

Screen Time, Self-Esteem, Emotional Regulation, and Psychological Well-Being Among Adolescents in Indian International Schools

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Abstract

Digital technology is embedded in adolescents' daily lives, while evidence concerning screen exposure and psychological well-being remains mixed. This study examined screen time, self-esteem, emotional regulation, and psychological well-being among adolescents aged 11–17 years in Indian international schools.

A quantitative cross-sectional study was conducted with 300 adolescents aged 11–17 years. Screen time was assessed using four categorical daily-exposure options, while self-esteem, emotional regulation, and psychological well-being were assessed using the Rosenberg Self-Esteem Scale, Emotion Regulation Questionnaire, and WHO-5 Well-Being Index, respectively. Descriptive statistics and Pearson product-moment correlations were used.

Self-esteem was positively associated with psychological well-being, $r = .460$, $p < .001$. The association between self-esteem and emotional regulation was small and nonsignificant, $r = .049$, $p = .400$. Emotional regulation was not significantly associated with psychological well-being, $r = .071$, $p = .217$. The supplied correlation matrix did not contain the Screen Time–WHO-5 correlation; therefore, the first hypothesis could not be evaluated from the available output.

In this sample, self-esteem showed a statistically significant positive association with psychological well-being, whereas the total emotional-regulation score did not. The findings should be interpreted as correlational and not causal. Further work should use precise screen-time measures, retain separate emotion-regulation strategies, and use longitudinal designs.

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I. INTRODUCTION

Digital technologies have become integral to adolescents' everyday lives. Smartphones, tablets, computers, social networks, online games, video platforms, and messaging services provide opportunities for communication, information seeking, education, entertainment, and social connection. At the same time, concerns about the psychological implications of digital engagement have increased. Odgers and Jensen (2020) emphasized that the relationship between technology use and adolescent mental health is complex, with findings ranging from small negative associations to no association.

Adolescence is a developmental period characterized by substantial cognitive, emotional, social, and identity-related change. During this period, peer relationships and social acceptance become increasingly important, and adolescents may be particularly attentive to feedback from others. Digital environments extend these social processes into online settings, where likes, comments, followers, images, and other forms of feedback can contribute to social comparison and self-evaluation. The present study therefore considers screen time together with individual psychological characteristics rather than treating duration of technology use as an isolated explanation of well-being.

Research on screen time and well-being has produced mixed findings. Orben and Przybylski (2019), using three large datasets comprising 355,358 participants, reported that digital technology use accounted for at most 0.4% of the variance in adolescent well-being. Keles et al. (2020) similarly concluded that associations between social-media use and depression, anxiety, and psychological distress were inconsistent across studies. More recent work has continued to emphasize heterogeneity according

to the type of digital activity, individual characteristics, and the context of use (Dewi et al., 2024; Valkenburg, 2022).

Self-esteem is particularly relevant during adolescence because it reflects an individual's evaluation of personal worth and self-image (Rosenberg, 1965). Digital environments can influence self-evaluation through social comparison. Vogel et al. (2014) found that upward social comparison in social-media contexts was associated with lower self-esteem, while person-specific longitudinal research has demonstrated substantial variation in adolescents' responses to social-media experiences (Valkenburg et al., 2021). Research from adolescent samples has also linked social-media or internet-related engagement with self-esteem and psychological well-being, although the direction and magnitude of associations vary (Farooq et al., 2023; Ratan et al., 2024; Rosič et al., 2025).

Emotion regulation is another relevant psychological process. Gross (1998) described emotion regulation as the processes through which individuals influence their emotional experiences and expressions. Gross and John (2003) distinguished cognitive reappraisal and expressive suppression as two different regulation strategies. These strategies may operate differently in relation to psychological functioning. Recent work has emphasized that emotional regulation in adolescence increasingly occurs across interconnected digital and offline contexts (Hollenstein & Faulkner, 2024).

Psychological well-being is broader than the absence of psychological symptoms. Diener (2000) conceptualized subjective well-being in terms of cognitive and affective evaluations of life, while Ryff (1989) described psychological well-being as multidimensional positive functioning. In the present study, well-being was operationalized

using the WHO-5 Well-Being Index, which focuses on positive emotional experiences over the preceding two weeks.

