



## Relationships between social media addiction, smartphone addiction and life satisfaction among young adults in Malaysia

Mohd Ferdaus Harun\*, Nik Nur Ras Nur Ain Nik Adnan, Farrah Azzwa Maarif, Khairun Nisa Kamal, Sara Malyana Hanisofian, Nor Amiera Alya Azmi, Liyana Azamly & Amni Nazurah Ahmad Junaidi

Department of Psychology, International Islamic University Malaysia, 53100 Kuala Lumpur, Malaysia.

### ABSTRACT

Over the past decade, digital media engagement has intensified markedly, accompanied by growing concern over problematic and addiction-like patterns of technology use. Such patterns have been consistently linked to adverse psychosocial outcomes, including heightened stress, emotional distress, depressive symptoms, and reduced well-being. Young adults may be especially vulnerable, as this developmental stage involves heightened social comparison, evolving self-concepts, and increased reliance on digital technologies for social connection and identity expression. Against this backdrop, the present study examined the associations between Social Media Addiction, Smartphone Addiction, and Satisfaction with Life among young adults in Malaysia. A cross-sectional online survey was conducted with  $N=414$  Malaysian young adults aged 19 to 24 years using purposive sampling. The sample was predominantly female (84.5%), with males comprising 15.5%. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results revealed a significant negative association between Social Media Addiction and Satisfaction with Life. In contrast, Smartphone Addiction demonstrated a small but positive association with Satisfaction with Life, contrary to the hypothesised negative relationship. These findings emphasise the importance of differentiating technology-related addictive behaviours and suggest prioritising social media in interventions, alongside a context-sensitive approach to smartphone use.

**Keywords:** satisfaction with life, social media addiction, smartphone addiction, young adults, Malaysia

---

#### ARTICLE INFO

Email address: ferdausharun@iiium.edu.my/ ferdaus.harun@gmail.com (Mohd Ferdaus Harun)

\*Corresponding author

<https://doi.org/10.33736/jcs hd.11910.2026>

e-ISSN: 2550-1623

Manuscript received: 31 December 2025; Accepted: 19 March 2026; Date of publication: 31 March 2026

Copyright: This is an open-access article distributed under the terms of the CC-BY-NC-SA (Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License), which permits unrestricted use, distribution, and reproduction in any medium, for non-commercial purposes, provided the original work of the author(s) is properly cited.

## 1 INTRODUCTION

Satisfaction with Life (LS) is an important indicator of subjective well-being and is widely used in psychological research to assess individuals' overall evaluations of their lives (Diener et al., 1985; Pavot & Diener, 1993). It is especially salient during young adulthood, a developmental period characterised by identity exploration, increasing autonomy, and heightened sensitivity to psychosocial stressors (Arnett, 2000). During this stage, LS may be particularly responsive to behavioural patterns and contextual influences, making it a relevant outcome for understanding the potential well-being implications of problematic digital technology use. Alongside the growing importance of LS, the past decade has witnessed a marked increase in digital media engagement, accompanied by rising concern about problematic and addiction-like patterns of technology use. Empirical evidence consistently links both Social Media Addiction (SMA) and Smartphone Addiction (SPA) to adverse psychosocial outcomes, including heightened stress, emotional distress, depressive symptoms, and reduced well-being (Błachnio et al., 2016; Cao et al., 2021; Hawi & Samaha, 2017). Young adults may be particularly vulnerable within these frameworks due to heightened social comparison, evolving self-concepts, and frequent reliance on digital technologies for social connection and identity expression (Koçak et al., 2021).

Despite a growing international literature, context-specific evidence from Malaysia remains comparatively limited, particularly regarding the simultaneous examination of SMA and SPA in relation to LS. Existing Malaysian studies have tended to focus on either problematic social media use or problematic smartphone use separately, often emphasising prevalence, scale validation, or psychosocial correlates rather than modelling both forms of technology-related addictive behaviour within the same explanatory framework (e.g., Ashari et al., 2022; Ching et al., 2020; Harun et al., 2024; Xuan & Che Amat, 2021; Yi & Ahmad, 2023). As a result, it remains unclear whether reduced life satisfaction is more strongly associated with generalised compulsive reliance on the smartphone as a device or with more specific platform-based behaviours such as addictive social media use. This gap is especially important in Malaysia, a context characterised by rapid digitalisation and expansion of the digital economy (World Bank, 2018), high smartphone penetration (Ching et al., 2020), and widespread social media use among young adults (Yi & Ahmad, 2023). These trends occur within a collectivistic cultural context that prioritises social connectedness and interpersonal harmony, potentially shaping both patterns of technology use and their implications for well-being (Ashari et al., 2022). Such cultural and technological characteristics remain underexplored in relation to young adults' satisfaction with life.

Against this backdrop, the present study examines the associations between Social Media Addiction (SMA), Smartphone Addiction (SPA), and Satisfaction with Life (LS) among young adults in Malaysia. Examining SMA and SPA together is theoretically important because smartphones primarily serve as a medium for multiple activities, including social networking, entertainment, information seeking, and productivity-related behaviours (Panova & Carbonell, 2018). Accordingly, problematic smartphone use may reflect generalised compulsive engagement with the device, specific applications, or both (Chen et al., 2020). Without separating SMA from SPA, researchers may misattribute the negative effects of platform-specific behaviours, particularly social media use, to the smartphone itself. This distinction is important because the smartphone has been conceptualised as a conduit for multiple online behaviours rather than the

sole object of addiction (Panova & Carbonell, 2018) and differentiating generalised from specific problematic use may yield a more precise account of psychological outcomes (Chen et al., 2020; Lopez-Fernandez, 2018). Relatedly, examining both constructs within a single analytical framework allows a clearer assessment of their distinct associations with LS than would be possible if each were studied in isolation. By integrating these related but conceptually distinct forms of technology-related addictive behaviour within a single analytical framework, the present study contributes to theoretical refinement in the behavioural addiction literature, extends empirical evidence in the Malaysian context, and offers practical implications for targeted prevention and intervention strategies to support healthy digital engagement and psychological well-being among young adults.

