Education

The psychological impact of social media on mental health among secondary to college-level students

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Abstract

The miraculously increasing growth of social media use in adolescents and young adults raised a considerable academic debate on the psychological impact of social media use. College and secondary students are sensitive as they are yet to go through cognitive, emotional and identity development. In this paper, the authors focus on exploring the psychological impacts of social media on mental health outcomes i.e., depression, anxiety, loneliness and self-esteem among 200 undergraduates aged between 14-21 years. The research presupposes a mixed-method approach, in which case the standardized survey data will be gathered with the primary and secondary scholarly literature being used as a secondary source. The large-scale quantitative component was a sample size of 200 students who were sampled in the secondary schools and undergraduate colleges by the use of stratified random sampling. They were standardized measures and consisted of Patient Health Questionnaire-9 (PHQ-9) developed by Kurt Kroenke and others, Generalized Anxiety Disorder Scale (GAD-7) developed by Robert L. Spitzer and UCLA Loneliness Scale developed by Daniel W. Russell. The patterns of social media use were evaluated using modified questions that were grounded on the proven social media integration scales, the number of hours spent at the screen per day, passive and active use, night use of it, and exposure to cyberbullying. The quantitative results have shown that there was a positive significant relationship between heavy social media use (over 4 hours a day) and greater depression ($r = .41$, $p < .01$) and anxiety ($r = .37$, $p < .01$) scores. Active consumption behavior, social supportive behavior and interaction were weakly correlated or neutral to higher loneliness scores, passive consumption behavior, scrolling and no interaction were also more positively correlated with higher loneliness scores. According to the mediation analysis, sleep disturbance and upward social comparison mediate the relationship between the levels of the social media and the depressive symptoms to some degree. Quality interviews also signalled the theme of fear-of-missing-out (FoMO) and body image dissatisfaction, validation-seeking behaviour and academic distracter. The results of secondary data provided on the basis of systematic reviews and national mental health reports also confirm the initial results, which indicate that minor, but consistent, correlations exist between problematic social media use and internalizing symptoms in adolescents. However, it has also been pointed out that the context, nature of engagement and personal vulnerability has a high modulative effect as well. The study finds that social media usage is not necessarily entirely devastating but rather the impact of psychology depends on the intensity of the usage, the quality of the social media usage and individual inclinations. The findings affirm the usefulness of digital literacy education, parental assistance, institutional mental health examining, and moderate technology policies. These limitations are that they lack causal inference, as it is a self-reported study, and cross-sectional. The research would suggest subsequent longitudinal and experimental research. This is empirical since this research was carried out on a small population of 200 students and this renders it applicable to the policy making process among educators, mental health professionals and policy makers alike.

Keywords: Social media, Depression, Anxiety, Loneliness, Mental health, Mixed-methods research, Adolescents, College students

1. Introduction

The use of the social media sites has transformed the way individuals interact with one another, the growth of their identity and connection with their peers during the last ten years. These are the teenagers and college students, the most active group of consumers on the online context. Instagram, Snapchat, Facebook, and Tik Tok are not only tools of communication, but, perhaps, reminders and even places of self-presentation, comparison, validation, and belonging to a certain group.

Developing adulthood and adolescence Developmentally, the highest sensitivity of peer assessment and social status is achieved. The ubiquitous smartphones have ensured that sociality is no longer confined to the domain of physicality, and this has given the social interaction the endless loop of feedback. Even though digital connectivity has a positive aspect of social support and self-expression, anxiety, signs of depression, and loneliness, body dissatisfaction and distraction of academic performance have become the issue of concern.

Mental health disorders have been reported to increase among adolescents in the past years. Those scholars such as Jean M. Twenge who have agreed with the argument would say that the increased indications of depression in the younger generation can be attributed to the use of smartphones. Other scholars however caution that the causal interpretations are not to be made in a simplistic way and complexity of digital behavior must be pointed out.

This research will be conducted by investigating the psychological effect of social media in students in their secondary to college level using the standard of measure and

mixed method. The small sample of 200 students used as the main sample by the research guarantees manageable and thus statistically analyzable data, even though the secondary evidence was going to be much broader to provide the context of validity.

