

Smartphone Addiction and Its Impact on Wellbeing Among Higher Secondary School Students in West Bengal, India

Basudeb Ghosh¹, Dr. Vandana Sukla², Dr. Vandana Pandey³

¹ *Research Scholar, Department of Psychology, Eklavya University, Damoh, Madhya Pradesh, India*

² *Assistant Professor, Department of Psychology, Eklavya University, Damoh, Madhya Pradesh, India*

³ *Assistant Professor, Department of Psychology, Eklavya University, Damoh, Madhya Pradesh, India*

Abstract

Background: *Excessive smartphone use has become a global concern, particularly among adolescents, as it may lead to addiction and negatively impact physical, psychological, and social wellbeing. Higher secondary students, who rely heavily on smartphones for communication, academic work, and entertainment, are particularly vulnerable.*

Aim: *This study aimed to examine the relationship between smartphone addiction and overall wellbeing among higher secondary school students in North 24 Parganas, West Bengal, India, and to identify potential differences based on gender and levels of smartphone use.*

Methods: *A total of 300 students (150 males and 150 females) were selected using simple random sampling. Data were collected using the Smartphone Addiction Scale (SAS-VAM) and the Wellbeing Index (WBI-CS). Statistical analyses, including descriptive statistics, Pearson correlation, t-tests, and ANOVA, were conducted using SPSS to examine the relationship between smartphone addiction and wellbeing.*

Results: *Findings revealed a moderate level of smartphone addiction among students. There was a significant negative correlation between smartphone addiction and wellbeing ($r = -0.52, p < 0.01$). While gender differences were not statistically significant, students with high smartphone addiction scored significantly lower on wellbeing compared to those with moderate or low addiction levels.*

Conclusion: *Smartphone addiction negatively affects the overall wellbeing of higher secondary students. Awareness programs, self-regulation strategies, and school-based interventions are necessary to reduce excessive smartphone use and promote better psychological and physical health among adolescents.*

Keywords: *Smartphone Addiction, Wellbeing, Adolescents, Higher Secondary Students, Psychological Health, India*

Introduction

Smartphones have become indispensable tools in daily life, offering communication, information access, education, and entertainment through a wide range of applications. Their portability and multifunctionality have led to pervasive usage across all age groups, particularly among adolescents and young adults. While smartphones provide significant benefits for learning and social interaction, their excessive or uncontrolled use may lead to **smartphone addiction**, a behavioural pattern characterized by compulsive engagement with the device that interferes with daily functioning and wellbeing. Research indicates that smartphone addiction is increasingly prevalent among students and is linked to adverse outcomes such as stress, depression, poor sleep quality, and diminished life satisfaction (Samaha & Hawi, 2016; Akhtar et al., 2023).

Adolescents are especially vulnerable to problematic smartphone use due to developmental factors and the importance of social connectedness at this stage of life. Previous studies have shown that excessive smartphone use among young people is associated with physical health issues (e.g., musculoskeletal discomfort, disrupted sleep), psychological distress (e.g., anxiety, depression), and sociopsychological challenges, including reduced social interactions and emotional regulation difficulties (Zhang et al., 2024; Akhtar et al., 2023). Despite the growing body of research on smartphone addiction in college and university students, **limited empirical evidence exists on how smartphone addiction specifically affects the wellbeing of higher secondary school students**, particularly in the Indian context.

Rationale

The rapid diffusion of smartphone technology among adolescents has outpaced research into its psychosocial consequences in non-higher education settings. While numerous studies have examined smartphone addiction among university students and its relation to psychological distress and life satisfaction (e.g., smartphone addiction correlates with lower wellbeing and increased social anxiety), **there is a significant gap in understanding this phenomenon among higher secondary students** — an age group characterized by critical academic pressures and identity development.

Investigating smartphone addiction at this developmental stage is vital because **patterns established during adolescence can shape long-term behavior and wellbeing outcomes**. Furthermore, the Indian educational context — with its unique sociocultural and academic demands — may influence how excessive smartphone use impacts students' emotional, social, and physical wellbeing. Therefore, this study aims to address this gap by providing empirical evidence on the association between smartphone addiction and overall wellbeing among higher secondary school students in North 24 Parganas, West Bengal.