The present study was informed by the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). Within the conceptualization used in the dissertation, screen time represents an environmental or behavioral exposure; digital experiences may involve social comparison, peer feedback, online interaction, and emotionally stimulating content; self-esteem represents a personal psychological characteristic; emotion regulation represents an emotional coping process; and psychological well-being represents the psychological outcome. This framework does not imply that screen time causes changes in well-being; rather, it provides a way to organize potentially related behavioral and psychological variables.

Conceptual and Empirical Context

The reviewed literature suggests that the psychological meaning of digital engagement depends on what adolescents do online, how they interpret those experiences, and which personal and social resources are available. Accordingly, the current study examined screen time, self-esteem, and emotional regulation in relation to psychological well-being. The study was designed as a correlational analysis and therefore does not establish causal direction.

Table 1. *Conceptual Framework Linking Study Variables to the Transactional Model of Stress and Coping*

Component of the model	Present study
Environmental/behavioural exposure	Screen time
Potential digital demands	Social comparison, peer feedback, online interactions and emotionally stimulating content
Personal psychological characteristics	Self-esteem

Emotional coping/regulation	Emotional regulation
Psychological outcome	Psychological well-being

Note. The conceptual framework follows the Transactional Model of Stress and Coping as applied in the dissertation.

Objectives and Hypotheses

The study addressed three objectives: (a) to examine the relationship between screen time and psychological well-being among adolescents; (b) to examine the relationship between self-esteem and psychological well-being; and (c) to examine the relationship between emotional regulation and psychological well-being.

H₀1: There is no significant relationship between screen time and psychological well-being among adolescents.

H₀2: There is no significant relationship between self-esteem and psychological well-being among adolescents.

H₀3: There is no significant relationship between emotional regulation and psychological well-being among adolescents.

II. METHODOLOGY

Study Design and Participants

The study used a quantitative cross-sectional design. The target population comprised adolescents aged 11–17 years attending Indian international schools, and convenience sampling was used. The final analytical sample consisted of 300 participants ($M = 15.64$, $SD = 1.73$). Parent/guardian consent and participant assent were obtained. Participation was voluntary, and anonymity and confidentiality were emphasized.

Measures

Screen time. Average daily screen exposure was assessed categorically using four response options: less than 1 hour per day, 1–2 hours per day, 3–4 hours per day, and more than 4 hours per day. Screen time was coded from 1 to 4; consequently, its mean is a mean category code rather than a number of hours.

Rosenberg Self-Esteem Scale. Self-esteem was assessed using the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965). Items were scored on a 4-point Likert-type scale, with Items 3, 5, 8, 9, and 10 reverse scored. The possible total score ranges from 10 to 40.

Emotion Regulation Questionnaire. Emotional regulation was assessed using the 10-item Emotion Regulation Questionnaire (Gross & John, 2003), with responses on a 7-point scale. The instrument represents cognitive reappraisal and expressive suppression. The available analysis used an ERQ total score rather than separate subscale scores.

WHO-5 Well-Being Index. Psychological well-being was assessed using the five-item WHO-5 Well-Being Index (World Health Organization, 1998), with six response categories. Item responses were summed to obtain a raw total score ranging from 0 to 25, with higher scores indicating greater well-being. The raw total score was used in the statistical analyses.

Procedure and Ethics

Data were collected using a structured online questionnaire. Participants received information about the study and instructions, and parent/guardian consent and adolescent assent

were obtained. Participation was voluntary, participants could discontinue at any time, and data were handled anonymously and confidentially.

Statistical Analysis

Descriptive statistics were used to summarize demographic and study variables. Pearson product-moment correlations were used to examine associations among the psychological variables represented in the supplied correlation matrix. The available output did not include a Screen Time–WHO-5 correlation and did not report regression analyses. Because the design was cross-sectional, associations were not interpreted as evidence of causality

III. RESULTS

Descriptive Statistics

The sample consisted of 300 adolescents aged 11–17 years. The mean age was 15.64 years ($SD = 1.73$). Gender and school type were coded categorically, smartphone use was coded 0/1, and screen time was coded from 1 to 4. Self-esteem scores ranged from 10 to 39, emotional-regulation total scores from 29 to 52, and WHO-5 raw total scores from 2 to 23.

