Information Management and Business Review (ISSN 2220-3796)
Vol. 17, No. 2(S), pp. 581-592, August 2025

Attachment Theory and Smartphone Addiction Among University Students: Investigating Psychological Dependence, Behavioral Patterns and Well-Being

Dilla Syadia Ab Latiff[1], *Liatul Izian Ali Husin[1], Nor Zaihan Mat Hasan Mat Hussin[1], Noor Azzah Said[1], Murni Zarina Mohamed Razali[1], Geng Yao[2]
[1]Faculty of Business and Management, Universiti Teknologi MARA, Malaysia
[2]Ningxia Medical University, Yinchuan, 750004 Ningxia, China
Email: dillasyadia@uitm.edu.my, *liatul@uitm.edu.my, norzaihanmh@uitm.edu.my, azzah074@uitm.edu.my, murnizarina@uitm.edu.my, gengyao1982819@gmail.com
Corresponding Author: Liatul Izian Ali Husin

Abstract: Smartphones play a crucial role in students' daily routines, influencing social interactions and academic engagement. This study explores the relation between attachment styles, secure, avoidant, anxious, and disorganized and smartphone addiction among students at UiTM Puncak Alam's Faculty of Business and Management. Based on information from 256 respondents, findings reveal that all attachment styles significantly correlate with smartphone addiction, with avoidant attachment displaying the strongest relationship (r = .701), followed by disorganized (r = .554), anxious (r = .534), and secure attachment (r = .476). Regression analysis identifies avoidant attachment as the primary predictor, suggesting that individuals with avoidant tendencies rely heavily on smartphones to distance themselves from real-world interactions. Anxious attachment also contributes, reflecting excessive smartphone use driven by a need for social reassurance. In contrast, secure and disorganized attachments show minimal predictive impact. These results indicate that smartphone addiction is not merely a behavioral habit but is deeply rooted in psychological and emotional factors. Students with avoidant and anxious attachments may depend on smartphones for validation or coping, reinforcing problematic usage patterns. To address this issue, universities should implement structured interventions such as digital wellness programs, attachment-based counselling, and social engagement initiatives that encourage healthy offline interactions. Encouraging face-to-face communication and setting boundaries for smartphone usage can help mitigate addiction risks. Future studies should investigate the long-term academic and psychological effects of smartphone dependency, offering broader insights into the consequences of attachment-driven smartphone addiction in university settings.

Keywords: *Attachment styles, attachment theory, attachment, smartphone addiction.*

1. Introduction and Background

As digital connectivity becomes increasingly embedded in everyday life, smartphones have become necessary tools for communication, information access, and entertainment. They serve not only functional purposes but also reflect users' social identity and status (Abuhamdah & Naser, 2023). Their constant internet connectivity enables users to engage with social media, email, messaging apps, and other online services anytime and anywhere.

The widespread adoption of smartphones is driven by technological advancements such as mobile apps, online banking, GPS navigation, digital photography, and e-commerce (Liu et al., 2022). These features have made smartphones integral to many aspects of daily life. But, together with their benefits, concerns have arisen about excessive and uncontrolled use.

Smartphone addiction, also known as smartphone dependence or pathological use, is characterized by compulsive usage despite negative impacts on personal, academic, or professional life (Kim, 2021; Albursan et al., 2022). Research suggests that about 66% of users exhibit signs of addiction (Laborde, 2023). University students are particularly vulnerable due to their dependency on smartphones for both academic and social purposes.

A global study by McGill University, cited in *New Straits Times* (Dzulkifli, 2022), ranked Malaysia as the third-highest country in smartphone addiction among young users. Similar local research (Said et al., 2022; Ithnain et al., 2018) has shown that nearly half of public university students display signs of severe smartphone addiction, raising concerns about its impact on well-being and academic performance.

Even though awareness has increased, there is limited research examining the psychological factors underlying smartphone addiction, especially among business students. Attachment theory, traditionally used to explain interpersonal bonds, has recently been applied to human-object relationships, including with smartphones (D'Arienzo et al., 2019; Parent & Shapka, 2019).

Insecure attachment styles may drive individuals to use smartphones as a basis of comfort or connection. For example, anxious attachment may lead to excessive checking behaviors due to fear of missing out (FoMO), while avoidant and disorganized styles may contribute to maladaptive digital coping strategies (Holte & Ferraro, 2020; Mikulincer & Shaver, 2019).

Moreover, excessive smartphone usage has been associated with mental health issues and cognitive impairments, including reduced attention, memory, and social cognition (Wacks & Weinstein, 2021; Vowels et al., 2022). As students are particularly sensitive to social stimuli, they may form emotional dependencies on their devices (Hodge & Gebler-Wolfe, 2022).

This study investigates the prevalence and factors contributing to smartphone addiction among students at the Faculty of Business and Management, UiTM Puncak Alam. Specifically, it explores the role of attachment styles, secure, anxious, avoidant, and disorganized in shaping patterns of smartphone use.