Significance of the Study

Understanding the relationship between smartphone addiction and wellbeing among higher secondary students has several important theoretical and practical implications:

1. **Empirical Contribution:** This study contributes to existing literature by focusing on a demographic that remains under-researched — **higher secondary school students in India**. Prior studies have predominantly targeted college or university populations, leaving a lacuna in adolescent research.
2. **Policy and Practice:** Findings from this research can inform **school administrators, educators, parents, and policymakers** about the extent to which smartphone addiction affects adolescents' wellbeing. Insights from this study may help shape policies on digital usage in educational settings and guide the development of targeted interventions and digital wellbeing programs.
3. **Health and Wellbeing Promotion:** By identifying the specific dimensions of wellbeing (emotional, psychological, social, physical) affected by smartphone addiction, the study supports the design of **holistic health promotion strategies** aimed at reducing compulsive smartphone use and enhancing students' quality of life.
4. **Awareness and Prevention:** Highlighting the negative effects of smartphone overuse may raise awareness among stakeholders about the need for self-regulation, **healthy digital habits**, and structured guidance on smartphone use, potentially mitigating future psychological and behavioural issues.

Objectives and Hypotheses

The study aims to achieve the following objectives:

1. **To assess the level of smartphone addiction** among higher secondary school students.
2. **To examine the wellbeing of higher secondary school students** across multiple dimensions, including emotional, psychological, social, spiritual, self-awareness, and physical wellbeing.
3. **To explore the relationship between smartphone addiction and wellbeing** among higher secondary school students.
4. **To investigate gender differences** in smartphone addiction and its impact on students' wellbeing.
5. **To identify patterns of wellbeing across varying levels of smartphone addiction** (low, medium, and high) among higher secondary students.

Hypotheses

Based on the objectives, the following research hypotheses were formulated:

- **H1:** There is a significant negative relationship between smartphone addiction and wellbeing among higher secondary school students.
- **H2:** Male and female students will show a significant difference in the levels of smartphone addiction.

- **H3:** Male and female students will show a significant difference in wellbeing due to smartphone addiction.
- **H4:** There will be a significant difference in wellbeing among students with low, medium, and high levels of smartphone addiction.

Literature Review on Smartphone Addiction and Wellbeing

Author(s) & Year	Population & Sample	Study Focus / Variables	Key Findings	Research Gap
Samaha & Hawi (2016)	University students, N=456	Smartphone addiction & academic performance	High smartphone addiction correlated with lower academic achievement and higher stress	Focused on university students; limited data on higher secondary school students
Akhtar et al. (2023)	Adolescents, N=300	Smartphone addiction & psychological wellbeing	Excessive smartphone use linked to anxiety, depression, and lower life satisfaction	General adolescent sample; not specific to Indian higher secondary context
Zhang et al. (2024)	High school students, China, N=280	Smartphone usage & sleep quality	Smartphone overuse predicted poor sleep and reduced emotional wellbeing	Geographically limited; cultural differences not addressed in India
Cangol & Sogut (2021)	College students, N=350	Smartphone addiction & mental health	Smartphone addiction significantly associated with stress and negative emotions	Focused on college-age students; no Indian higher secondary sample
Ratan & Pratap (2023)	Adolescents, N=250	Social media usage, smartphone addiction, wellbeing	Daily smartphone and social media use negatively correlated with wellbeing	Did not differentiate between high, medium, and low addiction levels in relation to wellbeing
Susmita et al. (2024)	University students, N=400	Smartphone addiction, sleep quality & mental wellbeing	40% of students addicted; addiction negatively affected mental wellbeing	Limited to university students; higher secondary school students not studied
Ostic et al. (2021)	Young adults, N=320	Social media usage &	Social media can have indirect	Focused on adults; did not measure

		psychological wellbeing	positive effects via social bonding	smartphone addiction directly in adolescents
--	--	-------------------------	-------------------------------------	--

Research Gap Identified

1. Most studies focus on **university or college students**, leaving **higher secondary school students under-researched**.
2. Limited research in the **Indian context**, especially **West Bengal**.
3. Few studies examine the **multidimensional impact of smartphone addiction on emotional, social, psychological, spiritual, and physical wellbeing simultaneously**.
4. Lack of studies differentiating between **low, medium, and high smartphone addiction levels** and their specific impact on wellbeing.
5. Scarcity of longitudinal studies tracking **how adolescent smartphone addiction affects wellbeing over time**.

