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Impact of social media usage on depression, anxiety, stress, and well-being among physiotherapy students: A cross-sectional study

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Abstract
Background: Social media platforms have become ubiquitous, connecting billions globally and reshaping communication, self-expression, and social support. However, concerns are growing about their adverse effects on mental health, particularly among young adults.
Aim: This study investigates the impact of social media usage on depression, anxiety, stress, and well-being among physiotherapy students.
Methodology: A cross-sectional survey was conducted among physiotherapy students aged 17–24. The Social Media Disorder Scale (SMD) and Depression, Anxiety, and Stress Scale (DASS-42) were administered online to assess social media addiction and emotional distress. Descriptive statistics and Spearman's correlation were used to analyze the relationship between social media use and mental health outcomes.
Results: The study found statistically significant positive correlations between social media addiction and levels of depression, anxiety, and stress ($p < 0.001$). Students with higher SMD scores were more likely to experience elevated emotional distress.
Conclusion: Excessive social media usage is associated with increased depression, anxiety, and stress among physiotherapy students. Interventions promoting digital literacy and healthy engagement are recommended.

Keywords: Social media, mental health, social media disorder scale (SMD), depression, anxiety, stress, DASS-42

Introduction

Social media consists of interactive internet applications that enable users to create, curate, and share content [1]. Its use has surged globally, with 63.8% of the world's population—about 5.22 billion people—using social media as of October 2024, spending on average 2 hours and 19 minutes daily [2]. Platforms like Facebook, Twitter, and Instagram have transformed communication, allowing real-time global interactions and influencing societal trends [3].

While social media can enhance mental health by fostering connections and peer support, its impact is complex. Positive online interactions may reduce isolation and increase well-being [4]. However, excessive use is associated with negative outcomes, such as feelings of inadequacy, negative social comparison, and anxiety, especially due to exposure to idealized portrayals of others' lives [1]. Over time, this can erode self-esteem and exacerbate depression or anxiety. Social media use is also linked to disrupted sleep, reduced physical activity, and a sedentary lifestyle, which further harm health [1].

Mental health disorders are a major global concern. The WHO reports that one in five adults experiences a mental disorder annually, and 29.2% have a history of mental illness [5]. Depression alone affects over 300 million people worldwide, making it a leading cause of disability [5]. Anxiety and stress are also prevalent, often triggered or worsened by environmental demands and inability to cope [5].

Social Media Disorder (SMD) is an emerging behavioral addiction characterized by compulsive social media use, preoccupation, tolerance, and withdrawal symptoms, particularly among adolescents [6]. SMD can impair daily functioning, academic performance, and relationships.

To assess these issues, tools such as the Depression, Anxiety, and Stress Scale (DASS) [7] and the Social Media Disorder Scale (SMD) [8] are commonly used. Other scales include the Social Media Use Integration Scale (SMUIS) [9], Social Anxiety Scale for Social Media (SAS-SMU) [10], and Social Media Induced Tendency (SMIDT) [11], which help identify individuals at risk and guide interventions [12].

Understanding the nuanced relationship between social media and mental health is critical for developing effective strategies to maximize benefits and minimize harm in the digital age.

Methodology

This cross-sectional study was conducted among physiotherapy students from various colleges in Surat city over a duration of six months. Using a purposive sampling design, a total of 381 students were recruited. The inclusion criteria comprised physiotherapy students aged between 18 and 24 years, of either gender, who volunteered to participate in the study. Students who were unwilling to participate or who had any pre-existing psychological or emotional problems were excluded from the study.

Prior to participation, all students provided written informed consent. Data collection involved the use of a structured Google Form, which included demographic questions as well as two validated scales: The Social Media Disorder Scale (SMD) and the Depression, Anxiety, and Stress Scale-42 (DASS-42). The SMD scale is a 9-item instrument designed to assess problematic social media use and potential addiction. Each item is answered with a "yes" or "no," with the total score ranging from 0 to 9. Scores are interpreted as follows: 0–2 indicates normal usage, 3–5 suggests potential issues, and 6–9 signifies significant

problematic use. The SMD has demonstrated good reliability, with a coefficient of 0.80 or higher [8, 12].

The DASS-42 is a comprehensive questionnaire that measures the severity of depression, anxiety, and stress through three subscales, each containing 14 items. Respondents rate each item on a scale from 0 ("did not apply to me") to 3 ("applied to me very much"), allowing for nuanced assessment. For the depression subscale, scores from 0–9 are considered normal, with higher scores indicating increasing severity. For anxiety, 0–7 is normal, and for stress, 0–14 is normal; higher scores in each subscale reflect greater severity of the respective condition. The DASS-42 has shown high internal consistency, with Cronbach's alpha values of 0.888 for depression, 0.866 for anxiety, and 0.833 for stress, and strong construct validity [7].

The Google Form explained the purpose of the study and included the consent form. Students who agreed to participate completed the questionnaire, which captured both their social media habits and their mental health status. Data were collected anonymously and subsequently analyzed to assess the relationship between social media usage and levels of depression, anxiety, and stress among the participants.