2. Literature Review

Smartphones have become central to modern life due to their multifunctionality, including apps for communication, navigation, banking, shopping, and entertainment (Liu et al., 2021). Despite their advantages, they also present serious drawbacks. A growing concern is smartphone addiction**,** also referred to as pathological smartphone use, which involves compulsive use that disrupts daily functioning, education, and work performance (Cha et al., 2018; Panova et al., 2018).

This addiction is often driven by a need for stimulation, emotional relief, or comfort, and is marked by discomfort in the absence of smartphone access (Buctot et al., 2018). College students are particularly vulnerable due to having more freedom and fewer restrictions on phone use (Li et al., 2021). Studies show that high levels of smartphone usage can negatively affect academic performance, mental health, and physical well-being, including issues like back pain and eye strain caused by poor posture and overuse (Xie et al., 2018; Zirek et al., 2020; Ahmed et al., 2022).

The COVID-19 pandemic has further exaggerated smartphone dependency. Home quarantine and social distancing led to an increase in global internet and smartphone use, often as a way to manage pandemic-related anxiety and isolation (Chen et al., 2022; Hosen et al., 2021). Social media became a key coping tool during this period, providing real-time updates and maintaining social connections (Thygesen et al., 2021). However, overreliance on digital engagement can worsen stress and increase the risk of behavioral addiction, similar to the effects of gambling or substance use (Fineberg, 2018; Peeters et al., 2019; Vismara et al., 2020).

Attachment Theory

Attachment theory, introduced by Bowlby in 1969, provides a framework for understanding how early interpersonal bonds shape emotional regulation and behaviors throughout life. Individuals with insecure attachment styles, such as attachment anxiety or avoidance and may seek alternative sources of comfort and security. In the digital age, smartphones have become a substitute attachment target, fulfilling roles traditionally associated with human relationships (Parent & Shapka, 2019). Empirical evidence indicates that individuals with high attachment anxiety are more prone to problematic smartphone use, as they rely on their devices for reassurance, social validation, and emotional regulation (Parent, Bond, & Shapka, 2021). This dependency mirrors attachment behaviors, where smartphones serve as a secure base and haven, reinforcing compulsive usage patterns. By understanding smartphone addiction through an attachment lens, interventions can focus on addressing underlying emotional needs rather than solely treating it as a behavioral addiction.

Secure Attachment

Secure attachment involves confidence that one's emotional and physical needs will be met, encouraging

healthy social behavior, autonomy, and emotional stability (Hodge & Gebler-Wolfe, 2022). Individuals with secure attachment typically seek and benefit from social approval, which promotes validation, belonging, and a positive self-concept (American Psychological Association [APA], 2018; Sanford, 2023).

Public recognition and positive feedback not only boost morale but also enhance interpersonal relationships and performance. Research shows that consistent validation can foster motivation and engagement, particularly in social or team-based settings (Miles, 2022; Masionis, 2023; Santosh, 2024).

Avoidant Attachment

Avoidant attachment is marked by emotional detachment and a preference for self-reliance, often rooted in early life experiences of neglect or emotional unavailability (Wu & Chou, 2023). Individuals with this style may use escapism, including excessive smartphone use, to avoid confronting emotional discomfort. Poor mental health can exacerbate this behavior, particularly in environments where mental health issues remain stigmatized (Olivine, 2023).

In Malaysia, mental health issues are on the rise but often go unrecognized. The National Health and Morbidity Survey (NHMS, 2019) reported that 2.3% of adults and over 424,000 children aged 5 to 15 experienced mental health issues. Cultural stigma and limited awareness continue to discourage professional help-seeking (Raaj et al., 2021; Samsudin et al., 2024; Lee & Yeo et al., 2023).

Anxious Attachment

Anxious attachment is defined by a strong need for intimacy alongside the fear of rejection and abandonment, which often leads individuals to seek reassurance but remain insecure in relationships, resulting in emotional dependence and frequent concern over their social standing (Candel & Turliuc, 2019). This attachment style is tightly related to Fear of Missing Out (FoMO)**,** a psychological phenomenon where persons feel anxiety over being excluded from rewarding experiences (Liu & Ma, 2019). FoMO is intensified by social media, where users are continually exposed to idealized depictions of others' lives, driving a compulsion to stay connected (Alabri, 2022). Studies show that 56% of individuals experience FoMO, contributing to digital overuse and feelings of inadequacy and dissatisfaction (Zhong, 2023).