### **1.1 The Concept of Satisfaction with Life**

Satisfaction with life refers to individuals' overall evaluative judgments of the quality of their lives, based on personally determined standards rather than criteria imposed by external sources (Diener et al., 1985). In contrast to affective well-being, which reflects momentary emotional experiences, life satisfaction represents a deliberative appraisal that integrates personal values, aspirations, and perceived life circumstances over time (Diener et al., 1985; Pavot & Diener, 1993). This conceptualisation frames life satisfaction as relatively stable yet responsive to meaningful changes in personal and social contexts.

The construct is grounded in hedonic well-being theory, which highlights happiness, pleasure attainment, and life evaluation as key indicators of psychological well-being (Diener, 1984). As a global cognitive judgment, life satisfaction differs from domain-specific satisfaction (e.g., academic or relational satisfaction) by allowing individuals to weight life domains according to subjective importance (Pavot & Diener, 1993). Empirical research supports the cross-cultural utility of life satisfaction as an indicator of overall well-being, with evidence of robust psychometric properties across populations (Swami & Chamorro-Premuzic, 2009).

Life satisfaction is consistently associated with positive mental health outcomes, including lower depression and psychological distress, better perceived health, and more adaptive coping (Laranjeira, 2012; López-Ortega et al., 2016). Accordingly, it is often used as an outcome variable in research examining psychosocial, behavioural, and environmental influences on well-being. In studies of behavioural addictions and technology use, life satisfaction is particularly relevant because it captures broader evaluative consequences that may emerge even when clinical symptoms are not prominent (Hawi & Samaha, 2017).

This construct is particularly salient in young adulthood, a developmental stage marked by identity exploration, role transitions, and increasing autonomy (Koçak et al., 2021). During this stage, life satisfaction may be shaped by academic demands, peer relationships, emerging career concerns, and digital media engagement. Research suggests that problematic smartphone and social media use may undermine life satisfaction by displacing offline activities, disrupting self-regulation, and reducing perceived life balance (Hawi & Samaha, 2017; Vujić & Szabo, 2022). Thus, life

satisfaction provides a theoretically grounded indicator for assessing well-being among young adults.

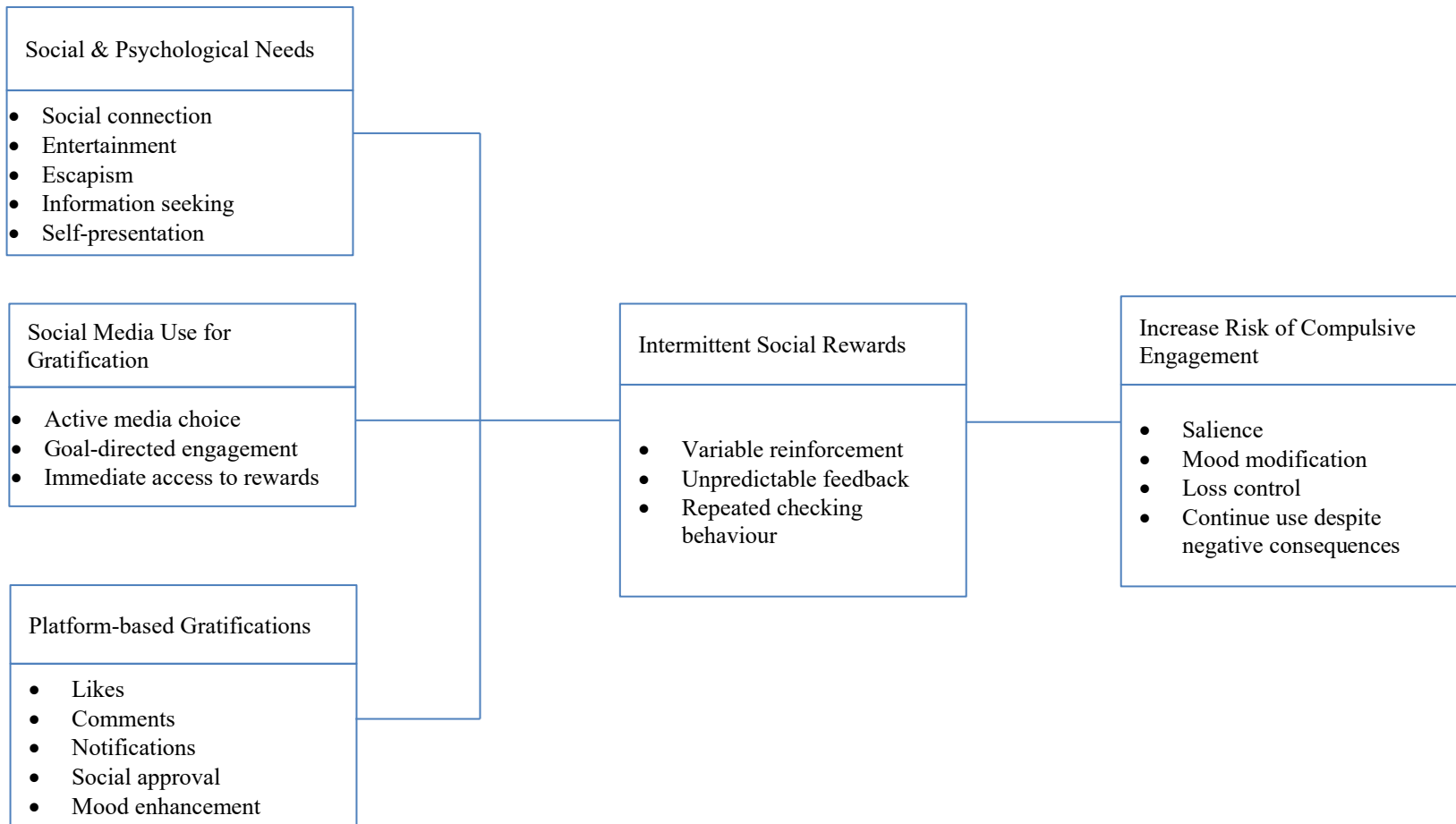
## 1.2 Social Media Addiction

Social media addiction is commonly conceptualised as a behavioural addiction characterised by excessive and compulsive engagement with social networking platforms, impaired control, preoccupation, and continued use despite negative consequences (Andreassen et al., 2016). Consistent with broader addiction models, SMA reflects key components of behavioural addiction, including salience, mood modification, tolerance, withdrawal, conflict, and relapse (Griffiths, 2005). These features distinguish addiction-like use from high but non-problematic engagement.