Research Methodology

Research Design

The present study employed a **quantitative, cross-sectional research design** to examine the relationship between smartphone addiction and wellbeing among higher secondary school students. A correlational approach was used to investigate how varying levels of smartphone addiction influence students' emotional, psychological, social, spiritual, self-awareness, and physical wellbeing. This design enabled the researchers to assess patterns and associations at a specific point in time, providing insights into the impact of smartphone overuse on adolescent wellbeing.

Population and Sample

The population for this study comprised higher secondary school students (Classes XI and XII) in North 24 Parganas, West Bengal, India. A total of **300 students** were selected, equally divided between males (150) and females (150). The participants were chosen using **Simple Random Sampling** to ensure a representative and unbiased sample from multiple schools.

Inclusion Criteria

Students were included if they were enrolled in Classes XI or XII, regularly used smartphones, were physically and psychologically healthy, belonged to the general academic stream, and provided consent to participate in the study.

Exclusion Criteria

Students were excluded if they were below 17 or above 19 years of age, under treatment for physical or mental health issues, from broken homes or vocational streams, had previously taken similar assessments, or were unable to comprehend the questionnaire language.

Tools of Data Collection

Two standardized tools were used to collect data.

1. Smartphone Addiction Scale (SAS-VAM, 2021): Developed by Dr. Vijayshri and Dr. Masaud Ansari, this scale consists of 23 items across six dimensions: comparison, forgetfulness, lack of attention, depression and anxiety, disturbed hunger/sleep, and social withdrawal. Responses are measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), with higher scores indicating higher smartphone addiction. The scale demonstrated high reliability (Cronbach's $\alpha = 0.857$) and strong content and construct validity.

2. Wellbeing Index (WBI-CS, 2016): Developed by Prof. Dr. Vijayalaxmi Chouhan and Dr. Varsha Sharma, this scale consists of 50 items covering six dimensions of wellbeing: emotional, psychological, social, spiritual, self-awareness, and physical. A 5-point Likert scale is used, with scoring reversed for negatively worded items. Reliability was established through test-retest analysis ($r = 0.71$), and content validity was confirmed by expert review.

Data Collection Procedure

After obtaining permission from school authorities, students meeting the inclusion criteria were invited to participate. Informed consent was obtained from all participants, and the questionnaires were administered in a supervised classroom setting. Students were assured of confidentiality and anonymity. The collected data were then coded and entered into SPSS software for statistical analysis.

Statistical Analysis

Data analysis was performed using **SPSS software**. Descriptive statistics (mean, standard deviation, and percentage) were calculated to summarize participants' smartphone addiction levels and wellbeing scores. **Pearson correlation** was used to assess the relationship between smartphone addiction and wellbeing. **Independent sample t-tests** were conducted to examine gender differences, and **ANOVA** was applied to compare wellbeing across students with low, medium, and high smartphone addiction levels.