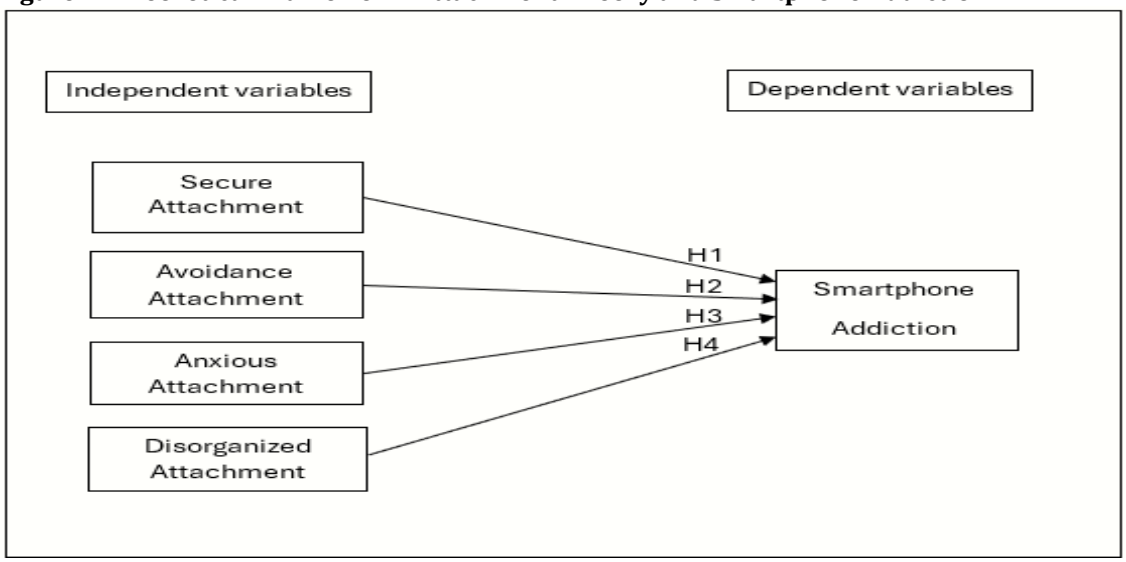
Disorganized Attachment

Disorganized or fearful attachment arises from inconsistent or harmful caregiving during early life. It is characterized by conflicting desires for closeness and fear of emotional pain, often leading to unstable relationships and a heightened fear of rejection (Decarli et al., 2022). These individuals may misinterpret feedback as criticism and struggle with emotional regulation, resulting in avoidance, aggression, or anxiety (Brumariu & Kerns, 2021). Though less common than other attachment styles, disorganized attachment is more likely among individuals with a history of trauma. Research estimates that 15%–20% of infants exhibit disorganized behavior, and many carry these patterns into adulthood, affecting long-term mental health and social stability (Linder, 2025; Avasarala, 2025).

Theoretical and Research Framework

Attachment theory by Bowlby (1969 presents a guiding framework to understand just how individuals form bonds and relate to others. It is pertinent for exploring attachment to smartphones, which differs from caregiver attachment but is influenced by the content accessed via these devices (Yip et al., 2017; Shay, 2020).

Figure 1: Theoretical Framework: Attachment Theory and Smartphone Addiction



Research Hypotheses

- There is a significant relationship between secure attachment and smartphone addiction among students of the Faculty of Business and Management, UiTM Puncak Alam.
- There is a significant relationship between avoidant attachment and smartphone addiction among students of the Faculty of Business and Management, UiTM Puncak Alam.
- There is a significant relationship between anxious attachment and smartphone addiction among students of the Faculty of Business and Management, UiTM Puncak Alam.
- There is a significant relationship between disorganized attachment and smartphone addiction among students of the Faculty of Business and Management, UiTM Puncak Alam.

3. Research Methodology

Research Design and Setting

This study explores the potential cause-and-effect relationships between smartphone addiction and various attachment styles (secure, avoidant, anxious, and disorganized) among students of the Faculty of Business and Management at UiTM Puncak Alam. Although the study is based on a correlational design and cannot establish definitive causality, the relationships examined are grounded in attachment theory, which suggests that early attachment patterns may influence coping behaviors such as smartphone use. Through statistical techniques like Pearson correlation and multiple regression analysis, the study investigates these directional patterns as a basis for understanding how attachment-related tendencies may contribute to problematic smartphone usage. Future longitudinal or experimental research is recommended to further test these proposed pathways.

Data collection was conducted in a natural, non-contrived setting during the May-June semester session, involving students across all eight faculty programs. To minimize research interference and maintain ecological validity, a self-administered online questionnaire was employed, allowing participants to respond anonymously at their convenience without direct researcher interaction. The primary unit of analysis was individual students, reflecting their attachment styles and smartphone behaviors. A cross-sectional design was used, capturing data at a single point in time over approximately one month.

Population and Sample

The target population consisted of 7,897 students enrolled in the Faculty of Business and Management. Based on Krejcie and Morgan's (1970) criteria, a minimum sample size of 364 was established to ensure representativeness. Convenience sampling was utilized to select accessible participants, balancing practicality with some limitations on generalizability.

Survey Instrument
Data were gathered using a structured questionnaire distributed via Google Forms, divided into three sections:

Demographics: Collecting age, gender, course program, smartphone ownership, and social media use.

Attachment Styles: Measuring secure, avoidant, anxious, and disorganized attachment via Likert-scale items adapted from Tai and Dai (2022) and McAulay (2022).

Smartphone Usage: Exploring frequency, dependency, behavioral patterns, and entertainment use, also via Likert-scale items (Tai and Dai, 2022).

Data Analysis
SPSS software was used for analysis. Descriptive statistics summarized demographic data. Pearson correlation examined relationships between each attachment style and smartphone addiction (RO1–RO4). Multiple regression analysis identified the primary predictor of smartphone addiction (RO5).