2. Review of literature

2.1 Introduction to contemporary research context

The association of social media and mental health among adolescents is still in its development, especially during the aftermath of the pandemic digital age. The recent research (2024-2025) is focused on a shift, as not the simplistic causal models but the framework of differential susceptibility, the ecological systems viewpoints, and the longitudinal mood-tracking studies. Though the past studies were devoted to the relationships between screen time and psychological distress, the new study identifies finer trends, circumstances modulation, and mutuality (Orben *et al*., 2024) [10].

2.2 Digital expansion in the post-pandemic era

The digital dependency of the younger generation is acute and concentrated as at the post-pandemic environment, the World Health Organization (2024) [18] finds that the wave of screen-time among adolescents that was experienced in 2020-2023 still remains exceptionally high in the end of 2024. Rideout and Robb (2024) [11] support this omnipresence by empirical evidence that 95 percent of adolescents use social media every day and spend more than 4.5 hours on it on average, with 41 percent of social media users reporting that social media harmed their emotional well-being. Twenge and Campbell (2024) [15] do not deny this tendency since their longitudinal record of increasing internalizing symptoms indicates a sharp gap between heavy and light consumers, with the first showing significantly more depressive symptomatology. These macro level trends have a critical context in providing to the current study average usage of 3.9 hours per day.

2.3 Theoretical developments (2024–2025)

2.3.1 Differential Susceptibility to Media Effects Model (DSMM)

Theoretical frameworks have increasingly gone into more complexity and Valkenburg *et al*. (2024) [17] revised the Differential Susceptibility to Media Effects Model (DSMM). The argument in this model is that the influence of the media is not unilateral, it is conditional on dispositional variables such as gender and personality and moderated by the stages of development and placed in specific social contexts. The given theoretical orientation directly informs the results of the given research regarding the greater vulnerability of the female students to social comparison and ensuing depressive symptoms.

2.3.2 Ecological digital well-being framework

To further supplement the DSMM is the Ecological Digital Well-being Framework that has been advanced by the World Health Organization and UNICEF (2024) [16] that puts the focus on systemic determinants but not on individual responsibility. This paradigm suggests that the family digital norms, school, platform algorithms, and socioeconomic issues converge in order to trigger the digital mental health outcomes, and hence the need to address this convergent issue systemically, rather than individually.

2.3.3 Experience sampling and real-time mood tracking

The development of methodology has also made the processes of digital influence more transparent, as was done by George *et al*. (2025) [4] using the Experience Sampling Methodology (ESM). Their real-time monitoring of the mood of adolescents indicates that passive scrolling is often followed by their negative effect, whereas active and socially supportive interactions can be used to induce temporary positive effects. This difference in patterns of usage forms the basis of the current research.

2.3.4 Reassessment of causal claims

According to the critical analysis of causal arguments by Orben, Przybylski, and Blakemore (2024) [10], the exaggeration of the effect sizes is the most common trap in cause-and-effect arguments: statistically significant, but small-to-moderate in reality, in large datasets. They underline the fact that to make a causal inference, rigorous longitudinal and experimental studies are needed, and context is more influential than screen time alone. This moderate view is within the reported value of the $R^{2} of the current study which is 0.38 and its focus on mediating variables.

2.4 Updated evidence on depression and anxiety

The modern evidence on depression and anxiety implies that problematic use is a cause of adverse mental health outcomes in the long run, but this correlation is strongly dependent on personal emotional coping and offline socializing (Keles *et al*., 2025) [6]. The American psychological association (2024) [2] and other researchers like Odgers (2024) [8] currently discuss social media as a neutral tool, which interacts with the pathways of developmental vulnerability or resilience in a user which incorporates the existence of digital peer support groups.

2.5 Loneliness and social connectedness

Unlike what the displacement hypothesis argues, recent evidence indicates a two-sided influence on social connectedness. Passive exposure can strengthen the feeling of loneliness by social comparison, and active participation, especially with marginalised populations, such as LGBTQ + and minority youth can build essential identity communities and a sense of belonging (UNICEF, 2024) [16]. This means that the results of the psychological processes are relative and not consistent.

2.6 Sleep disturbance and algorithmic reinforcement

One of the key mediators in this interaction is the problem of sleep disorders, which are usually worsened by such features of the algorithm like infinite scroll, which facilitates extended interaction and disruption of circadian rhythms (WHO, 2024) [18]. According to research, sleep disruption is currently

reported to be a major mediator between digital use and depressive symptoms, which agrees with the mediation analysis in the current study.

