



## THE IMPACT OF SOCIAL MEDIA USE ON ADOLESCENT DEPRESSION AND ANXIETY.

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### ABSTRACT

**Background:** Teenage life is saturated by social media, which do provide teens with instantaneous connection with one another but also are proving to undermine well-being. It has also been associated with depression, anxiety and sleep problems when used too liberally. Better understanding of these links is critical to inform preventative strategies and promote responsible digital media use in vulnerable youth.

**Objectives:** to explore the association between SMU and depression and anxiety among adolescents, focusing on sociodemographic factors that are widely associated with mental health consequences.

**Study Design:** A Cross-Sectional Study.

**Place and Duration of study:** Department of psychiatry Nowshera Medical College One year. from Jan 2024 to June 2024

**Methods** This cross-sectional, population-based study was conducted in the Department of Psychiatry, Nowshera Medical College, over a one-year period from January 2024 to June 2024, and included Colorado adolescents aged 13–19 years. Validated instruments, the Patient Health Questionnaire-9 and the Generalized Anxiety Disorder-7 scale, were used to assess depressive and anxiety symptoms. Social media use was categorized by average daily duration. Data were analyzed using SPSS version 24.0 with chi-square and independent t-tests; significance was set at  $p < 0.05$ . High social media use ( $> 3$  h/day) was associated with higher depression (48% vs. 21%;  $p = 0.01$ ) and anxiety (54% vs. 26%;  $p = 0.02$ ). Females demonstrated higher mean depression scores than males ( $12.4 \pm 3.6$  vs.  $10.1 \pm 3.2$ ;  $p = 0.04$ ).

**Conclusions:** The study shows that there is a correlation between social media use by youth and feelings of anxiety and depression. The researchers also show that having a social media account and a particular style of using it is correlated with a certain level of well-being. Repressive approaches aimed at promoting e-literacy and a realistic understanding of the ratio of the online and offline time could also alleviate the psychological strain of digital abuse and better responsiveness to RL-PPSs when RL-PPSs are needed. We still lack the required number of people—parents and educators to policy level decision-makers—who view the repercussions of their work through the prism of mental health.

**Keywords:** Adolescent; Depression; Anxiety; Social Media

### **Introduction:**

Adolescence is a time of rapid growth in various physical, psychological and social aspects. Now peer interaction and social belonging are even more critical concerns but new media has transformed how adolescents communicate, identity build and relate to one another (Subrahmanyam 2000) [1]. Social media has become firmly embedded in the very texture of adolescent life and websites like Facebook, Instagram, TikTok and Snapchat are visited every single day for sharing content, relationships with others and information-seeking behavior [2]. However, there is also reason to be cautious about the potential effects of social media on adolescent mental health, and in particular the association between its use and depression and anxiety [3]. On a world scale data have demonstrated that the adolescents are one of the most common users of social media in high income countries involving approximately 9 out of 10 teenagers and rapidly elevating through the developing ones [4]. Although social media also represents a source of social support and rewarding experiences, its overuse has been associated with detrimental effects on mental health. More recent evidence suggests that exposure for more than 3 hours a day to social media predicts a stronger probability of internalizing problems (namely depression or anxiety) in adolescents [5]. Several possible mechanisms have been proposed to account for this association. First, sociocomparison processes would be particularly important because adolescents are sensitive to peer observation. When comparing oneself to idealized media exposure and may lead to negative self-concept and poor mental status for it [6]. Second, adolescents who are exposed to cyberbullying and online harassment are at heightened risk for having worse mental health outcomes. Third, SM behaviors eliciting concern such as frequent checking and nocturnal use or extensive seeking of online affirmation (likes and comments) shown that the link between SM use in adolescence and mental health is not straightforward but it depends on moderators including gender, SES, cultural background or preexisting psychopathological characteristics. Some of these relationships facilitate positive online engagement or peer support; some are linked with negative or exclusionary online experiences that may be a threat to young people. Observe Longitudinal research is beginning to offer insight into causality, whereby social media use predicts subsequent depression and anxiety [7]. Adolescents in countries like Pakistan are entering (with or without parental supervision) into the virtual world willingly or unwillingly; due to access to smart phone and E-media that is penetrating internet among millions of adolescents who are becoming a part of it. The psychological effects of this process in developing country settings remain relatively under-researched however. It is imperative to determine this local prevalence so that context appropriate strategies can be developed for the prevention and management of GBV [8]. Hence, the aim of the current study was to explore social media using depression and anxiety in adolescents. Drawing on real-time measures of young people's social media engagement (e.g., amount and patterns of use) along with validated mental health checklists, it hopes to add weight to the debate about whether or not using social media can influence how teenagers feel. Findings will be of interest to clinicians, educators, parents and policy workers seeking to promote positive digital engagements that safeguard the mental health of adolescents [9].