Table 1: Data Analysis

Research Objective	Research Question	Scale	Statistical Test
RO1	What is the correlation between secure attachment and smartphone addiction?	Likert scale	Correlation
RO2	What is the relationship between avoidant attachment and smartphone addiction?	Likert scale	Correlation
RO3	What is the relationship between anxious attachment and smartphone addiction?	Likert scale	Correlation
RO4	What is the correlation between disorganized attachment and smartphone addiction?	Likert scale	Correlation
RO5	What is the primary factor influencing smartphone addiction?	Likert scale	Multiple Regression

Ethical Considerations
Participation was voluntary, with informed consent obtained from all respondents. Anonymity and confidentiality were strictly maintained; no identifying information was collected. The study adhered to ethical standards to minimize any risks or discomfort to participants.

Limitations
The use of convenience sampling may limit the generalizability of findings beyond the studied population. The cross-sectional design restricts causal inferences over time, and self-reported data could be subject to response bias.

4. Results and Discussion

This study achieved a 70% response rate, gathering 256 valid responses from students of the Faculty of Business and Management, UiTM Puncak Alam. Data collection was conducted over a 4 4-week period, encountering challenges in motivating student participation. Although initial participation was low, multiple distributions of Google Forms were critical to ensure the number of responses continuously increased.

Data were analyzed using IBM SPSS software. Analytical techniques included frequency distribution tables to describe respondents' demographics, Cronbach's Alpha to assess the reliability and normality of the data, correlation analysis to explore the strength and direction of relationships between variables, and multiple regression to identify key predictors of smartphone addiction.

Demographic analysis

The demographic profile of the respondents provides valuable insights into their characteristics and potential behavioral patterns. Referring to Table 2, the sample consists of 256 participants, with a higher representation of females (62.9%) compared to males (37.1%), suggesting possible gender-based differences in engagement. The age distribution indicates that the majority (82.4%) fall within the 21–25 age range, highlighting a predominance of young adults who may have distinct preferences and digital behaviors. In terms of academic background, the most frequently enrolled program is the Bachelor of Health Administration (21.9%), followed by Customer Service Management (10.2%) and Event Management (12.9%), reflecting diverse educational interests. Nearly all participants (99.6%) own a smartphone, and an equally high percentage (99.2%) actively use social media, reinforcing the pervasiveness of digital connectivity within this group. These findings provide a critical foundation for understanding how demographic factors may influence behavioral tendencies and engagement patterns in the study.

Table 2: Demographic Profile (n=256)

Variables		Frequency (*n*)	Percentage (%)
Gender	Male	95	37.1
	Female	161	62.9
Age	18 - 20	34	13.3
	21 - 25	211	82.4
	26 - 30	7	2.7
	31 and above	4	1.6
Course	BA232: Bachelor's in Office Systems Management (Hons)	17	6.6
	BA233:Bachelor of Business Administration (Hons) Entrepreneurship	7	2.7
	BA234 - Bachelor of Customer Service Management (Hons)	26	10.2
	BA235 - Bachelor of Health Administration (Hons)	56	21.9
	BA236 - Bachelor of Event Management (Hons)	33	12.9
	BA240 - Bachelor of Business Administration (Hons) Marketing	7	2.7
	BA241 - Bachelor of Business Administration (Hons) Insurance	4	1.6
	BA242 - Bachelor of Business Administration (Hons) Finance	16	6.3
	BA243 - Bachelor of Business Administration (Hons) Human Resource Management	22	8.6
	BA244 - Bachelor of Business Administration (Hons) Operations Management	15	5.9
	BA245 - Bachelor of Business Administration (Hons) Retail Management	10	3.9
	BA246 - Bachelor of Business Administration (Hons) International Business	10	3.9
	BA247 - Bachelor of Business Administration (Hons) Transport	10	3.9
	BA249 - Bachelor of Business Administration (Hons) Islamic Banking	7	2.7
	BA250 - Bachelor of Business Administration (Hons) Business Economics	13	5.1
	BA290 - Double Degree	3	1.2
Smart-phone ownership	Yes	255	99.6

	No	1	0.4
Social Media Usage	Yes	254	99.2
	No	2	0.8

Descriptive analysis

The descriptive analysis (refer to Table 3) provides insight into the respondents' behavioral tendencies and attachment styles based on mean scores and standard deviations. Smartphone usage shows a relatively high mean (3.77) with a moderate level of variability (0.741), suggesting frequent engagement with smartphones among participants. Among attachment styles, avoidance attachment has the highest mean (3.56), followed closely by anxious attachment (3.45), indicating a tendency for participants to exhibit avoidance or anxiety in their relationships. Secure attachment, while lower (3.19), demonstrates some presence of healthy relational bonds, whereas disorganized attachment (3.26) suggests mixed or inconsistent attachment behaviors. The varying standard deviations reflect differences in individual attachment experiences, contributing to a nuanced understanding of how attachment patterns may relate to smartphone dependency. These results offer a foundation for further exploration of attachment styles and digital behavior within this population.