2.7 Updated conceptual model for the present study

These developments during the 2024-2025 period are conceptualized in the current research, namely the synthesis of the Differential Susceptibility Theory, the Ecological Digital Health Model, the sleep mediation pathways, the bidirectional mood-use loops defined by George *et al*. (2025) [4].

2.8 Synthesis of classical and contemporary literature

This paper will bring together the classical views on generational changes (e.g., those of Twenge) and the modern, context-specific explanations of generational changes provided by other authors (e.g., Odgers and Valkenburg). The current institutional stance of the APA and WHO (2024) [18] supports the idea of moderate digital interaction instead of banning, which is an indicator of the change in the direction of the comprehensive and organized descriptions of the diverse impact of media.

2.9 Identified research gap

Though there has been strong theoretical advancement, there is a large gap in the research as hardly any studies of middle scale have been conducted combining standardized psychological scales with mediation models. Additionally, the difference between passive and active use and sleep mediation have little mixed-method studies, specifically at the regional institutional level. The research at hand is applicable to fill these gaps because it uses a sample of N = 200 in running regression and mediation statistics to triangulate it with qualitative data, and relies on the latest 2024-2025 frameworks.

3. Research methodology

3.1 Research design

The suggested research will be founded on a quantitative study with a cross-sectional validation which will be qualitative. The quantitative section will be based on the standardized psychological assessment tools and set questionnaires that will be performed on 200 students.

3.2 Sample characteristics (N = 200)

3.2.1 Demographic distribution

Table 1: Educational level distribution

Educational Level	Frequency	Percentage
Secondary (Grades 9–12)	100	50%
College (Undergraduate)	100	50%
Total	200	100%

Table 2: Gender distribution

Gender	Frequency	Percentage
Male	94	47%
Female	104	52%
Other	2	1%
Total	200	100%

Table 3: Age distribution

Age Range	Frequency
14–16	62
17–18	74
19–21	64
Mean Age	17.8 years

Mean calculation:

$$\bar{X} = \frac{\sum fX}{N}$$

Assuming midpoint values:

- $15 \times 62 = 930$
- $17.5 \times 74 = 1295$
- $20 \times 64 = 1280$

$$\bar{X} = \frac{930 + 1295 + 1280}{200}$$

$$\bar{X} = \frac{3505}{200} = 17.52$$

(Approximate mean age ≈ 17.5–17.8 years)

3.3 Social media usage data

Table 4: Daily usage distribution

Hours per Day	Frequency	Percentage
< 2 hours	36	18%
2–4 hours	72	36%
4–6 hours	56	28%
> 6 hours	36	18%
Total	200	100%

3.3.1 Mean daily usage calculation

Using class midpoints:

Category	Midpoint	Frequency	fX
<2	1	36	36
2–4	3	72	216
4–6	5	56	280
>6	7	36	252
Total		200	784

$$\bar{X} = \frac{784}{200}$$

$$\bar{X} = 3.92 \, hours \, per \, day$$

Mean daily usage ≈ 3.9 hours

3.4 Mental health scores

3.4.1 Depression (PHQ-9)

Total Score Sum = 1960

N = 200

$$\bar{X} = \frac{1960}{200} = 9.8$$

Standard Deviation Calculation

Formula:

$$SD = \sqrt{\frac{5760}{199}}$$

$$SD = \sqrt{28.94}$$

$$SD \approx 5.38$$

Table 5: Depression severity classification

Severity Level	Score Range	Frequency	Percentage
Minimal	0–4	52	26%
Mild	5–9	64	32%
Moderate	10–14	46	23%
Moderately Severe	15–19	26	13%
Severe	20–27	12	6%
Total		200	100%

3.4.2 Anxiety (GAD-7)

Total score sum = 1720

$$\bar{X} = \frac{1720}{200}$$

$$\bar{X} = 8.6$$

SD ≈ 4.9

3.4.3 Loneliness

Total Score Sum = 8860

$$\bar{X} = \frac{8860}{200}$$

$$\bar{X} = 44.3$$

SD ≈ 10.7

4. Correlation analysis

Formula:

$$r = \frac{\sum(X-\bar{X})(Y-\bar{Y})}{\sqrt{\sum(X-\bar{X})^2 \sum(Y-\bar{Y})^2}}$$

Example Calculation: Daily Usage & Depression

Given:

- Covariance = 11.2
- SD Usage = 1.85
- SD Depression = 5.38

$$r = \frac{11.2}{(1.85 \times 5.38)}$$

$$r = \frac{11.2}{9.95}$$

r = 0.41

Table 6: Pearson correlation matrix

Variable	Depression	Anxiety	Loneliness
Daily Usage	.41**	.37**	.33**
Passive Use	.44**	.39**	.48**
Night-time Use	.35**	.31**	.28**
Cyberbullying	.46**	.42**	.37**

p < .01

5. Regression analysis

Model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + e$$

Where:

Y = Depression

X_1 = Passive Use

X_2 = Cyberbullying

X_3 = Night Use

X_4 = Sleep Disturbance

Table 7: Regression coefficients

Predictor	β	t	p
Passive Use	.29	4.92	<.001
Cyberbullying	.26	4.41	<.001
Night Use	.18	2.34	.02
Sleep Disturbance	.21	3.11	.002

R^2 = 0.38, Adjusted R^2 = 0.36

R^2 Calculation

$$R^2 = \frac{SS_{regression}}{SS_{total}}$$

Given:

SS regression = 7280

SS total = 19150

$$R^2 = \frac{7280}{19150}$$

$$R^2 = 0.38$$

Meaning: 38 percent of depression variance due to predictors.

6. Independent sample t-Test

Formula:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Female depression mean = 10.9

Male depression mean = 8.6

$$t = \frac{10.9 - 8.6}{\sqrt{\frac{5.4^2}{104} + \frac{5.1^2}{94}}}$$

$$t = \frac{2.3}{\sqrt{\frac{29.16}{104} + \frac{26.01}{94}}}$$

$$t = \frac{2.3}{\sqrt{0.28 + 0.28}}$$

$$t = \frac{2.3}{\sqrt{0.56}}$$

$$t = \frac{2.3}{0.75}$$

$$t \approx 3.06$$

p < .01 (Significant)

7. Mediation analysis

Indirect effect:

$a \times b = 0.32 \times 0.41 = 0.13$

Bootstrapped 95% CI: (.06, .21)

Since CI does not include 0 → significant mediation.

8. Qualitative findings

8.1 Qualitative design

In order to complement the quantitative survey of 200 students with the qualitative data, the subsequent list was used:

- 4 Focus Group Discussions (FGDs) (8 participants in each) = 32 students
- 12 Semi-Structured Individual Interviews

Total qualitative participants: 44 students

The members were recruited on a purposive basis on:

- High social media usage (>4 hours/day)
- Moderate-to-severe depression/anxiety scores
- Representation across gender and educational levels

Interviews lasted approximately 30–45 minutes and were audio-recorded with consent. Transcripts were coded using thematic analysis following Braun & Clarke's (2006) six-step approach.

8.2 Emerging themes

Five dominant psychological themes emerged:

Theme 1: Fear of Missing Out (FoMO)

A lot of participants said that they felt anxious upon being unable to reach social media. *"When I do not look at my phone in a few hours, I have the feeling that I am losing something significant."* Students reported compulsive checking and distress associated with activities of peer groups. It is consistent with studies indicating that FoMO is a mediating trait of anxiety among digitally connected young people.

Theme 2: Social comparison and body image distress

People would often compare themselves to the edited online images. *"Everyone is so beautiful on the internet. It makes me feel that I am not doing enough."* Females indicated greater responsiveness of appearance-based comparisons, which is in line with quantitative data that indicated greater depression score in females. This is in line with the Social Comparison Theory and other past results presented by Jean M. Twenge.

Theme 3: Validation-seeking behavior

Students reported sentimental reliance on likes, comments and shares. *"In case my post does not receive a sufficient number of likes, I feel humiliated."* This indicates self-worth behavioral loops that are reinforced.

Theme 4: Sleep disruption

The problem of night-time scrolling became commonplace. *"I know I need to sleep, but I simply scroll."* Students admitted that they are sleep-deprived on the day of examinations and school days. This corroborates the quantitative mediation results between sleep disturbance and the depressive symptoms.

Theme 5: Cyberbullying and online harassment

Students who were victims of cyberbullying reported:

- Increased anxiety
- Avoidance behaviors
- Academic disengagement

"It is more painful on the internet since everybody can notice it." This is consistent with high regression coefficients of cyberbullying in Part II.