Table 2. *Descriptive Statistics for Demographic and Study Variables*

Variable	N	Minimum	Maximum	M	SD
Age	300	11	17	15.64	1.73
Gender	300	1	2	1.53	0.50
School Type	300	1	2	1.66	0.47
Smartphone Use	300	0	1	0.93	0.26
Screen Time	300	1	4	2.86	0.93
Self-Esteem (RES Total)	300	10	39	21.76	8.85
Emotional Regulation (ERQ Total)	300	29	52	40.74	3.96
Psychological Well-Being (WHO-5 Total)	300	2	23	13.48	3.58

Note. N = sample size; M = mean; SD = standard deviation. Gender, school type, smartphone use, and screen time were coded categorically; their means therefore represent coded values rather than continuous measurements.

Pearson Correlation Analysis

Self-esteem was positively and significantly associated with psychological well-being, $r = .460$, $p < .001$. The association between self-esteem and emotional regulation was small and nonsignificant, $r = .049$, $p = .400$. Emotional regulation was also not significantly associated with psychological well-being, $r = .071$, $p = .217$.

The supplied matrix did not include the Screen Time–WHO-5 correlation.

Table 3. *Pearson Correlations Among Self-Esteem, Emotional Regulation, and Psychological Well-Being*

Variable	1	2	3
1. Self-Esteem (RES Total)	—	.049	.460**
2. Emotional Regulation (ERQ Total)	.049	—	.071
3. Psychological Well-Being (WHO-5 Total)	.460**	.071	—

Note. N = 300. ** $p < .01$. The supplied correlation matrix did not include the Screen Time–WHO-5 correlation.

Hypothesis Testing

The first hypothesis could not be evaluated because the supplied correlation matrix did not contain the Screen Time–WHO-5 relationship. The second null hypothesis was rejected because self-esteem and psychological well-being were positively and significantly associated. The third null hypothesis was retained because the correlation between ERQ total and WHO-5 total was small and nonsignificant.

Table 4. *Summary of Hypothesis Testing and Statistical Decisions*

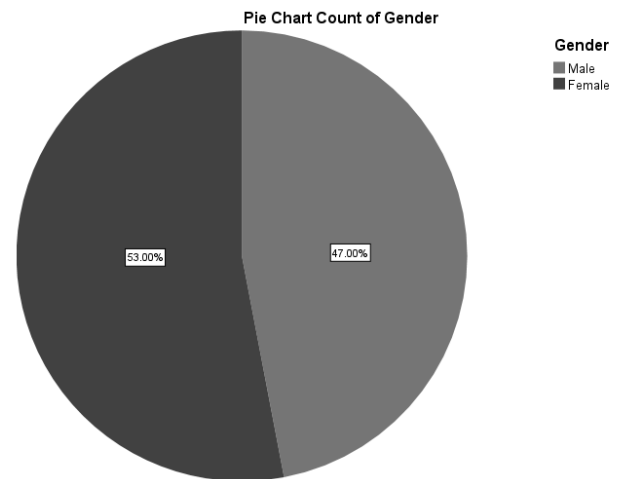
Hypothesis	Relationship Tested	r	p	Decision
H ₀₁	Screen Time – Psychological Well-Being	—	—	Not tested*
H ₀₂	Self-Esteem – Psychological Well-Being	.460	< .001	Rejected
H ₀₃	Emotional Regulation – Psychological	.071	.217	Retained

al Well-Being

Note. H₀₁ could not be evaluated from the supplied correlation matrix because the Screen Time–WHO-5 correlation was not included.