Table 3: Mean and Standard Deviation (n=256)

Variables	Mean	Standard Deviation
Smartphone Usage	3.77	0.741
Secure Attachment	3.19	1.033
Avoidance Attachment	3.56	0.849
Anxious Attachment	3.45	0.876
Disorganized Attachment	3.26	0.812

Normality test

As depicted in Table 4, the normality test assesses the distribution of the study variables using skewness and kurtosis values. Based on the criteria of skewness within ±3 and kurtosis within ±10, all attachment variables—secure, anxious, disorganized, and avoidance—exhibited normal distributions, indicating consistency in respondents' attachment patterns. However, smartphone addiction showed moderate left skewness (-0.662), suggesting that responses are slightly concentrated on higher addiction levels. Although the kurtosis value (0.237) remains within an acceptable range, the skewness indicates that the data for smartphone addiction is not perfectly normal. This deviation suggests the need for further statistical consideration, such as transformations or non-parametric methods, when analyzing relationships involving smartphone addiction.

Table 4: Normality and reliability analysis (n=256)

Variables	No. of Items	Skewness	Kurtosis	Remarks
Secure Attachment	5	-0.043	-1.122	Normal
Anxious Attachment	5	-0.250	-0.743	Normal
Disorganized Attachment	5	-0.094	-0.346	Normal
Avoidance Attachment	5	-0.386	-0.436	Normal
Smartphone Addiction	5	-0.662	0.237	Not Normal

Correlation analysis

The results indicate varying degrees of association between different attachment styles and smartphone addiction. Avoidant attachment exhibits the strongest correlation (.701, $p < .001$), suggesting that individuals with avoidant tendencies may rely on smartphones as a substitute for interpersonal connections. Disorganized (.554) and anxious attachment (.534) also show substantial relationships, reflecting tendencies to seek digital reassurance or escape emotional distress. Secure attachment demonstrates a moderate correlation (.476),

indicating that even individuals with healthier attachment patterns may engage with smartphones for social and emotional support. These findings underscore the significance of attachment styles in shaping smartphone dependence, providing valuable insights into behavioral mechanisms and potential intervention strategies.

Table 5: Relationship Between Attachment Styles and Smartphone Addiction (n=256) (N=256)

Attachment Style	Pearson Correlation	Sig. (2-tailed)
Secure Attachment	.476	<.001
Avoidance Attachment	.701	<.001
Anxious Attachment	.534	<.001
Disorganized Attachment	.554	<.001

Multiple regression analysis

Table 6 portrays that the model explains approximately 52.1% of the variance in smartphone addiction (R^2 = .521, Adjusted R^2 = .514), indicating a strong predictive capacity. Avoidant attachment demonstrates the highest positive influence (B = .489, β = .561, p < .001), suggesting that individuals with avoidant tendencies are significantly more likely to develop smartphone addiction. Anxious attachment also shows a significant positive relationship (B = .165, β = .196, p = .002), indicating that individuals with anxiety-driven attachment patterns may rely on smartphones for emotional regulation. In contrast, secure attachment (B = -.013, β = -.018, p = .782) and disorganized attachment (B = .053, β = .058, p = .378) do not exhibit significant relationships with smartphone addiction. The overall model is highly significant (F = 68.316, p < .001), reinforcing the importance of attachment styles in influencing smartphone dependency. Let me know if you need refinements!

Table 6: Regression Analysis Results (n=256)

Model	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std.Error	Beta		
Constant	1.323	.156		8.472	<.001
Secure	-.013	.046	-.018	-.278	.782
Avoidance	.489	.056	.561	8.689	<.001
Anxious	.165	.054	.196	3.058	.002
Disorganized	.053	.060	.058	.883	.378
F-value			68.316		
Sig.			<.001		
Adjusted R^2			.514		
R^2			.521		

Hypotheses Testing

To make the findings from the hypothesis testing easier to follow, the results are summed up in Table 7 below. It gives a quick look at the relationships between each type of attachment style and smartphone addiction, showing how strong those links are and whether they're statistically significant. It also highlights which attachment style turned out to be the strongest predictor in the regression analysis.

Table 7: Summary of Hypothesis (n=256)

Hypothesis	Attachment Style	Correlation Coefficient (r)	Correlation Coefficient (r)	Result
H1	Secure	0.476	< 0.001	Supported
H2	Avoidant	0.701	< 0.001	Supported
H3	Anxious	0.534	< 0.001	Supported
H4	Disorganized	0.554	< 0.001	Supported
H5	Avoidant (β = 0.561), Anxious (β = 0.196)	-	< 0.001 (for both)	Avoidant = Strongest predictor

Discussion

The findings from the hypothesis testing reinforce the theoretical framework that attachment styles play a critical role in shaping smartphone addiction behaviors. The Pearson correlation results confirm that all four attachment styles—secure, avoidant, anxious, and disorganized—show significant associations with smartphone addiction ($p < 0.05$). Avoidant attachment exhibits the strongest correlation ($r = 0.701$), suggesting that individuals who tend to withdraw from interpersonal relationships may compensate by relying more heavily on digital interactions. The moderate correlations observed for secure ($r = 0.476$), anxious ($r = 0.534$), and disorganized attachment ($r = 0.554$) indicate that while these attachment styles contribute to smartphone addiction, their influence is not as pronounced as avoidant attachment.