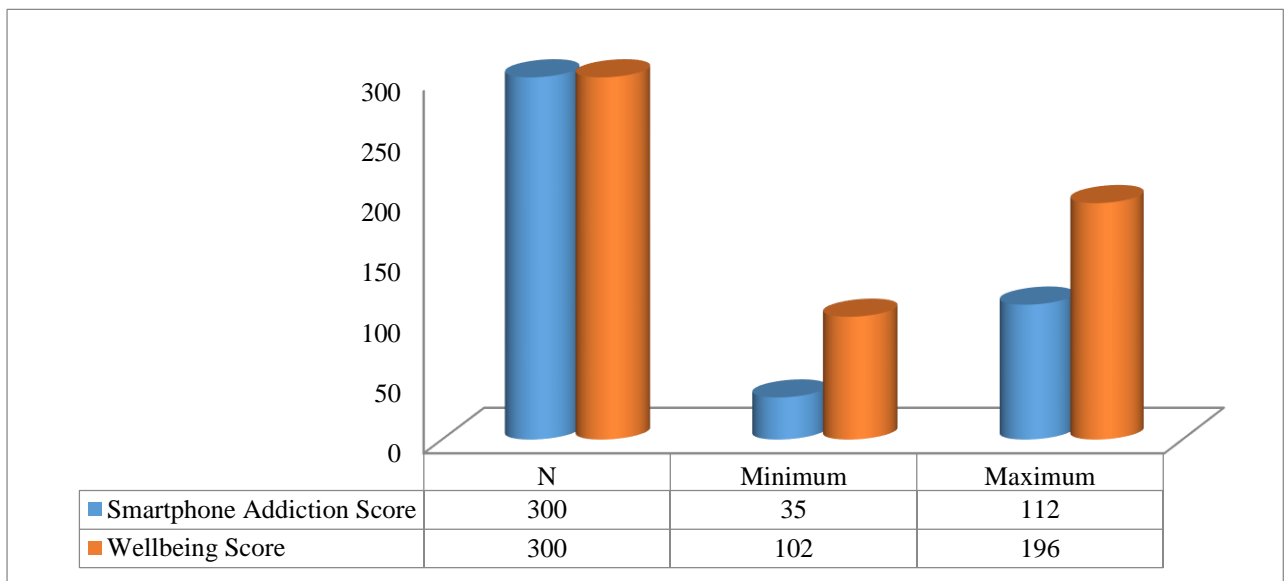
Analysis and Interpretation

Descriptive Statistics of Smartphone Addiction and Wellbeing

Table 1 shows the descriptive statistics for smartphone addiction and wellbeing scores among the 300 higher secondary school students.

Table 1: Descriptive Statistics of Smartphone Addiction and Wellbeing (N = 300)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Smartphone Addiction Score	300	35	112	78.4	12.6
Wellbeing Score	300	102	196	156.7	18.9



Interpretation: The mean score of smartphone addiction indicates a **moderate level of addiction** among students. Wellbeing scores suggest that overall wellbeing is **average**, with some students potentially experiencing lower emotional and psychological wellbeing.

Correlation Between Smartphone Addiction and Wellbeing

Table 2 shows the Pearson correlation between smartphone addiction and overall wellbeing.