Theoretical accounts of SMA commonly draw on uses and gratifications theory, self-regulation failure models, and reinforcement-based learning perspectives. Uses and gratifications theory posits that people engage with media to satisfy needs such as entertainment, social connection, and escapism (Katz et al., 1973). As illustrated in Figure 1, these needs may motivate gratification-seeking social media use, while platform-based rewards such as likes, comments, and notifications provide immediate reinforcement that sustains repeated engagement. Self-regulation perspectives propose that repeated exposure to rewarding stimuli can erode impulse control and increase vulnerability to compulsive use (Baumeister & Vohs, 2007). Reinforcement-based learning models further suggest that intermittent social rewards strengthen habitual use through variable reinforcement schedules, thereby increasing the risk of compulsive engagement over time (Skinner, 1965).

From these perspectives, social media platforms provide immediate social and affective rewards that reinforce repeated use and may gradually undermine self-control (Błachnio et al., 2016). Over time, individuals may increasingly use social media as a primary strategy for mood regulation, thereby heightening vulnerability to compulsive engagement (Andreassen et al., 2016). Importantly, SMA is defined not by frequency of use alone but by psychological dependence and functional impairment (Hawi & Samaha, 2017).

SMA has been linked to a range of adverse outcomes, including higher stress, depressive symptoms, anxiety, reduced self-esteem, and lower life satisfaction (Błachnio et al., 2016; Eladl & Al Musawi, 2021; Hawi & Samaha, 2017). These associations suggest that social media addiction may undermine well-being through time displacement as well as processes such as social comparison, emotional dysregulation, and perceived loss of control. Accordingly, SMA is increasingly used to examine psychosocial costs of digital engagement, especially in non-clinical populations.



**Figure 1.** Uses and Gratifications-Based Pathway to Social Media Addiction.

*Note.* Adapted from Uses and Gratifications Theory (Katz et al., 1973).

Young adults are particularly relevant to this literature because they are among the most active users of social media and are developmentally positioned in a period marked by identity exploration, heightened social comparison, and sensitivity to peer evaluation (Koçak et al., 2021). Studies frequently report higher levels of problematic social media use among university students and young adults, with evidence of associations with academic impairment, emotional distress, and reduced life satisfaction (Hawi & Samaha, 2017; Kula et al., 2020). In this developmental context, SMA may represent a salient risk factor for diminished well-being.

### **1.3 Smartphone Addiction**

Smartphone addiction is commonly conceptualised as a behavioural addiction involving excessive and compulsive smartphone use accompanied by impaired control, preoccupation, and continued engagement despite negative functional consequences (Kwon et al., 2013). Although smartphones are multifunctional devices, addiction-like use patterns resemble other non-substance-related addictions, particularly with respect to salience, tolerance, withdrawal, and functional impairment (Hawi & Samaha, 2017). Conceptually, SPA emphasises psychological dependence and maladaptive self-regulation rather than high frequency of use alone (Billieux et al., 2015).

Theoretical explanations of SPA typically draw on self-regulation failure models, reinforcement learning mechanisms, and compensatory use frameworks. Self-regulation accounts propose that repeated engagement with immediately rewarding features can weaken inhibitory control and increase compulsive checking (Baumeister & Vohs, 2007). Reinforcement-based perspectives emphasise intermittent notifications and variable reward schedules as drivers of habitual use and tolerance (Cao et al., 2021). Compensatory use frameworks further suggest that smartphones may be used to manage negative affect, boredom, or stress, reinforcing maladaptive coping and addiction-like patterns (Vujić & Szabo, 2022).

Problematic smartphone use is associated with multiple adverse outcomes, including increased stress, emotional exhaustion, depressive symptoms, anxiety, and lower life satisfaction (Eladl & Al Musawi, 2021; Cao et al., 2021; Hawi & Samaha, 2017; Samaha & Hawi, 2016). These associations may reflect mechanisms such as sleep disruption, impaired attentional control, and emotional dependence on digital interaction (Cao et al., 2021; Billieux et al., 2015; Vujić & Szabo, 2022). As a result, SPA has become an important construct for examining the psychosocial consequences of pervasive mobile technology use.

SPA is particularly salient among young adults due to high reliance on smartphones during a period characterised by identity formation and academic or occupational transitions, as well as heightened sensitivity to social evaluation (Koçak et al., 2021). Research consistently finds elevated SPA among university students and young adults, with links to academic impairment, psychological distress, and diminished life satisfaction (Hawi & Samaha, 2017; Koçak et al., 2021).

Recent work also highlights SPA in the post-pandemic digital environment, where increased reliance on mobile technology may blur boundaries between functional and maladaptive use (Zhu et al., 2025). Contemporary evidence continues to show associations between SPA and reduced life satisfaction, often mediated by emotional distress and impaired self-regulation (Zhu et al., 2025). Overall, the literature supports SPA as a theoretically grounded construct with important implications for young adults' psychological well-being.

In sum, examining SMA and SPA together is preferable to studying either construct in isolation, as they represent related yet conceptually distinct forms of problematic digital engagement. Smartphones function as multifunctional delivery devices for a wide range of activities, while social media use reflects a more specific behavioural domain that may carry unique psychosocial risks. If these constructs are examined separately, the adverse effects of platform-specific behaviours may be misattributed to the device itself, or vice versa. Integrating both constructs within a single framework, therefore, enhances conceptual clarity, enables more precise interpretation of associations with life satisfaction, and strengthens the overall contribution of the study to the behavioural addiction literature.

#### **1.4 Functional and Problematic Use of Smartphones and Social Media**

Recent scholarship has emphasised the need for conceptual caution in interpreting excessive digital technology use. Although high levels of smartphone or social media engagement may be associated with negative outcomes, such patterns do not necessarily constitute addiction. From a behavioural addiction perspective, addiction refers to a more severe condition characterised by impaired control, compulsive involvement, continued use despite negative consequences, and significant functional impairment (Billieux et al., 2015; Griffiths, 2005). Accordingly, excessive or frequent use alone should not be taken as sufficient evidence of addiction, particularly in relation to everyday digital technologies.