Furthermore, regression analysis demonstrates that attachment styles collectively account for 52.1% of the variance in smartphone addiction ($R^2 = 0.521$). Avoidant attachment emerges as the strongest predictor, with the highest beta coefficient, reinforcing the idea that individuals with avoidant tendencies might use smartphones as a psychological buffer against social discomfort or emotional detachment. Anxious attachment also contributes significantly, reflecting a pattern where individuals seek reassurance and validation through constant connectivity. In contrast, secure and disorganized attachments do not exhibit significant unique effects, indicating that their relationship with smartphone addiction may be influenced by additional variables.

These results provide valuable insights into the underlying psychological mechanisms driving smartphone addiction. Understanding these associations can inform intervention strategies, emphasize emotional regulation techniques and promote healthier digital habits, particularly for individuals with avoidant and anxious attachment tendencies. Let me know if you'd like me to refine or expand further.

Hypotheses Test	Results
H1: Significant relationship between secure attachment and smartphone addiction	SUPPORTED
H2: Significant relationship between avoidant attachment and smartphone addiction	SUPPORTED
H3: Significant relationship between anxious attachment and smartphone addiction	SUPPORTED
H4: Significant relationship between disorganized attachment and smartphone addiction	SUPPORTED

5. Conclusion and Recommendations

This study examines how different attachment styles, secure, avoidant, anxious, and disorganized, contribute to smartphone addiction among students at UiTM Puncak Alam's Faculty of Business and Management. Using a correlational design with a sample of 256 respondents, the analysis confirms significant positive relationships between all attachment styles and smartphone addiction. Avoidant attachment shows the strongest correlation ($r = .701$), followed by disorganized attachment ($r = .554$), anxious attachment ($r = .534$), and secure attachment ($r = .476$). Regression analysis further identifies avoidant attachment as the most influential predictor of smartphone addiction, followed by anxious attachment, while secure and disorganized attachments show minimal unique predictive impact.

These results offer meaningful insights through the lens of attachment theory, which suggests that early relationship experiences shape the way individuals handle emotional needs and social interactions later in life. The theory helps explain why students with avoidant attachment styles, who often withdraw from close

relationships, may turn to smartphones as a way to regulate emotions or avoid face-to-face engagement. Those with anxious attachment may use smartphones compulsively to seek reassurance or social validation. Even students with secure attachment can develop smartphone addiction when digital communication becomes a primary tool for staying connected. Disorganized attachment, marked by internal conflict and inconsistency, also appears to lead to dependence on smartphone use.

By applying attachment theory in this context, the study offers a deeper understanding of the psychological roots of smartphone addiction and opens the door to theory-driven interventions. Addressing underlying attachment concerns through counselling or digital wellness programs may help students build healthier relationships with technology. Future research could explore these pathways further using longitudinal data to assess how attachment patterns influence digital behaviour over time. These findings not only deepen our understanding of the emotional factors behind smartphone addiction but also remind us that meaningful human connection, whether offline or online, all begins with how we relate to ourselves and others.

References

Abuhamdah, S., & Naser, A. Y. (2023). Smart phone addiction and its mental health risks among university students in Jordan: a cross-sectional study. BMC Psychiatry, 23(1). https://doi.org/10.1186/s12888-023-05322-6

Ahmed, S., Mishra, A., Akter, R., Shah, Md. H., & Sadia, A. A. (2022). Smartphone addiction and its impact on musculoskeletal pain in the neck, shoulder, elbow, and hand among college-going students: a cross-sectional study. Bulletin of Faculty of Physical Therapy, 27(1). https://doi.org/10.1186/s43161-021-00067-3

Alabri, A. (2022). Fear of Missing Out (FoMO): The effects of the need to belong, perceived centrality, and fear of social exclusion. *Human Behavior and Emerging Technologies, 2022*, Article 4824256. https://doi.org/10.1155/2022/4824256

Albursan, I. S., Al. Qudah, M. F., Al-Barashdi, H. S., Bakhiet, S. F., Darandari, E., Al-Asqah, S. S., Hammad, H. I., Al-Khadher, M. M., Qara, S., Al-Mutairy, S. H., & Albursan, H. I. (2022). Smartphone Addiction among University Students in Light of the COVID-19 Pandemic: Prevalence, Relationship to Academic Procrastination, Quality of Life, Gender and Educational Stage. International Journal of Environmental Research and Public Health, 19(16), 10439. https://doi.org/10.3390/ijerph191610439

Avasarala, U. (2025). *The attachment theory: Longevity of childhood attachment in adulthood*. *NHSJS*. https://nhsjs.com/wp-content/uploads/2025/03/The-Attachment-Theory-Longevity-of-Childhood-Attachment-in-Adulthood.pdf

Buctot, D. B., Kim, N., & Park, K. E. (2018). Development and Evaluation of Smartphone Detox Program for University Students. International Journal of Contents, 14(4), 1–9. https://doi.org/10.5392/IJoC.2018.14.4.001

Brumariu, L. E., & Kerns, K. A. (2021). Disorganized/controlling attachments, emotion regulation, and emotion communication in later middle childhood. *Journal of Applied Developmental Psychology, 76*, Article 101324. https://doi.org/10.1016/j.appdev.2021.101324