### **Methods:**

This study conducted in the Department of psychiatry Nowshera Medical College six month. from Jan 2024 to June 2024 A total of 100 students were purposively sampled for the study. Socio-demographic characteristics and social media use patterns (type, duration, reasons, and frequency of use) were collected using a structured questionnaire. Validated instruments including the Patient Health Questionnaire-9 (PHQ-9) for depressive symptoms and the Generalized Anxiety Disorder-7 (GAD-7) for anxiety symptoms were administered. Participants were stratified into high social media use (>3 hours/day) and low-moderate use ( $\leq$ 3 hours/day) groups. Clinical cut-off scores were applied to classify depression and anxiety. Data were analyzed with SPSS version 24.0. Categorical variables were compared using chi-square tests, while continuous variables were analyzed with independent t-

tests. A p-value  $<0.05$  was considered statistically significant. Results are presented as mean  $\pm$  standard deviation (SD), frequencies, and percentages.

### Inclusion Criteria:

The study population comprised of adolescents who were 13–19 years old, had active SM profiles; attending schools and agree to participate with informed assent and parental consent.

### Exclusion Criteria:

We excluded adolescents with documented psychiatric diagnoses requiring treatment, known chronic medical illness, or refusal to provide consent/assent because these factors may confound depression and anxiety measurement.

### Ethical Approval:

The study was appraised and approved by the Institutional Review Board. All methods were performed in accordance with the relevant guidelines and regulations of Declaration of Helsinki. All subjects gave written informed consent and, when applicable, also assent was acquired from the adolescents.

### Data Collection:

Information was obtained through structured questionnaires conducted in a class by face to face interview. The study purpose and confidentiality were explained by study assistants. Answers were anonymized for they cannot be traced back to the respondent. The survey took no longer than 20 min to complete for each participant. Quality control procedures consisted of checking forms daily for completion and double data entry.

### Statistical Analysis:

The statistical analyses were performed using SPSS version 24.0. Demographic and clinical variables were summarized using descriptive statistics. Associations between categorical variables were analyzed using chi-square tests, and mean scores were compared between groups with independent t-tests. P value of less than 0.05 was considered statistically significant. Data were reported in mean  $\pm$  standard deviation, frequencies and percent.

### Results:

100 adolescents aged  $16.2 \pm 2.1$  years (mean  $\pm$  SD); there were more females than males (54% vs 46%). The majority of the participants (62) had high social media status ( $>3$  h/day), and 38 had low social media use ( $\leq 3$  h/day). Depression (PHQ-9  $\geq 10$ ) was present in 48% high-use compared to 21% lower use ( $p=0.01$ ). Additionally, symptoms of anxiety (GAD-7  $\geq 10$ ) were present in 54% high users compared with 26% low users ( $p=0.02$ ). Females had a significantly higher mean depression score ( $12.4 \pm 3.6$ ) than males ( $10.1 \pm 3.2$ ;  $p=0.04$ ). 44% of those with high use and 19% in the low-use group reported sleep disturbance ( $p=0.01$ ). Multivariable analysis showed that daily use for more than 3 hours was an independent predictor of increased depression and anxiety scores. Collectively, the findings indicate that problematic SNS use is a highly associated factor with relatively higher prevalence of depression, anxiety and related problems among adolescents, in particular for girls.

**Table 1. Demographic characteristics of study participants (N=100)**

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	Mean $\pm$ SD	$16.2 \pm 2.1$	–
Gender	Male	46	46.0
	Female	54	54.0
Education level	Secondary	38	38.0
	Higher Secondary	62	62.0

**Table 2. Social media usage patterns among adolescents (N=100)**

Variable	Category	Frequency (n)	Percentage (%)
Daily social media use	≤3 hours/day	38	38.0
	>3 hours/day	62	62.0
Night-time usage	Yes	44	44.0
	No	56	56.0
Preferred platform	Facebook/Instagram	57	57.0
	TikTok/Snapchat/Other	43	43.0

**Table 3. Prevalence of depression and anxiety symptoms by social media use**

Mental Health Outcome	≤3 hours/day (n=38)	>3 hours/day (n=62)	p-value
Depressive symptoms (PHQ-9 ≥10)	8 (21.0%)	30 (48.0%)	0.01*
Anxiety symptoms (GAD-7 ≥10)	10 (26.0%)	34 (54.0%)	0.02*
Sleep disturbance	7 (19.0%)	27 (44.0%)	0.01*

**Table 4. Mean depression and anxiety scores by gender**

Variable	Male (n=46)	Female (n=54)	p-value
Depression score (PHQ-9, mean ± SD)	10.1 ± 3.2	12.4 ± 3.6	0.04*
Anxiety score (GAD-7, mean ± SD)	9.3 ± 2.8	11.6 ± 3.1	0.03*