A related distinction concerns problematic use versus addictive use. Problematic use is often used more broadly to describe maladaptive, excessive, or dysregulated engagement that interferes with daily functioning but may not fully reflect the core features of addiction (Billieux et al., 2015; Kardefelt-Winther, 2014). In this sense, problematic use may sometimes reflect compensatory or maladaptive coping in response to boredom, loneliness, or stress rather than a distinct addictive disorder (Kardefelt-Winther, 2014). This distinction is important because it avoids over-pathologising common patterns of digital behaviour while preserving conceptual clarity in the study of technology-related risks.

A further distinction concerns functional versus dysfunctional engagement. Smartphone and social media use may be frequent yet remain adaptive when they serve academic, social, organisational, or informational purposes. This issue is especially relevant for smartphones, which are multifunctional tools that support communication, coordination, and access to everyday resources (Billieux et al., 2015; Panova & Carbonell, 2018). By contrast, engagement becomes dysfunctional when it undermines self-regulation, displaces important offline activities, or interferes with psychological, academic, or social functioning. Recognising these distinctions strengthens the

conceptual basis for examining SMA and SPA as related but non-equivalent forms of digital engagement. It supports a more precise interpretation of their implications for well-being.

## **1.5 Hypothesis Development**

### **1.5.1 The Effects of Social Media Addiction on Satisfaction with Life**

Empirical research examining the relationship between SMA and LS generally indicates a negative association, although effect sizes and statistical significance vary across studies. Research in university samples commonly reports that higher SMA is associated with lower LS, often with small-to-moderate effects (Błachnio et al., 2016; Hawi & Samaha, 2017; Şahin, 2017). For example, Şahin (2017) reported a moderate negative bivariate association and a small but significant multivariate prediction of LS by SMA dimensions, indicating that addiction-like social media behaviours account for meaningful, though not dominant, variance in life satisfaction.

However, some studies report non-significant direct effects after including theoretically proximal psychosocial variables. Hawi and Samaha (2017) found that the SMA-LS association was not significant when self-esteem was modelled as a mediator, suggesting that SMA may undermine life satisfaction indirectly through self-evaluative processes rather than via a direct pathway. Similar mediation-based findings suggest that variation across studies may reflect analytic model specification rather than truly inconsistent evidence (Koçak et al., 2021).

Although the predominant pattern is negative, contextual exceptions have been observed. In a Malaysian university sample collected during the COVID-19 period, LS positively predicted SMA with a small effect, suggesting that under conditions of restricted mobility and increased reliance on online interaction, social media may serve temporary compensatory functions (Xuan & Che Amat, 2021). These findings underscore context sensitivity and caution against universal interpretation.

Grounded in behavioural addiction theory, which emphasises impaired control and functional consequences (Griffiths, 2005), and supported by the predominant negative empirical pattern, the following hypothesis is proposed:

H<sup>1</sup>: Social media addiction will be negatively related to satisfaction with life among the participants.

### **1.5.2 The Effects of Smartphone Addiction on Satisfaction with Life**

Research examining SPA and LS generally reports a negative association among young adults and university student populations. Across studies, higher problematic smartphone use is associated with lower life satisfaction, typically with small-to-moderate effects (Hawi & Samaha, 2017; Koçak et al., 2021; Vujić & Szabo, 2022). Hawi and Samaha (2017), for instance, reported a significant negative association, indicating that smartphone addiction is a meaningful, though not exclusive, predictor of reduced life satisfaction.

Evidence further suggests that direct effects may diminish when relevant psychosocial variables are incorporated. Several studies indicate that the SPA-LS relationship is partially or fully mediated by stress, emotional distress, and self-regulatory failure, implying that smartphone addiction may reduce life satisfaction indirectly by impairing psychological functioning (Cao et al., 2021; Vujić & Szabo, 2022). In multivariate models, smartphone addiction typically accounts for a modest proportion of variance in life satisfaction, which remains practically meaningful given the multifactorial nature of LS and the ubiquity of smartphone use among young adults (Hawi & Samaha, 2017; Koçak et al., 2021). Recent post-pandemic studies continue to document negative associations, often via emotional distress and impaired self-regulation, suggesting that increased functional reliance has not eliminated potential well-being costs (Zhu et al., 2025).

Grounded in behavioural addiction theory and consistent with prevailing evidence, the following hypothesis is proposed:

H<sup>2</sup>: Smartphone addiction will be negatively related to satisfaction with life among the participants.

## **2 METHODS**

### **2.1 Design and Participants**

This study employed a cross-sectional design and administered an online survey to examine the relationships between Social Media Addiction (SMA), Smartphone Addiction (SPA), and Satisfaction with Life (LS) at a single time point (Creswell & Creswell, 2023). A total of  $N=414$  young adults in Malaysia aged 19 to 24 years old were recruited using purposive sampling, consistent with the study's focus on an age-defined group with high exposure to social media and smartphone use (Etikan et al., 2015). No minimum threshold for daily or intensive social media or smartphone use was imposed, as the study aimed to capture variation in SMA and SPA tendencies within a non-clinical young adult sample rather than restrict participation to heavy users only.

The sample was predominantly female (84.5%), with males comprising 15.5%. 66.4% of participants were aged 21-22 years, 24.6% were aged 23-24 years, and 8.9% were aged 19-20 years. This distribution is consistent with prior research on digital media engagement, technology-related addictive behaviour, and subjective well-being among young adults, particularly within higher education and emerging adulthood contexts (Hawi & Samaha, 2017; Koçak et al., 2021; Satıcı et al., 2023).

### **2.2 Instrument**

Social Media Addiction was measured using the Malay version of the Social Media Addiction Test (SMAT-17) originally developed by Esgi (2016). The Malay version was translated and culturally adapted for the Malaysian context by Harun et al. (2024) and comprises 17 items organised into four components: Time, Social Sharing, Occupation, and Health. Items are rated on a four-point

frequency scale ranging from *never* to *always*, reflecting the frequency of respondents' social media-related behaviours. The Malay SMAT-17 has demonstrated high internal consistency reliability and satisfactory content and construct validity, supporting its use in Malaysian samples (Harun et al., 2024).

Smartphone Addiction was assessed using the Smartphone Addiction Scale–Short Version (SAS-SV) developed by Kwon et al. (2013) and translated into Malay by Ching et al. (2020). The SAS-SV consists of 10 items and has been widely employed to evaluate the prevalence and correlates of smartphone addiction across diverse populations (Dharmadhikari et al., 2019). Responses are recorded on a six-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree). The scale captures key dimensions of problematic smartphone use, including excessive use, psychosocial impacts, health-related concerns, preoccupation, and technological dependence (Kwon et al., 2013).