Candel, O.-S., & Turliuc, M. N. (2019). Insecure attachment and relationship satisfaction: A meta-analysis of actor and partner associations. *Personality and Individual Differences, 147*, 190–199. https://doi.org/10.1016/j.paid.2019.04.037

Cha, S.-S., & Seo, B.-K. (2018). Smartphone use and smartphone addiction in middle school students in Korea: Prevalence, social networking service, and game use. Health Psychology Open, 5(1), 205510291875504. https://doi.org/10.1177/2055102918755046

Chen, L., Li, J., & Huang, J. (2022). COVID-19 Victimization Experience and College Students' Mobile Phone Addiction: A Moderated Mediation Effect of Future Anxiety and Mindfulness. International Journal of Environmental Research and Public Health, 19(13), 7578. https://doi.org/10.3390/ijerph19137578

D'Arienzo, M. C., Boursier, V., & Griffiths, M. D. (2019). Addiction to social media and attachment styles: A systematic literature review. *International Journal of Mental Health and Addiction, 17*(4), 1094–1118. https://doi.org/10.1007/s11469-019-00082-5

Decarli, A., Pierrehumbert, B., Schulz, A., Schaan, V. K., & Vögele, C. (2022). Disorganized attachment in adolescence: Emotional and physiological dysregulation during the Friends and Family Interview and

a conflict interaction. *Development and Psychopathology*, *34*(1), 431–445. doi:10.1017/S0954579420001352

Dzulkifli, A. R. (2022, February 21). *Too many Malaysians are addicted to smartphones*. *New Straits Times*. https://www.nst.com.my/opinion/columnists/2022/02/773410/too-many-malaysians-are-addicted-smartphones

Fineberg, N., Demetrovics, Z., Stein, D., Ioannidis, K., Potenza, M., Grünblatt, E., Brand, M., Billieux, J., Carmi, L., King, D., Grant, J., Yücel, M., Dell'Osso, B., Rumpf, H., Hall, N., Hollander, E., Goudriaan, A., Menchon, J., Zohar, J., & Burkauskas, J. (2018). Manifesto for a European research network into Problematic Usage of the Internet. European Neuropsychopharmacology, 28(11), 1232–1246. https://doi.org/10.1016/j.euroneuro.2018.08.00

Hodge, D. R, & Gebler-Wolfe, M. (2022). OUP accepted manuscript. Children and Schools. https://doi.org/10.1093/cs/cdac007

Holte, A. J., & Ferraro, F. R. (2020). Anxious, bored, and (maybe) missing out: Evaluation of anxiety attachment, boredom proneness, and fear of missing out (FoMO). *Computers in Human Behavior, 112*, Article 106465. https://doi.org/10.1016/j.chb.2020.106465

Hosen, I., al Mamun, F., Sikder, M. T., Abbasi, A. Z., Zou, L., Guo, T., & Mamun, M. A. (2021). Prevalence and Associated Factors of Problematic Smartphone Use During the COVID-19 Pandemic: A Bangladeshi Study. Risk Management and Healthcare Policy, 14, 3797–3805. https://doi.org/10.2147/rmhp.s325126

Ithnain, N., Ghazali, S. E., & Jaafar, N. (2018). Relationship between smartphone addiction with anxiety and depression among undergraduate students in Malaysia. *International Journal of Health Sciences and Research, 8*(1), 10–17. https://iptk.moh.gov.my/images/technical_report/INT-JOURNAL-OF-HEALTH-SCIENCE-RESEARCH---SMARTPHONE-ADDICTION.pdf

Kim, J.-H. (2021). Factors Associated with Smartphone Addiction Tendency in Korean Adolescents. International Journal of Environmental Research and Public Health, 18(21), 11668. https://doi.org/10.3390/ijerph182111668

Laborde, S. (2023, August 28). 50 Most Surprising Smartphone Addiction Statistics in 2023. The Tech Report. https://techreport.com/statistics/smartphone-addiction-statistics/

Lee, S. Y., Yeo, J., & Rajagopal, V. (2023). Mental illness stigmatisation among Malaysian adults: A systematic review. *British Journal of Nursing, 32*(20), 1–6. https://www.britishjournalofnursing.com/content/professional/mental-illness-stigmatisation-among-malaysian-adults-a-systematic-review

Linder, J. (2025, April 29). *Attachment style statistics: Market data report 2025*. Gitnux. https://gitnux.org/attachment-style-statistics/

Liu, H., Zhou, Z., Zhu, E., Huang, L., & Zhang, M. (2022). Smartphone addiction and its associated factors among freshmen medical students in China: a cross-sectional study. BMC Psychiatry, 22(1). https://doi.org/10.1186/s12888-022-03957-5

Masionis, A. (2023, August 17). 15 positive feedback examples for motivation and recognition. Achievers. https://www.achievers.com/blog/positive-feedback-examples/

McAulay, T. L. (2022). The role of attachment style and emotional maladjustment in technology-based addictions. https://scholar.acadiau.ca/islandora/object/theses:3887