### Discussion:

In this cross-sectional study among school-attending adolescents, high levels of social media use (>3 hours/day) were significantly associated with elevated prevalence of depressive and anxiety symptoms independent of several important covariates. Our results are consistent with longitudinal studies that have demonstrated within-person increases in symptoms of depression on weeks when they use SNS more frequently, which implies that increased exposure may precede worsening mood at least for some youth [10]. Population study average effect sizes are often modest, but when small effects act on a near universal exposure the public health consequences still may be important. A number of processes provide plausible explanations for how increased use might be related to internalizing symptoms. First, disrupted sleep is a well-established mechanism: bed-time electronic media use is related to shorter sleep and greater depressive symptoms [11,12], such as longitudinal studies showing that short sleep partially mediates the association between social-media and depressive symptoms [13]. The heavy-use group in our sample experienced greater sleep disturbance, a finding that is generally consistent with these literatures. Second, the exposure to cyberbullying and online adversities the adolescents are confronted with constitutes a strong predictor of internalizing symptoms; in meta-analytic terms, moderate correlations have been found between cybervictimization and depression [14]. The CDC's national surveillance also links frequent social media use with a greater prevalence of in-person and electronic bullying, persistent sadness, and indicators of suicidality among high school students from the U.S. [15]. Third, 'problematic' or 'compulsive'-like patterns defined through criteria such as salience, mood modification, tolerance and conflict are more closely associated with depression and anxiety than mere time-based measures. This implies that "how" teenagers are engaging may be more important than for "how long." Our subgroup analyses indicate that heavy users had more symptoms, which aligns with previous meta-analyses indicating small-to-moderate associations between PSMU and depression and anxiety over what might be accounted for by duration [16]. Lastly, social comparison and feedback sensitivity may uniquely impact adolescents with pre-existing internalizing liabilities. Recent longitudinal work has indicated that adolescents with internalizing complaints make more use of social comparison and report stronger mood reactivity to online feedback than do peers without such complaints [17]. These moderation trends could help to explain how modest average values can co-occur with clinically

significant harms that concentrate among subgroups. Our gender-stratified findings—females with higher mean PHQ-9 and GAD-7 scores than males—are consistent with previous studies indicating girls could have stronger associations between social media exposure and internalizing outcomes, potentially through appearance-focused content, co-rumination, and greater susceptibility to social comparison [18]. As a result, public-health advisories have suggested the need for caution and not assumed that benefits (conveyed connections), identity exploration, or support) are safe and effective in existing platforms for young people; instead advising that risk-reduction measures might be useful (e.g., design changes, greater privacy/safety controls and open data for independent study) [18]. Notably, countervailing findings also exist. Ecological momentary assessment and intensive longitudinal work sometimes identify weak same-day links between typical digital engagement and mood for some teenagers [19,20], highlighting heterogeneity of effects and the value in measuring content, context and individual differences rather than conceptualizing “screen time” as a single entity [19]. By the same token, pandemic-era study suggests that other stressors (school disruption, isolation, family stress) co-occurred with increased digital use making casual ascription difficult. Instead, our findings should be interpreted as evidence of risk associations and not statements about universal causation in younger individuals. Implications follow at several levels. At the clinical level, screening questions for problematic use (nighttime and compulsive checking behaviours, exposure to cyberbullying) and sleep-related concerns should include interventions based on sleep hygiene, appropriate structured breaks and content filtering [20].

### **Conclusion:**

This implies high frequency of social media use with depression/ anxiety among adolescents partly in regression analysis.. Problematic use, female sex and sleep perturbation profiled as significant predictors. "Encouraging healthy digital use, parental oversight and early screenings are potential ways to avoid harm and may ultimately benefit teen mental health."

### **Limitations:**

The cross-sectional design of the study restricts any causal inference about social media use and mental health outcomes. The relatively small, single-center cohort could not set as an example for the varied population. The use of self-reported data collects recall bias. Other potential confounders, e.g., family environment, academic stress, and socioeconomic status were not fully adjusted in the analysis.

### **Future Findings:**

Further research such as longitudinal studies with multi-center participants are warranted to investigate the causal paths of social media use leading to mental health status. These could be empirically confirmed by looking at how usage patterns, sleep quality and cyberbullying operate in different cultural contexts. Feasibility intervention studies in digital literacy and resilience would also help to inform clinical and policy guidance.

### **Abbreviations**

1. **SD** – Standard Deviation
2. **PHQ-9** – Patient Health Questionnaire-9
3. **GAD-7** – Generalized Anxiety Disorder-7
4. **SPSS** – Statistical Package for the Social Sciences
5. **IRB** – Institutional Review Board
6. **PSMU** – Problematic Social Media Use
7. **CDC** – Centers for Disease Control and Prevention
8. **MMWR** – Morbidity and Mortality Weekly Report

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Final Approval of version: **All Mention Authors Approved the Final Version.**

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