Satisfaction with Life, the endogenous variable in this study, was measured using the Satisfaction with Life Scale (SWLS) developed by Diener et al. (1985) and translated into Malay by Swami and Chamorro-Premuzic (2009). The SWLS comprises five items rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scale has been extensively validated across cultural contexts and populations, consistently demonstrating strong psychometric properties, including reliability and construct validity (e.g., Laranjeira, 2012; López-Ortega et al., 2016; Swami & Chamorro-Premuzic, 2009).

### **2.3 Procedure**

Participants were recruited through an online survey disseminated via social media platforms, including Facebook groups, LinkedIn, X (formerly Twitter), and Instagram. Advertisements contained a direct link to the survey hosted on Google Forms. Recruitment relied on online self-selection, which may have contributed to differential response patterns across demographic groups, including a predominance of female participants.

Only participants who provided informed consent on the first page of the survey were allowed to proceed. Completion of the survey took approximately 7–15 minutes. The initial phase of data collection lasted two weeks; however, the number of responses was insufficient. The survey was re-administered after 1 month using the same procedures, and data collection continued for an additional 2 weeks. An early-versus-late respondent comparison using independent-samples t-tests indicated no statistically significant differences, suggesting minimal evidence of response-wave bias.

Upon completion, responses were exported to Microsoft Excel and transferred to SPSS (Version 29) for data screening and cleaning. The cleaned dataset was subsequently analysed using SmartPLS (Version 4.1.1.4).

### 3 RESULTS

#### 3.1 Measurement Model

Partial least squares structural equation modelling (PLS-SEM) was employed to assess the measurement properties of the study constructs. Social Media Addiction (SMA) was specified as a reflective–formative higher-order construct, comprising four reflective lower-order components: time, social sharing, occupation, and health. In contrast, Smartphone Addiction (SPA) and Satisfaction with Life (LS) were modelled as lower-order reflective constructs.

##### 3.1.1 Assessment of Measurement Model for Reflective Constructs

Following established PLS-SEM guidelines (Hair et al., 2021), the reflective measurement models (including the SPA, LS, and the four reflective components of SMA) were evaluated based on: (1) outer loadings, (2) internal consistency reliability, (3) convergent validity via average variance extracted (AVE), and (4) discriminant validity using the Heterotrait–Monotrait Ratio of Correlations (HTMT). A total of 11 indicators were removed due to negative loadings or loadings below the recommended threshold of .40. Following item deletion, standardised outer loadings ranged from .432 to .919, indicating acceptable indicator reliability. Internal consistency reliability was assessed using Cronbach's alpha ( $\alpha$ ), rho\_A ( $\rho_A$ ), and rho\_C ( $\rho_C$ ). The reliability estimates for all reflective constructs are summarised in Table 1. Although Cronbach's alpha and rho\_A values for the four reflective components of SMA were below the conventional .70 threshold, all corresponding composite reliabilities ( $\rho_C$ ) exceeded .70, meeting the recommended criteria for internal consistency reliability in PLS-SEM (Hair et al., 2021).

**Table 1.** Internal consistency, reliability, and Average Variance Extracted (AVE) for all reflective constructs.

	Cronbach's alpha	(rho A)	(rho C)	AVE
Satisfaction with Life	.826	.929	.866	.576
Smartphone Addiction	.843	.686	.855	.553
Reflective Components of Social Media Addiction				
Time	.615	.625	.793	.562
Social Sharing	.547	.561	.769	.529
Occupation	.573	.597	.822	.698
Health	.608	.628	.788	.555

Convergent validity was evaluated using AVE. After item deletion, AVE values for all reflective constructs ranged from .529 to .698, exceeding the recommended minimum of .50 and indicating that each construct explained more than 50% of its indicators' variance (Fornell & Larcker, 1981). Discriminant validity was assessed using the Heterotrait–Monotrait Ratio of Correlations (HTMT), as shown in Table 2. Relatively high HTMT values were observed among the four components of Social Media Addiction (SMA): time, social sharing, occupation, and health. This is theoretically expected, as these dimensions represent reflective lower-order components of the

same formative higher-order construct. In reflective–formative hierarchical models, strong associations among lower-order components reflect shared conceptual meaning rather than inadequate discriminant validity (Becker et al., 2012; Hair et al., 2021). The only HTMT value exceeding 1.00 was found between two lower-order dimensions within the SMA construct, suggesting substantial overlap within the same higher-order construct rather than a discriminant validity issue among the main study variables. Importantly, all four lower-order components demonstrated satisfactory discriminant validity with Satisfaction with Life (LS) and Smartphone Addiction (SPA), as all HTMT values involving these constructs were well below recommended thresholds ( $<.85$ ). This result indicates that Satisfaction with Life and Smartphone Addiction are empirically distinct from the four components of Social Media Addiction.

**Table 2.** Heterotrait-Monotrait Ratio of Correlations.

	Satisfaction with Life	Smartphone Addiction	Time	Social Sharing	Occupation	Health
Satisfaction with Life	-					
Smartphone Addiction	.167	-				
Reflective component of Social Media Addiction						
Time	.336	.405	-			
Social Sharing	.356	.623	.450	-		
Occupation	.208	.718	.780	1.115	-	
Health	.338	.643	.822	.950	.836	-

### 3.1.2 Assessment of Measurement Model for Formative Constructs

The measurement model of Social Media Addiction (SMA), specified as a formative construct, was evaluated by examining the significance and relevance of its four components and potential multicollinearity among them. In line with PLS-SEM guidelines, the assessment focused on variance inflation factor (VIF) values and bootstrapped t-statistics of the formative weights. Collinearity among the formative components was assessed using VIF. As presented in Table 3, all VIF values were below the recommended threshold of 3, indicating that multicollinearity was not a concern and that each component contributed distinct information to the formative construct (Hair et al., 2021). The significance and relevance of the formative indicators were further evaluated by inspecting the bootstrapped t-statistics of the outer weights. The results showed that all four components (i.e., Time, Social Sharing, Occupation, and Health) exhibited statistically significant weights. These findings support the relative importance of each component in forming the higher-order Social Media Addiction construct.