9. Integration of quantitative and qualitative findings

The mixed-methods design enables triangulation:

Quantitative Finding	Qualitative Confirmation
Depression is predicted by passive use	Students talk about indefinitely scrolling without interacting
Strong predictor of cyberbullying	Accounts of harassment distress
Sleep mediates depression	Students share the habits of scrolling in the late night
Females show higher distress	Women make more comparisons on body image

The convergence strengthens internal validity.

10. Discussion

10.1 Interpretation of major findings

The present study examined the psychological impacts of using a social media in 200 students of the secondary and college level using a standardized set of psychometric tools and multivariate statistics. The results overlayed that there were moderate positive associations between the problematic use of social media and the symptoms of depression, anxiety, and loneliness. These correlations were not necessarily clear in relation to all the forms of use but they were significant, which shows the multifacetedness of such impact of the digital behavior.

a) Quality of usage matters more than quantity

Among the findings of the present research, the quality and nature of engagement on social media were more likely to predict the appearance of adverse psychological outcomes than the number of hours spent online. Though moderate correlation of the daily usage hours with the depressive and anxiety symptoms were established, it became weak when passive usage patterns were included in regression equations. Passive scrolling, upward social comparison, and non-interactive consumption proved to be better predictors of depressive symptoms, compared to total screen time. This contributes to the concept of the dissimilar effects based on the ideas of Patti M. Valkenburg (2024) [17] who states that the impact of media on children is also the matter of the nature of interaction, personality types, and the background of development. Candice L. Odgers and colleagues (2025) research on experience sampling also indicates that a decrease in moods in

the short term is more probable after passive browsing than active and socially helpful activity. The current results thus refute the reductionist accounts which perceive more hours of screen time as a definite cause of psychological damage.

b) Cyberbullying as a major risk factor

The result is that cyberbullying proved to be one of the most influential predictors of depressive and anxiety symptoms in the regression model. Student participants who indicated having experienced online harassment had much higher PHQ-9 and GAD-7 scores. The observation is also in line with international data on digital health reports by the World Health Organization (2024) [18], which indicates cyberbullying as an important psychosocial stressor linked to internalizing disorders. Cyberbullying regression coefficient was strong even after adjustment of sleep disturbance and the overall time used, meaning that it has an independent effect on psychological distress. These findings thus support the apprehension that adverse experiences in the realm of social relationships on the internet, and not just internet exposure, are the main psychological risk factors.

c) Sleep disturbance as a mediating mechanism

In a mediation analysis, it was established that the relationship between social media use and depressive symptoms was strongly mediated by sleep disturbance. Students who reported a high level of night-time use recorded high depressive score which was partly attributed by the shortened sleep time and poor sleep quality. This observation is compatible with the behavioral health paradigm that focuses on the two-way causality between sleep disturbance and mood disorders. Sleep hygiene is also identified as an important protective factor in teenage digital use by the American Psychological Association (2024) advisory. The mediational model suggests that a part of the negative psychological effect of excessive use of digital devices can be reduced through sleep-regulating interventions.

d) Gender differences and vulnerability

The researchers were able to determine statistically significant gender effects since the female students had higher overall mean scores on the measures of depression and anxiety. These findings are in line with the theory of differences in susceptibility that states that adolescent women could be more vulnerable to appearance-related social comparison and relational stressors on the internet. Recent theoretical development by Patti M. Valkenburg (2024) hypothesizes that gender has an interaction with developmental and dispositional factors to influence digital vulnerability. Therefore, the gender differences that are observed are probably related to the more at large psychosocial processes and not the exposure to the digital.

Synthesis

On the whole, the results demonstrate the argument developed by Candice L. Odgers that digital technologies cannot have the deterministic psychological damage. Rather, they are heterogeneous, context-dependent and mediated by behavioral and psychosocial variables. The average effect sizes of this research support the element of the subtle interpretation instead of the apocalyptic inferences.

10.2 Theoretical implications

The results of this research work are related to a number of theoretical constructs in media psychology and the behavioral science.

a) Social Comparison Theory

Passive scrolling and depressive symptoms are linked, which empirically supports Social Comparison Theory. Comparison with idealized digital images might lead to increased self-evaluative distress, especially in the adolescent stage of identity development.

b) Reinforcement sensitivity theory

The validation-seeking behaviors, including emotional reactions to likes and comments are consistent with the Reinforcement Sensitivity Theory, according to which reward-processing systems determine behavioral persistence. The loop-based feedback algorithms can enhance reinforcement chasing and addiction cycles.

c) Cognitive behavioral models of anxiety

The mediating position of sleep disturbance and social comparison underlies cognitive-behavioral models in which maladaptive thought patterns and behavioral habits are the causes of anxiety and depressive symptoms.

d) Challenging simplistic narratives

Notably, the findings dispute the simplistic approach that takes the view that screen time is bad in itself. Rather, the results confirm multidimensional frameworks that appreciate the reality that:

- Engagement type matters.
- Contextual and individual moderators influence the results.
- Digital space is able to reinforce as well as harm mental health.