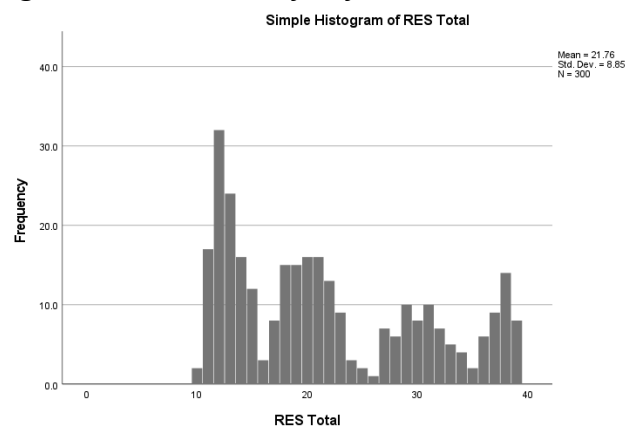
Descriptive Figures

Figure 1. *Gender Distribution of Participants*



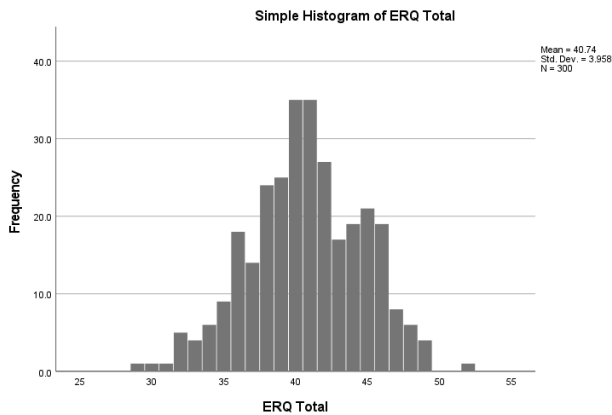
Note. The dissertation reports approximately 53% female and 47% male participants.

Figure 2. *Distribution of Self-Esteem Scores*



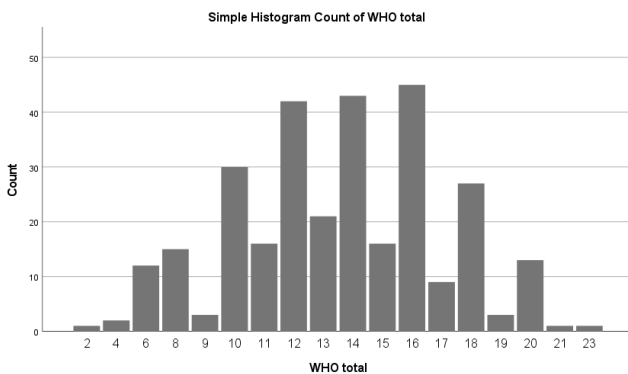
Note. Self-esteem scores ranged from 10 to 39 (M = 21.76, SD = 8.85).

Figure 3. *Distribution of Emotional Regulation Scores*



Note. Emotional-regulation scores ranged from 29 to 52 ($M = 40.74$, $SD = 3.96$).

Figure 4. *Distribution of Psychological Well-Being Scores*



Note. WHO-5 raw total scores ranged from 2 to 23 ($M = 13.48$, $SD = 3.58$).

IV. DISCUSSION

The present study examined relationships among screen time, self-esteem, emotional regulation, and psychological well-being in 300 adolescents. The findings provide a differentiated picture rather than evidence of a uniform relationship across all variables. Self-esteem showed a statistically significant positive association with psychological well-being, whereas the total emotional-regulation score did not. The screen-time–well-being relationship could not be evaluated because the supplied correlation matrix did not contain the relevant coefficient.

The first objective concerned screen time and psychological well-being. Screen-time scores ranged from 1 to 4 ($M = 2.86$, $SD = 0.93$), but this mean represents a categorical code rather than a number of hours. More importantly, the Screen Time–WHO-5 correlation was absent from the

supplied output. Therefore, the present data do not establish whether greater or lower screen exposure was associated with psychological well-being in this sample. This is consistent with the broader literature’s emphasis on the complexity of screen use and the importance of differentiating types of digital activity rather than interpreting duration in isolation (Odgers & Jensen, 2020; Orben & Przybylski, 2019; Valkenburg, 2022).

The second objective concerned self-esteem and psychological well-being. The positive association, $r = .460$, $p < .001$, indicates that higher self-esteem scores were associated with higher well-being scores in this sample. This finding is consistent with the conceptual literature on adolescent self-evaluation and well-being and with research emphasizing the importance of self-esteem within digital social environments (Rosenberg, 1965; Vogel et al., 2014; Ratan et al., 2024). The finding should nevertheless be interpreted as an association because the cross-sectional design does not establish whether self-esteem contributes to well-being, well-being contributes to self-esteem, or both are influenced by other factors.