**Table 3.** Measurement properties for the formative construct of social media addiction.

Components of SMA	Weights	VIF	<i>t</i> -score	Sig.
Time	.298	1.615	31.816	.000
Social sharing	.305	1.835	37.212	.000
Occupations	.318	1.972	39.998	.000
Health	.337	1.927	34.566	.000

Overall, the measurement model demonstrated acceptable psychometric properties for both reflective and formative constructs. After item deletion, the reflective constructs showed satisfactory indicator reliability, composite reliability, convergent validity, and discriminant validity. Although some lower-order components of Social Media Addiction exhibited lower Cronbach's alpha and rho\_A values, their composite reliability and AVE met recommended thresholds. The formative measurement model further indicated that all four components of Social Media Addiction contributed significantly and were not affected by multicollinearity. Collectively, these findings support the adequacy of the measurement model and justify proceeding to the assessment of the structural model for hypothesis testing.

### 3.2 Structural Model

The present study followed Hair et al.'s (2021) hypothesis testing method for PLS SEM Structural Model analysis, focusing on four evaluation criteria: (1) identification of collinearity issues via Variance Inflation Factor (VIF), path coefficients of regression weights and *t*-test after bootstrapping, predictive accuracy via coefficient of determination scores ( $R^2$ ), and effect size ( $f^2$ ). The VIF values were examined to assess potential multicollinearity among the exogenous variables in the structural model. As shown in Table 4, the VIF values for both (SMA and SPA) are identical (VIF: 1.269), which are below the recommended threshold of <3.3. These results indicate that multicollinearity is not a concern in the structural model (Hair et al., 2021).

**Table 4.** Summary of structural model assessment.

Hypothesis	Relationship	VIF	Sample Mean (M)	Std. Beta	Std. Error	<i>t</i> -value	<i>p</i> value	$R^2$	Adj. $R^2$	$f^2$	Decision
H1	SMA → LS	1.269	-.360	-.371	.056	6.671	.000	.130	.126	.121	Supported
H2	SPA → LS	1.269	.251	.289	.145	1.994	.046	.130	.126	.077	Not Supported

Note. SMA: Social Media Addiction; SPA: Smartphone Addiction; LS: Life Satisfaction.

Results of the path coefficients as measured by regression weights and *t*-test after bootstrapping identified the significant negative effect of Social Media Addiction (SMA) on Satisfaction with Life ( $\beta = -.371$ ,  $t = 6.671$ ,  $p = .000$ ) and the positive effect of Smartphone Addiction (SPA) on the Satisfaction with Life ( $\beta = .289$ ,  $t = 1.994$ ,  $p < .05$ ). Observation on the  $R^2$  values for Satisfaction with Life indicates modest predictive accuracy (Cohen, 1988),  $R^2 = .130$ . The combined relationships of Social Media Addiction (SMA) and Smartphone Addiction (SPA) explained 13%

of the variance in the endogenous variable, Satisfaction with Life (LS). The  $f^2$  scores for the tested relationships indicate small effect sizes (Cohen, 1988). The  $f^2$  score for the effect of Social Media Addiction (SMA) on Satisfaction with Life was  $f^2 = .121$ , and Smartphone Addiction (SPA) on Satisfaction with Life was  $f^2 = .077$ . In conclusion, the structural model results, as indicated by the path coefficients, coefficients of determination, and effect sizes, reveal a significant negative effect of Social Media Addiction on Satisfaction with Life, thereby supporting  $H^1$ . In contrast, the results for  $H^2$  indicate a positive effect of Smartphone Addiction on Satisfaction with Life, which contradicts the hypothesised negative relationship.

#### 4 DISCUSSION

This study examined whether Social Media Addiction (SMA) and Smartphone Addiction (SPA) are associated with Satisfaction with Life (LS) among young adults. Consistent with the first hypothesis, the findings indicate that SMA is negatively related to LS. In contrast, the hypothesised negative association between SPA and LS was not supported. The structural model provides clear support for  $H^1$ , demonstrating that higher levels of social media addiction are associated with lower satisfaction with life. The standardised path coefficient for the SMA-LS relationship was negative and statistically significant ( $\beta = -.371, p < .001$ ), with a small-to-moderate effect size ( $f^2 = .121$ ). This finding is consistent with behavioural addiction perspectives (Billieux et al., 2015; Griffiths, 2005), which emphasise impaired control, compulsive engagement, and functional interference as mechanisms through which addictive behaviours undermine psychological well-being (Billieux et al., 2015; Griffiths, 2005). The result further suggests that addictive social media use may erode global life evaluations through processes such as social comparison, emotional dysregulation, and diminished self-worth, even when overall explanatory power remains modest ( $R^2 = .130$ ).

This pattern aligns closely with prior empirical research. Studies conducted among university students and young adults have consistently reported negative associations between social media addiction and satisfaction with life, typically with small-to-moderate effect sizes (Błachnio et al., 2016; Hawi & Samaha, 2017; Şahin, 2017). At the same time, previous research has shown that the direct effect of social media addiction may weaken when theoretically relevant psychosocial variables, such as self-esteem, are included in analytic models, suggesting that the relationship is often indirect and mechanism-driven (Hawi & Samaha, 2017). One plausible mechanism is upward social comparison, whereby users repeatedly evaluate themselves against idealised portrayals of appearance, lifestyle, and success presented on social media (Pedalino & Camerini, 2022; Saiphoo & Vahedi, 2019). This process is especially relevant on highly visual platforms such as Instagram and TikTok, where curated and appearance-focused content may intensify feelings of inadequacy, lifestyle envy, and dissatisfaction with one's own circumstances (Engeln et al., 2020; Pryde & Pritchard, 2022). Prior research has shown that Instagram browsing is associated with poorer body appreciation through upward comparison with influencers, and broader reviews similarly link appearance comparison on social media with body dissatisfaction and reduced well-being, particularly among young women (Pedalino & Camerini, 2022; Saiphoo & Vahedi, 2019). Given that the present sample was predominantly female, these comparison-based processes may be especially relevant for interpreting the negative association between SMA and LS, although this inference should be viewed cautiously because gender differences were not directly tested in the present study (Engeln et al., 2020; Pedalino & Camerini, 2022).