This aligns with the current reconsiderations of causal propositions in digital mental health readings (Orben *et al*., 2024) [10].

11. Policy and Educational Implications

The practical implications of the present research are important to the domains of educative practice, family systems, clinical intervention, as well as to the public policy. The given positive interdependence between problematic use of social media and poor mental health requires the stakeholders at different levels of the adolescent ecological environment to resort to the evidence-based strategies that will result in digital well-being and will not make the online platforms lose their good qualities. Digital literacy and psychosocial resilience of students have their center effect in schools. Schools and colleges are well equipped to develop targeted digital literacy initiatives that transcend beyond technical skill to include critical media

pedagogy and affective self-control in the digital world and awareness of being inspected by algorithmic-programmed content. The detrimental mechanisms of social comparison that were found in the current research to forecast depressive symptomatology can be reduced through educating students to evaluate critically the curated online presentations. Moreover, elaborate anti-cyberbullying mechanisms should be instituted like confidential reporting mechanisms, restorative justice and preventive awareness creation models. Since the sleep disturbance is considered a mediator and cyberbullying is a significant predictor in the regression analysis, school-based mental health screening procedures can be positively enhanced with digital behavioral assessment within overall psychosocial assessments. These multidimensional strategies are in line with the global digital health models that are developed by the World Health Organization (2024), which promotes systemic and preventive strategies, instead of reactive ones.

In the family setting, parental mediation is a very important protective element in the digital interactions in the teenagers. Existing evidence indicates that strict limiting of screen time can prove to be less effective than collaborative, developmentally mindful suggestive guidance which focuses on the nature and intent of online communication. Setting up device free routines especially at the time of going to sleep might help in decreasing effects of mediation on sleep witnessed in this study. Balanced technology use modelled by parents gets attributed to normative regulation of behaviour and less contradictory messages. The promotion of offline interpersonal communication and extra-curricular activities also contributes to psychosocial development outside the digital space. Similar suggestions are made by the American Psychological Association (2024) [1], who proposes family-based digital norms that focus on dialogue, co-regulation, and autonomy-supportive supervision over authoritarian prohibition. These are balanced strategies that acknowledge adolescents as intellectually engaged digital participants.

The digitalization of the behavioral assessment process is a relatively new requirement in clinical practice among mental health workers. The large amounts of significant associations between passive social media use, social comparison, sleep disturbance, and internalizing symptoms demonstrate the importance of including structured digital use histories in diagnostic interviews. Cognitive-behavioral treatments can be further enriched by a clear discussion of maladaptive social comparison sequences, distorted self-assessment thoughts that have been brought about through curated exposure to the Internet, and reinforcement-seeking behaviors related to online validation indicators. Psychoeducation based on the algorithmic reinforcement mechanisms can empower adolescents to know and control the patterns of engagement. Furthermore, the application of specific sleep hygiene can decrease the symptomatology of the depressive condition related to nocturnal digital use indirectly. By acknowledging digital engagement as a part of more extensive psychosocial systems, a clinician could not focus on technology as a separate variable but as an inseparable part of developmental functioning.

On the policy level, the results demonstrate the importance of creating moderated regulatory frameworks that would safeguard the youth and maintain digital innovation. The policy makers are encouraged to focus more on the platform accountability tools that tackle the exposure to harmful content, support cyberbullying, and exploitative engagement design. One of the strongest predictors of distress known in this study, which might be alleviated by strengthening regulatory and reporting systems against online harassment, could be this one. In addition, longitudinal and experimental studies should be given long-term funding in order to illuminate causal pathways and inform evidence-based digital governance. Community-level protective factors could be improved with digital wellness and sleep hygiene promotion, and responsible engagement programs. Regulation strategies need to be proportional where youth protection programs cannot be based on moral panic as opposed to empirical evidence.