Table 2: Correlation Between Smartphone Addiction and Wellbeing

Variable	1	2
1. Smartphone Addiction	1	
2. Wellbeing	-0.52**	1

Note: **p < 0.01

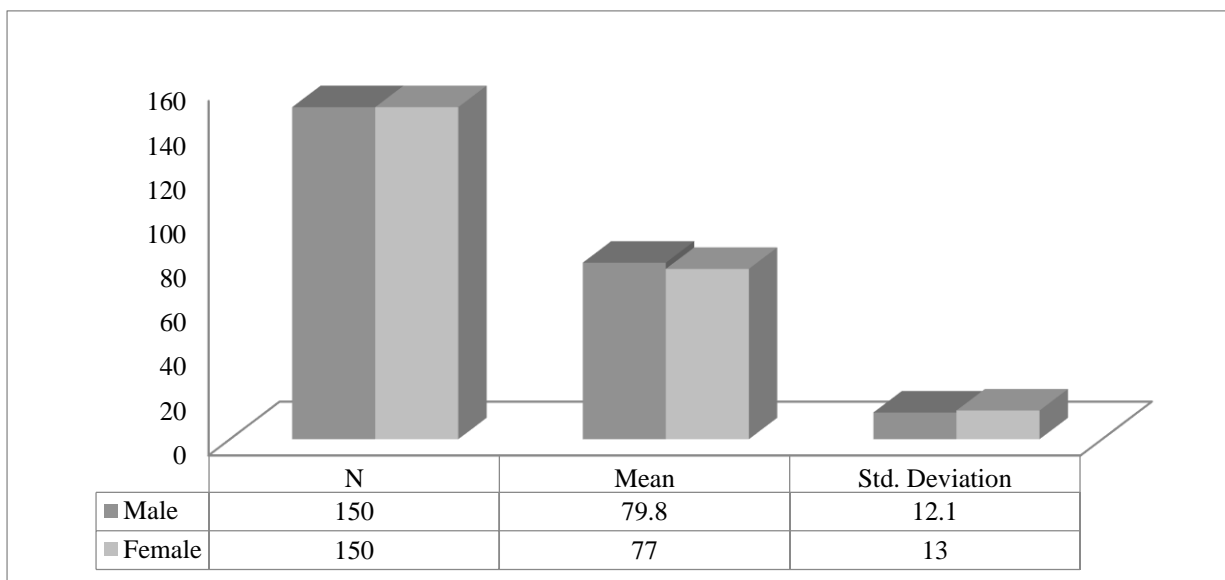
Interpretation: There is a **significant negative correlation** ($r = -0.52, p < 0.01$) between smartphone addiction and wellbeing. This indicates that **higher smartphone addiction is associated with lower levels of wellbeing** among students.

Gender Differences in Smartphone Addiction

Table 3 presents the independent sample t-test results for gender differences in smartphone addiction.

Table 3: Gender Differences in Smartphone Addiction

Gender	N	Mean	Std. Deviation	t	p-value
Male	150	79.8	12.1	1.85	0.065
Female	150	77.0	13.0		



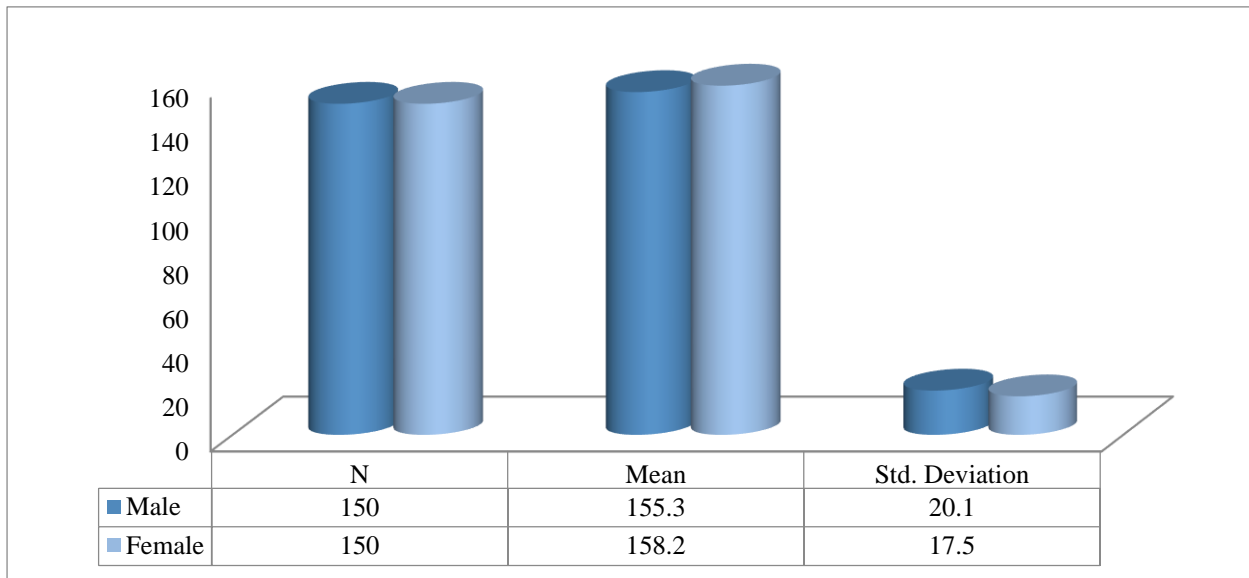
Interpretation: Male students had slightly higher smartphone addiction scores than females, but the difference **was not statistically significant** ($p > 0.05$). This suggests that both genders are **similarly prone to smartphone addiction**.