In contrast,  $H^2$  was not supported, as smartphone addiction was positively associated with satisfaction with life ( $\beta = .289, p < .05$ ), albeit with a small effect size ( $f^2 = .077$ ). This finding diverges from much of the existing literature, which typically reports negative or indirect associations between smartphone addiction and life satisfaction (Hawi & Samaha, 2017; Koçak et al., 2021). One plausible interpretation is that smartphone use among young adults may serve instrumental and compensatory functions, such as facilitating academic activities, maintaining social connections, and supporting daily organisation. Under certain conditions, these functions may buffer against dissatisfaction with life, even when patterns of use exhibit addiction-like features. Similar context-dependent findings have been reported in Malaysian samples, particularly during periods of heightened digital reliance, where life satisfaction has been shown to predict greater technology use (Xuan & Che Amat, 2021). From a theoretical perspective, this result is consistent with compensatory use frameworks, which propose that technology use may simultaneously reflect maladaptive dependence and adaptive coping, depending on contextual demands and functional outcomes (Billieux et al., 2015).

The Malaysian cultural context may explain why smartphone reliance did not uniformly predict lower life satisfaction. Malaysia is commonly described as a collectivistic society in which interpersonal connectedness, relational obligations, and social harmony are highly valued (De Netto et al., 2021). In such a context, smartphones may operate not merely as entertainment devices but as practical tools for sustaining family ties, peer communication, group coordination, and socially responsive presence in everyday life (Billieux et al., 2015; De Netto et al., 2021). When smartphone use supports these culturally valued relational functions, reliance on the device may be experienced as socially adaptive rather than purely dysfunctional, thereby weakening or even reversing its expected negative association with life satisfaction. This interpretation is also consistent with work indicating that Malaysians tend to emphasise interpersonal emotion regulation, relational maintenance, and less direct communication, all of which may make mobile-mediated connectivity particularly functional in daily life (De Netto et al., 2021).

Overall, the findings underscore an important conceptual distinction between social media addiction and smartphone addiction. While addictive social media use appears to be consistently detrimental to satisfaction with life, smartphone addiction does not uniformly reflect maladaptive outcomes. It may operate through more complex, context-sensitive pathways. In the Malaysian context, this complexity may partly reflect the role of smartphones as relational tools embedded in a collectivistic social environment. In contrast, social media platforms may expose young adults to more intense comparison-driven and self-evaluative pressures. Theoretically, this highlights the importance of avoiding overly broad conceptualisations of smartphone addiction and recognising the functional heterogeneity of smartphone-mediated behaviours. The results suggest that interventions aimed at enhancing young adults' well-being prioritise problematic social media engagement, while adopting a more nuanced approach to smartphone use that distinguishes harmful dependence from functional and contextually adaptive reliance.

Despite its contributions, this study has certain limitations and suggests avenues for further investigation. First, the study employed a cross-sectional research design, which limits the ability to draw causal inferences regarding the relationships between Social Media Addiction (SMA), Smartphone Addiction (SPA), and Satisfaction with Life (LS). Although PLS-SEM allows for

theory-driven modelling of directional paths, the temporal ordering of variables cannot be empirically established at a single time point. Future research should adopt longitudinal or panel designs to examine causal directionality and potential reciprocal relationships, particularly given evidence that technological use and well-being may influence each other dynamically over time.

Second, the study relied on purposive sampling and a predominantly female sample, which may restrict the generalizability of the findings. While this sampling strategy is appropriate for examining emerging adulthood and intensive technology use, it limits representativeness across gender. Future studies should consider probability-based or stratified sampling strategies, together with more demographically diverse and gender-balanced cohorts, to enhance external validity and permit subgroup analyses. Such work would be especially important for determining whether the positive association between smartphone addiction and life satisfaction observed in the present study is replicated among young men. Third, all variables were measured using self-report questionnaires, which are susceptible to common method variance, social desirability bias, and subjective misestimation of technology use. Although validated instruments were employed, reliance on a single data source may inflate observed associations. Future research should incorporate multi-method approaches, such as objective smartphone usage logs, time-tracking applications, or informant reports, alongside self-report measures, to triangulate findings and strengthen measurement validity.

In conclusion, this study advances understanding of digital behavioural addictions by showing that Social Media Addiction (SMA) and Smartphone Addiction (SPA) are not functionally equivalent in their associations with Satisfaction with Life (LS) among young adults in Malaysia. The findings indicate that addictive social media engagement is associated with lower LS, supporting the view that compulsive social media use constitutes a meaningful psychosocial risk factor that may undermine individuals' overall evaluations of their lives. In contrast, the positive association observed between SPA and LS highlights the complexity of mobile technology use and cautions against treating smartphone addiction as a uniformly maladaptive phenomenon.

From a theoretical perspective, these findings contribute to the behavioural addiction literature by providing evidence from the Malaysian context on two related but conceptually distinct forms of technology-related addictive behaviour. Specifically, the results show that SMA and SPA are differentially associated with life satisfaction, suggesting that these constructs should not be treated as interchangeable indicators of maladaptive digital engagement. In this way, the study contributes to growing calls for greater conceptual precision in understanding the well-being implications of different forms of technology-related behaviour. From a practical perspective, the findings suggest that efforts to improve young adults' well-being should prioritise problematic SMA, particularly patterns of use characterised by compulsivity and loss of control. At the same time, interventions addressing SPA should move beyond reductionist assumptions and instead promote adaptive smartphone use that supports daily functioning without reinforcing dependency. At the policy level, Malaysian universities may consider incorporating guidance on healthy digital habits, social media self-regulation, and balanced smartphone use into student orientation programmes or broader student well-being initiatives. Early preventive efforts are especially valuable in helping students manage compulsive online engagement and maintain healthier patterns of digital behaviour during the transition to university life. Overall, this study contributes empirical evidence

to ongoing debates on digital media use and well-being and underscores the need for differentiated, theory-informed approaches in both future research and applied psychological practice.

## **ACKNOWLEDGEMENTS**

The authors would like to thank Dr. Maisarah Mohd. Taib for her helpful comments and professional feedback on earlier versions of this manuscript. The authors also extend their sincere appreciation to Harun et al. (2024) for granting permission to use the Malay version of the SMAT-17 in this study to measure social media addiction.

## **AUTHOR CONTRIBUTIONS**

The first author was responsible for the study design, supervision of data collection, data analysis, and manuscript preparation. Authors 2, 3, 4, 5, 6, and 7 contributed to data collection, sourcing relevant information, and the initial stages of data entry and screening. All authors reviewed and approved the final version of the manuscript.