Mikulincer, M., & Shaver, P. R. (2019). Attachment orientations and emotion regulation. Current Opinion in Psychology, 25(1), 6–10. https://doi.org/10.1016/j.copsyc.2018.02.006

Miles, M. (2022, August 29). 16 Positive Feedback Examples for Employees. https://www.betterup.com/blog/positive-feedback-examples

Olivine, R. (2023). Understanding the impact of smartphones on mental health. *City Perspectives, Singapore Management University*. https://cityperspectives.smu.edu.sg

Panova, T., & Carbonell, X. (2018). Is smartphone addiction an addiction? Journal of Behavioral Addictions, 7(2), 252–259. https://doi.org/10.1556/2006.7.2018.49

Parent, N., & Shapka, J.D. (2019). Moving beyond addiction: An attachment theory framework for understanding young adults' relationships with their smartphones. *Human Behavior and Emerging Technologies, 2*(2), 179–185. https://doi.org/10.1002/hbe2.180

Parent, N., Bond, L., & Shapka, J. (2021). Examining attachment anxiety and problematic smartphone use: A relational perspective. *Journal of Behavioral Addictions, 10*(3), 456–472. https://doi.org/10.1007/s12144- 021-02092-w

Peeters, M., Koning, I., Lemmens, J., & Eijnden, R. van den. (2019). Normative, passionate, or problematic? Identification of adolescent gamer subtypes over time. Journal of Behavioral Addictions, 8(3), 574–585. https://doi.org/10.1556/2006.8.2019.55

Raaj, S., Navanathan, S., Tharmaselan, M., & Lally, J. (2021). Mental disorders in Malaysia: An increase in lifetime prevalence. *BJPsych International, 18*(4), 97–99. https://doi.org/10.1192/bji.2021.4

Said, A. H., Mohd, F. N., Yusof, M. Z., Mohd Win, N. A. N., Mazlan, A. N., & Shaharudin, A. S. (2022). Prevalence of smartphone addiction and its associated factors among pre-clinical medical and dental students in a public university in Malaysia. *Malaysian Family Physician, 17*(3), 64–73. https://e-mfp.org/wp-content/uploads/v17n3-OA-Prevalence-of-smartphone-addiction-1.pdf

Samsudin, N., Lee, S. Y., & Yeo, J. (2024). Mental health disparities and stigma among Malaysian youth: Findings from the Malaysian Youth Mental Health Index. *AWANI International*. https://international.astroawani.com/malaysia-news/columnist-bridging-mental-health-and-public-safety-enhancing-malaysias-mypcve-framework-508301

Sanford, M. (2023, March 3). Balancing the Need for Social Approval with Personal Growth. ILLUMINATION. https://medium.com/illumination/balancing-the-need-for-social-approval-with-personal-growth-28927f0680f3

Shay, J. (2020). Attachment Theory And Smartphone Use: Are Smartphones Transitional Objects? https://esploro.libs.uga.edu/esploro/fulltext/doctoral/ATTACHMENT-THEORY-AND-SMARTPHONE-USE-ARE/9949365541702959?repId=12679468080002959&mId=13679468070002959 &institution=01GALI_UGA

Tai, Z., & Dai, C. (2022). College students' attachment to their smartphones: a subjective operant approach. BMC Psychology, 10(1). https://doi.org/10.1186/s40359-022-00857-x

Thygesen, H., Bonsaksen, T., Schoultz, M., Ruffolo, M., & Leung, J. (2022). Social media use and its associations with mental health 9 months after the COVID-19 outbreak: A cross-national study. Frontiers in Public Health, 9, 752004.

Vismara, M., Caricasole, V., Starcevic, V., Cinosi, E., Dell'Osso, B., Martinotti, G., & Fineberg, N.A. (2020). Is cyberchondria a new transdiagnostic digital compulsive syndrome? A systematic review of the evidence. *Comprehensive Psychiatry*, 99, 152167. https://doi.org/10.1016/j.comppsych.2020.152167

Wu, Y.-Y., & Chou, W.-H. (2023). Smartphone addiction, gender and interpersonal attachment: A cross-sectional analytical survey in Taiwan. *Digital Health, 9*, 1–13. https://doi.org/10.1177/20552076231177134

Xie, X., Dong, Y., & Wang, J. (2018). Sleep quality as a mediator of problematic smartphone use and clinical health symptoms. Journal of Behavioral Addictions, 7(2), 466–472. https://doi.org/10.1556/2006.7.2018.40

Yip, J., Ehrhardt, K., Black, H., & Walker, D. O. (2017). Attachment theory at work: A review and directions for future research. *Journal of Organizational Behavior*, 39(2), 185–198. https://doi.org/10.1002/job.2204

Zhong, Y. (2023). Face the fear of falling behind in the digital age: Recognizing and overcoming FoMO. *Indonesian Journal of Education, 3*(3), 112–129. https://injoe.org/index.php/INJOE/article/view/94

Zirek, E., Mustafaoglu, R., Yasaci, Z., & Griffiths, M. D. (2020). A systematic review of musculoskeletal complaints, symptoms, and pathologies related to mobile phone usage. *Musculoskeletal Science and Practice*, 49, 102196. https://doi.org/10.1016/j.msksp.2020.102196