The third objective concerned emotional regulation and psychological well-being. The association between ERQ total and WHO-5 total was small and nonsignificant, $r = .071$, $p = .217$. One possible measurement-related explanation is that the ERQ represents two distinct strategies—cognitive reappraisal and expressive suppression—yet the available analysis combined them into a single total. Gross and John (2003) emphasized that these strategies have different psychological correlates. Consequently, a total score may obscure strategy-specific relationships. This interpretation is also consistent with literature showing that emotion regulation is relevant to adolescents’ digital experiences, but that the nature of the relationship depends on the specific regulatory process and context (Giordano et al., 2023; Hollenstein & Faulkner, 2024; Peker & Nebioğlu Yıldız, 2022).

The findings can also be considered in relation to the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984). The significant association involving self-esteem is compatible with the idea that personal characteristics may shape how experiences are appraised and managed. However, the absence of a significant ERQ-total association with well-being indicates that the relationship between emotional processes and positive functioning may not be adequately represented by a single aggregate regulation score. Because the study is cross-sectional, this theoretical interpretation remains explanatory rather than causal.

Overall, the findings support a multifactorial view of adolescent psychological well-being. The results do not justify treating screen time as a sufficient explanation of well-being, particularly when the key screen-time correlation is unavailable. They instead indicate that self-esteem was statistically related to well-being in the present sample and that emotion regulation requires more differentiated measurement.

V. LIMITATIONS

Several limitations should be considered when interpreting the findings. First, the cross-sectional design captures associations at a single point in time and does not permit causal or temporal conclusions. Although self-esteem was significantly associated with psychological well-being, the direction of this relationship cannot be established.

Second, the psychological variables were assessed through self-report measures, which may be influenced by recall, social desirability, interpretation of items, and response tendencies. Screen time was also measured using four categorical exposure options rather than continuous or device-based measures. Consequently, the score reflects broad exposure levels and does not distinguish between activities such as educational use, social networking, gaming, streaming, or messaging.

Another limitation concerns the Emotion Regulation Questionnaire. Cognitive reappraisal and expressive suppression are theoretically distinct strategies, yet the analysis used a combined ERQ total score. This may have obscured strategy-specific relationships with psychological well-being; therefore, the nonsignificant ERQ–WHO-5 association should not be interpreted as evidence that emotion regulation is unrelated to adolescent well-being.

Generalizability is further limited by convenience sampling and the focus on adolescents attending Indian international schools. Most importantly, the available statistical output did not include the Screen Time–WHO-5 correlation, preventing evaluation of the first hypothesis. The original dataset should therefore be verified before stronger conclusions regarding screen exposure are drawn.

VI. FUTURE RESEARCH

Future research should use longitudinal designs to examine how screen exposure, self-esteem, emotion regulation, and psychological well-being change over time and whether these relationships are reciprocal. More precise assessment of digital behaviour is also needed, including duration, frequency, purpose, platform, device, and type of activity. Where feasible, self-reported screen time could be complemented by objective device-use data.

Emotion regulation should be examined through separate cognitive-reappraisal and expressive-suppression scores rather than a single total. Future studies may also consider social comparison, peer feedback, perceived social support, family environment, school climate, and the emotional quality of online experiences.

Larger and more diverse samples across school systems, socioeconomic groups, and geographical settings would improve generalizability. Mixed-methods approaches could further clarify how adolescents interpret digital experiences and their emotional consequences. Multivariable analyses may also examine whether self-esteem or specific

emotion-regulation strategies operate as mediating or moderating variables. Most immediately, the original dataset should be re-examined to calculate the missing Screen Time–WHO-5 relationship and enable direct testing of the first hypothesis

VII. CONCLUSION

This quantitative cross-sectional study examined screen time, self-esteem, emotional regulation, and psychological well-being among 300 adolescents aged 11–17 years in Indian international schools. Self-esteem showed a statistically significant positive association with psychological well-being ($r = .460$, $p < .001$), while emotional regulation as represented by the total ERQ score did not show a significant association ($r = .071$, $p = .217$). The screen-time–well-being relationship could not be evaluated from the supplied correlation matrix. The findings support continued attention to self-esteem in understanding adolescent well-being while also demonstrating the importance of precise measurement and cautious interpretation of digital exposure and emotion-regulation constructs.

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