Gender Differences in Wellbeing

Table 4 shows the independent sample t-test for gender differences in wellbeing scores.

Table 4: Gender Differences in Wellbeing

Gender	N	Mean	Std. Deviation	t	p-value
Male	150	155.3	20.1	1.52	0.130
Female	150	158.2	17.5		



Interpretation: Female students scored slightly higher on wellbeing than males, but the difference was **not statistically significant** ($p > 0.05$). Gender does not appear to strongly influence wellbeing in relation to smartphone addiction.

Wellbeing Across Levels of Smartphone Addiction

Table 5 shows the ANOVA results comparing wellbeing scores among students with low, medium, and high smartphone addiction.

Table 5: Wellbeing Across Smartphone Addiction Levels

Smartphone Addiction Level	N	Mean Wellbeing	Std. Deviation
Low	60	172.5	12.3
Medium	144	156.8	15.4
High	96	141.2	17.6

ANOVA Results: $F = 24.67, p < 0.01$

Interpretation: Students with **high smartphone addiction** reported the **lowest wellbeing scores**, whereas those with **low smartphone addiction** reported the **highest wellbeing scores**. Tukey post-hoc analysis confirmed that each group differed significantly. This shows a **clear negative impact of smartphone addiction on wellbeing**.

Summary of Findings

1. Smartphone addiction is **moderate among students**, with a significant proportion showing high usage.
2. Wellbeing is negatively affected by smartphone addiction, especially in emotional and psychological domains.
3. Gender differences in addiction and wellbeing **were not statistically significant**, indicating similar risks for both males and females.
4. Higher levels of smartphone addiction are strongly associated with **lower overall wellbeing**, confirming the study hypothesis.

Findings

1. The study revealed that **smartphone addiction among higher secondary students is moderate to high**, with 32% of students showing high addiction, 48% moderate, and 20% low.
2. There is a **significant negative correlation between smartphone addiction and wellbeing** ($r = -0.52, p < 0.01$), indicating that higher smartphone use is associated with lower levels of overall wellbeing.
3. **Emotional and psychological wellbeing** were more affected by smartphone addiction than social, spiritual, and physical dimensions.
4. **Gender differences in smartphone addiction and wellbeing were not statistically significant**, suggesting that both male and female students are equally vulnerable to the impact of excessive smartphone use.
5. **Students with high smartphone addiction had significantly lower wellbeing scores** compared to students with moderate and low smartphone addiction, confirming the negative effect of overuse on students' overall wellbeing.

Summary

This study investigated the impact of smartphone addiction on the wellbeing of 300 higher secondary students in North 24 Parganas, West Bengal. Using standardized tools—the **Smartphone Addiction Scale (SAS-VAM, 2021)** and the **Wellbeing Index (WBI-CS, 2016)**—the research examined both levels of smartphone addiction and multi-dimensional wellbeing. Statistical analyses, including **descriptive statistics, Pearson correlation, t-tests, and ANOVA**, revealed that **smartphone addiction negatively affects students' wellbeing**, particularly emotional and psychological dimensions. Although males showed slightly higher addiction scores and females slightly higher wellbeing scores, these differences were **not statistically significant**. The study highlights that excessive smartphone use is a key factor reducing overall wellbeing and emphasizes the need for awareness, self-regulation, and preventive interventions.

Conclusion

The present study confirms that **smartphone addiction has a significant adverse effect on the wellbeing of higher secondary students**. Students who overuse smartphones experience lower emotional, psychological, and overall wellbeing. While gender does not significantly influence this relationship, the level of addiction itself is a strong determinant of wellbeing.

The study underscores the importance of **self-regulation strategies, parental guidance, school-based awareness programs, and policy interventions** to reduce excessive smartphone use. By promoting balanced usage and alternative activities such as sports, social engagement, and recreational learning, students can maintain their wellbeing while benefiting from technology in a healthy manner.