Statistical Analysis and Results

The statistical analysis was carried out using statistical software JAMOVI version 2.3.28.0. Descriptive statistics was carried out for all the demographic data. Correlation between SMD and DASS was carried out using Spearman's Correlation test. Level of significance was set at $p<0.05$

The study included 380 physiotherapy students with a mean age of 19.8 years (SD = 1.68, range 17–24). Most participants were aged 18–21 years. The mean DASS-42 score was 26.9 (SD = 25.6), and the mean Social Media Disorder (SMD) score was 2.37 (SD = 2.19). Table 1 shows frequency distribution of age of participants.

Table 1: Frequency Distribution of Age

Age	No. of Students	% of Total	Cumulative %
17	15	3.9 %	3.9 %
18	95	25.0 %	28.9 %
19	71	18.7 %	47.6 %
20	63	16.6 %	64.2 %
21	70	18.4 %	82.6 %
22	46	12.1 %	94.7 %
23	11	2.9 %	97.6 %
24	9	2.4 %	100.0 %

Spearman's correlation analysis revealed significant positive associations between SMD scores and all DASS-42 subscales:

- Depression: $\rho = 0.487$, $p < 0.001$
- Anxiety: $\rho = 0.475$, $p < 0.001$
- Stress: $\rho = 0.504$, $p < 0.001$

Overall, the total DASS-42 score was also significantly correlated with SMD ($\rho = 0.518$, $p < 0.001$), indicating that higher problematic social media use is associated with greater levels of depression, anxiety, and stress among physiotherapy students.

Discussion

This study examined the relationship between problematic social media use and mental health outcomes—specifically depression, anxiety, and stress—among physiotherapy students aged 17 to 24 years. Using validated tools (SMD and DASS-42), we found a strong and statistically significant correlation between higher social media dependency and increased levels of emotional distress ($p < 0.001$). These findings underscore the growing concern that social media, while offering opportunities for connection and information sharing, may also contribute to psychological challenges in young adults.

Our results are in line with a growing body of literature demonstrating that excessive engagement with social media platforms is associated with negative mental health outcomes. Primack *et al*. (2017) found that young adults who use multiple social media platforms are at increased risk for depression and anxiety, suggesting that both the quantity and diversity of social media exposure may amplify psychological vulnerability. The parallels with our findings reinforce the notion that not only the amount of time spent online, but also the compulsive nature of usage—captured by the SMD—can be detrimental to mental health. [13].

The qualitative aspects of social media use are also important. O'Reilly *et al*. (2018) explored adolescents' perceptions and reported that many young people view social media as a source of stress, anxiety, and low mood, particularly due to pressures of constant connectivity, fear of missing out (FOMO), and negative social comparison. Our study corroborates these insights, as students with higher SMD scores also reported elevated levels of depression, anxiety, and stress. This supports the theory that the psychological impact of social media is not only a function of screen time but also the emotional investment and expectations associated with online interactions. [14].

Furthermore, Jeri-Yabar *et al*. (2019) established a significant positive correlation between social media dependence and depressive symptoms among adolescents. Their classification of social media dependence and its direct relationship with depression severity is mirrored in our data, emphasizing the need for mental health professionals to consider digital habits when assessing and treating young adults. [15].

Baltacı (2019) provided additional context by examining how social anxiety, loneliness, and happiness influence the tendency to develop social media addiction. The study concluded that individuals with higher social anxiety are more likely to seek validation and connection through social media, potentially leading to addictive behaviors. Our findings expand on this by showing that not only social anxiety but also broader emotional distress (including depression and stress) are linked to problematic social media use. This suggests a cyclical relationship where emotional difficulties drive increased online engagement, which in turn exacerbates mental health issues. [16].

The interconnectedness of these mental health domains highlights the importance of holistic approaches to intervention. Rather than targeting a single symptom, comprehensive mental health care should address the full spectrum of emotional distress associated with problematic social media use. This may include psychoeducation about healthy digital habits, promotion of offline social support, and cognitive-behavioral strategies to manage negative social comparison and online pressures.

Limitations

Despite its strengths, this study has several limitations. The reliance on self-reported data introduces the possibility of

social desirability bias and inaccurate recall. The cross-sectional design limits our ability to draw causal inferences between social media use and mental health outcomes. Furthermore, the sample was restricted to physiotherapy students aged 17 to 24, reducing the generalizability of the findings to other age groups, educational backgrounds, or cultural contexts. We also did not account for potential confounding variables such as socioeconomic status, personality traits, or the quality of offline social relationships, which may influence both social media use and mental health.

Future Recommendations

Future research should employ longitudinal designs to clarify the directionality and causality of the relationship between social media use and mental health. Expanding the study population to include diverse age groups, professional backgrounds, and cultural settings would enhance generalizability. Incorporating additional variables—such as personality traits, offline social interactions, and socioeconomic factors—could provide a more comprehensive understanding of the mechanisms at play. Finally, platform-specific analyses may reveal unique risks or benefits associated with different types of social media engagement.

Conclusion

In summary, this study adds to the growing evidence that problematic social media use is closely linked with higher levels of depression, anxiety, and stress among young adults. The findings highlight the need for awareness, early identification, and holistic intervention strategies to mitigate the mental health risks associated with excessive and compulsive social media engagement.

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