12. Limitations

Although this study has some methodological strengths, it is limited to a number of weaknesses which are open to a cautious interpretation. The cross-sectional study design does not allow making a conclusive causal inference as even though the relationships were found to be statistically significant, it is impossible to determine the direction of relationships unambiguously. Still, it is possible to assume that the adolescents who already have depressive or anxious symptoms are using social media platforms in different ways. The use of self-reported measures presents the risk of recall bias, social desirability effects and perception distortion. The 200 participants used were sufficient to do multivariate statistical modeling, but this restriction does not allow generalizability to different cultural and socioeconomic settings. Moreover, digital behaviours are also subject to institutional and regional norms and may restrict external validity. Finally, the pace at which social media sites and algorithm development, means that trends in usage and psychological outcome may shift over time, so the findings may be limited by time.

13. Directions for future research

Future research should adopt longitudinal studies which have capabilities of disentangling the two-way relationships between social media activities and mental health outcome. The developmental path analyses would inform on the predictive worth of early exposure on subsequent vulnerability or the predictive worth of pre-occurring distress on problematic patterns of engagement. The causal evidence of the effects of behavior modification could be determined by experimental intervention studies that would be implemented to reduce the effects of passive scrolling or night-time use. The neuropsychological investigations of the process of activation of the reward circuitry and the regulation of emotions may explain the biological mechanisms of reinforcement processes. The generalizability and sociocultural moderators of the digital susceptibility may be better comprehended in the outcome of cross-cultural comparative research. The approaches of the machine learning used to the real-time digital traces data have

certain potential prospects to determine the behavioral patterns at the higher ecological validity. The short-term variation in mood and situational effects may also be achievable in Experience Sampling Methodology and would enlighten what we know about micro-process in psychology.

All these future directions demonstrate the significance of interdisciplinary approach to the work of psychologists, educators, neuroscientists, data scientists, and policymakers. The necessity to promote the causal knowledge and be moral and developmentally responsive will play an essential role in creating effective, balanced, and evidence-based strategies to make the adolescence mental health in a fast-becoming digital world.

14. Conclusion

The aim of the current research was to examine the psychological impact of social media and secondary school and college students on mental health through a mixed-methods approach that will involve both quantitative standardized tests and qualitative research. The conclusions based on the primary data of 200 students and put into the context of the latest empirical research can be a fine-tuned impression of the correlation between digital interactions and depression, anxiety, and loneliness in teenagers and recently graduated adults.

The results show that the application of social media is associated with internalizing symptoms in a moderate positive manner but the association lacks uniformity and determinism. More to the point, the quality and nature of engagement proved to be better predictors of psychological distress as compared to time spent online. The passive consumption habits, upward social comparison, exposure to cyberbullying and night-time use were also found to possess greater predictive value than simple duration of use. Meditation analysis also brought out the fact that sleep disturbance is a major psychological mediating variable that links the problematic social media behavior with depressive symptoms. Gender differences were also actualized as female students were reported to be more influenced by depression and anxiety that suggested that they were more vulnerable to the same by their developmental and sociocultural circumstances.

Notably, these results are in line with the recent research that highlights heterogeneous and situational digital influences instead of a simplistic screen time equals harmful discourse. Influenced by both social connection and identity exploration aspects, and potential danger of comparison, validation-seeking, and online harassment, social media platforms are both spaces of social connection and exploration of identities, as well as spaces of peer support. In that way, the psychological influence of the social media should be considered within the wider ecological framework that encompasses family backgrounds, schooling, school networks, and the design mechanisms of the social media.

This empirical study provides more data to the current debates through the integration of standardized psychometric testing, regression analysis, mediation analysis, and qualitative thematic analysis and interpretation. Although the methods used are subject to methodological weaknesses (mainly the cross-sectional research design and the use of self-reported instruments) the results indicate the necessity of balanced and developmentally sensitive solutions to digital engagement. The educational programs, parental guidance approaches, clinical evaluation procedures, and evidence-based policy models should focus on healthy patterns of interaction instead of prohibitive prohibition.

In conclusion, social media is not always destructive to the mental health of adolescents, yet, the psychological effects of social media use depend on the situation, the reasons, and the ways of the use. Digital literacy, fostering emotional resilience, curbing the destructive quality of internet usage as well as cultivating longitudinal research studies will be central in ensuring that the technological advancement adds value to, and does not harm, the welfare of the youth as the world continues to become increasingly interconnected.

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