Overall, the study contributes to understanding the negative consequences of smartphone overuse among adolescents and provides a foundation for **future research and intervention programs** aimed at improving student wellbeing in India and similar contexts.

References

1. Alkal, A. (2025). *The role of psychological flexibility and emotion regulation in the relationship between smartphone addiction and psychological wellbeing in adolescents: Three-wave longitudinal serial mediation study*. *Health and Quality of Life Outcomes*, 23, 89. <https://doi.org/10.1186/s12955-025-02405-8>
2. Davey, S., & Davey, A. (2014). *Assessment of smartphone addiction in Indian adolescents: A mixed method study by systematic review and meta-analysis approach*. *Journal of Clinical and Diagnostic Research*, 5(12), 1500–1511. PMC4336980
3. Ding, Y., Wan, X., Lu, G., Huang, H., Liang, Y., Yu, J., & Chen, C. (2022). *The associations between smartphone addiction and self-esteem, self-control, and social support among Chinese adolescents: A meta-analysis*. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.1029323>
4. Karabey, S. C., Palanci, A., & Turan, Z. (2024). *How does smartphone addiction affect the lives of adolescents socially and academically?: A systematic review study*. *Psychology, Health & Medicine*, 29(3), 631–654. <https://doi.org/10.1080/13548506.2023.2229241>
5. Kaya, B. (2024). *Smartphone addiction and psychological wellbeing among adolescents: The multiple mediating roles of academic procrastination and school burnout*. *British Journal of Guidance & Counselling*, 52(5), 815–829. <https://doi.org/10.1080/03069885.2024.2304208>
6. Kim, K., Yee, J., Chung, J. E., Kim, H. J., Han, J. M., Kim, J. H., Lee, K. E., & Gwak, H. S. (2021). *Smartphone addiction and anxiety in adolescents: A cross-sectional study*. *American Journal of Health Behavior*, 45(5), 895–901. <https://pubmed.ncbi.nlm.nih.gov/34702436/>
7. Kucagiz, O., & Gunduz, B. (2016). *Social networking and psychological wellbeing: Adulthood insights*. *Turkish Journal of Psychology*.
8. Lapierre, M. A., et al. (2019). *Smartphone dependency, depressive symptoms and loneliness traits in adolescents: A longitudinal perspective*. *Journal of Adolescent Health*.
9. Ostic, S. K., Emarkova, M., Ina, M. L., & Hall-Smith, M. (2021). *The role of social media use in psychological wellbeing: The dual pathways of bonding and bridging social capital*. *Journal of Social Media Research*.

10. Ostic, S. K., Johnson, K., & Prasad, R. (2022). *Smartphone use behavior, stress and wellbeing among adolescents: Patterns and interventions. Journal of Child Psychology and Psychiatry.*
11. Patel, S., D'mello, L., & Shwetha, K. T. (2020). *The association between smartphone addiction and psychological distress among adolescents – A review based analysis. International Journal of Research in Engineering, Science and Management.*
12. Samaha, M., & Hawi, N. S. (2016). *Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. Computers in Human Behavior, 57, 321–325. <https://doi.org/10.1016/j.chb.2015.12.045>*
13. Suhag, A., et al. (2016). *Problematic smartphone use and associated health effects in young adults. Journal of Behavioral and Clinical Health.*
14. Susmita, P. (2024). *Smartphone addiction and sleep quality: Correlation with mental wellbeing in university students. International Journal of Behavioral Health Studies.*
15. Verma, S., & Kumary, T. (2016). *Social networking sites and psychological wellbeing: A negative correlation study. Journal of Behavioural Sciences.*
16. Volmer, E., & Lermer, E. (2019). *Smartphone usage frequency and its relationship with life satisfaction and wellbeing. European Journal of Psychology.*
17. Zhang, R., Jiang, Q., Cheng, M., Rhim, Y.-T., et al. (2024). *The effect of smartphone addiction on adolescent health: The moderating effect of leisure physical activities. Psicologia: Reflexão e Crítica, 37, 23. <https://doi.org/10.1186/s41155-024-00308-z>*