigate effects dependent on the platform used. In sum, the present study provides useful knowledge that may help in designing appropriate intervention and policies to enhance adolescent psychological health in the age of technology. These conclusions warrant further exploration.

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Graphs:

Figure 1: Demographic Summary of Participants

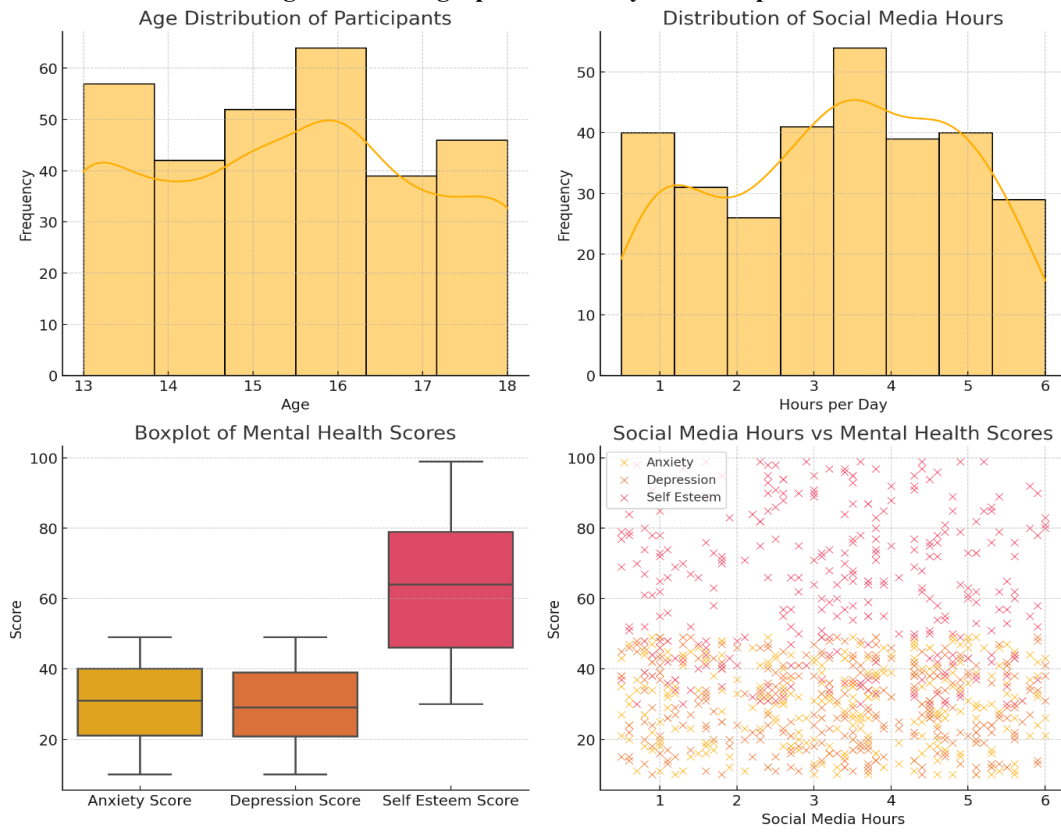


Figure 2: Mental Health Impact by Social Media Platform
Overlap of Mental Health Effects Among Adolescents

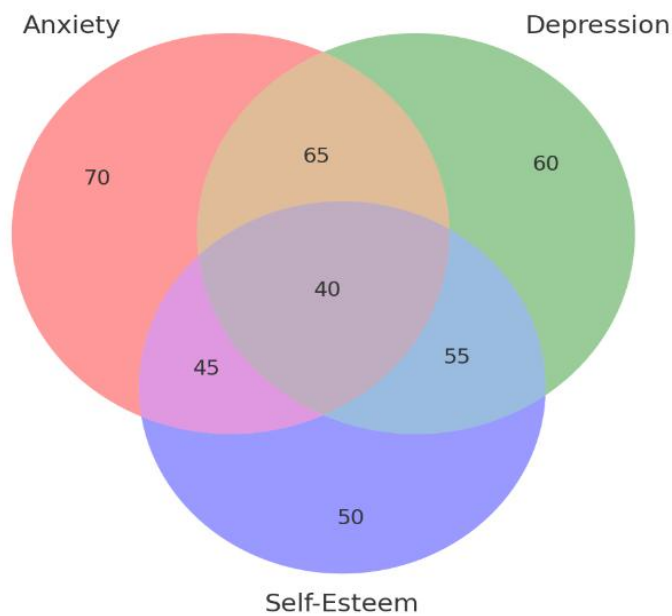


Figure 3: Correlation Matrix of Social Media Usage and Mental Health Indicators