## **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest.

## **DATA AVAILABILITY STATEMENT**

The data that support the findings of this study are available from the corresponding author upon reasonable request. However, the data are not publicly accessible due to privacy and ethical considerations.

## **ETHICAL STATEMENT**

The study adhered to established ethical principles for research involving human participants, including the APA Ethical Principles of Psychologists (2017) and the Declaration of Helsinki (World Medical Association, 2013). Participation was voluntary, responses were collected anonymously, and data were handled securely in accordance with GDPR standards. Participants were informed of their right to withdraw at any time without penalty.

## **FUNDING**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## REFERENCES

- American Psychological Association. (2017). *Ethical principles of psychologists and code of conduct*. <https://www.apa.org/ethics/code>
- Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors, 30*(2), 252–262. <https://doi.org/10.1037/adb0000160>
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. <https://doi.org/10.1037/0003-066X.55.5.469>
- Ashari, Z. M., Hassan, H. S., Zainudin, N. F., & Jumaat, N. F. (2022). Internet addiction and its relationship with happiness and life satisfaction among university students. *Sains Humanika, 14*(3–2), 1–8. <https://doi.org/10.11113/sh.v14n3-2.2012>
- Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation. *Social and Personality Psychology Compass, 1*(1), 115–128. <https://doi.org/10.1111/j.1751-9004.2007.00001.x>
- Becker, J.-M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. *Long Range Planning, 45*(5–6), 359–394. <https://doi.org/10.1016/j.lrp.2012.10.001>
- Billieux, J., Maurage, P., Lopez-Fernandez, O., Kuss, D. J., & Griffiths, M. D. (2015). Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Current Addiction Reports, 2*, 156–162. <https://doi.org/10.1007/s40429-015-0054-y>
- Błachnio, A., Przepiórka, A., & Pantic, I. (2016). Association between Facebook addiction, self-esteem and life satisfaction: A cross-sectional study. *Computers in Human Behavior, 55*, 701–705. <https://doi.org/10.1016/j.chb.2015.10.026>
- Cao, J., Lim, Y., & Kodama, K. (2021). Smartphone addiction and life satisfaction: Mediating effects of sleep quality and self-health. *Global Journal of Health Science, 13*(3), 8–22. <https://doi.org/10.5539/gjhs.v13n3p8>
- Chen, I. -H., Pakpour, A. H., Leung, H., Potenza, M. N., Su, J. -A., Lin, C. -Y., & Griffiths, M. D. (2020). Comparing generalised and specific problematic smartphone/internet use: Longitudinal relationships between smartphone application-based addiction and social media addiction and psychological distress. *Journal of Behavioral Addictions, 9*(2), 410–419. <https://doi.org/10.1556/2006.2020.00023>

Ching, S. M., Lee, K. W., Yee, A. N., Sivaratnam, D., Hoo, F. K., Wan Sulaiman, W. A., Mohamed, M. H., Tan, K. -A., Danaee, M., Ali, N., & Suppiah, S. (2020). The Malay version of Smartphone Addiction Scale: Development, factor structure and validation of a short form for Malaysian adolescents. *Medical Journal of Malaysia*, 75(5), 561–567.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. <https://doi.org/10.4324/9780203771587>

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage Publications, Inc.

De Netto, P. M., Quek, K. F., & Golden, K. J. (2021). Communication, the heart of a relationship: Examining capitalisation, accommodation, and self-construal on relationship satisfaction. *Frontiers in Psychology*, 12, 767908. <https://doi.org/10.3389/fpsyg.2021.767908>

Dharmadhikari, S. P., Harshe, S. D., & Bhide, P. P. (2019). Prevalence and correlates of excessive smartphone use among medical students: A cross-sectional study. *Indian Journal of Psychological Medicine*, 41(6), 549–555. [https://doi.org/10.4103/IJPSYM.IJPSYM\\_75\\_19](https://doi.org/10.4103/IJPSYM.IJPSYM_75_19)

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95(3), 542–575. <https://doi.org/10.1037/0033-2909.95.3.542>

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), 71–75. [https://doi.org/10.1207/s15327752jpa4901\\_13](https://doi.org/10.1207/s15327752jpa4901_13)

Eladl, A., & Al Musawi, A. (2021). The correlation between social media addiction and life satisfaction among university students. *Journal of Hunan University Natural Sciences*, 48(9), 216–223.

Engeln, R., Loach, R., Imundo, M. N., & Zola, A. (2020). Compared to Facebook, Instagram use causes more appearance comparison and lower body satisfaction in college women. *Body Image*, 34, 38–45. <https://doi.org/10.1016/j.bodyim.2020.04.007>

Esgi, N. (2016). Development of Social Media Addiction Test (SMAT17). *Journal of Education and Training Studies*, 4(10), 174–181. <https://doi.org/10.11114/jets.v4i10.1803>

Etikan, I., Musa, S. A., & Alkassim, R. S. (2015). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4. <https://doi.org/10.11648/j.ajtas.20160501.11>

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50. <https://doi.org/10.2307/3151312>

Griffiths, M. (2005). A 'components' model of addiction within a biopsychosocial framework. *Journal of Substance Use*, 10(4), 191–197. <https://doi.org/10.1080/14659890500114359>

- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). Sage Publications, Inc.
- Harun, M. F., Nik Adnan, N. N. R. N. A., Maarif, F. A., Kamal, K. N., & Hanisofian, S. M. (2024). Psychometric properties of the Malay-version of Social Media Addiction Test (SMAT17): The international test commission approach. *Jurnal Psikologi Malaysia*, 38(3), 167–177.
- Hawi, N. S., & Samaha, M. (2017). The relations among social media addiction, self-esteem, and life satisfaction in university students. *Social Science Computer Review*, 35(5), 576–586. <https://doi.org/10.1177/0894439316660340>
- Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. *Computers in Human Behavior*, 31, 351–354. <https://doi.org/10.1016/j.chb.2013.10.059>
- Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *Public Opinion Quarterly*, 37(4), 509–523. <https://doi.org/10.1086/268109>
- Koçak, O., İlme, E., & Younis, M. Z. (2021). Mediating role of satisfaction with life in the effect of self-esteem and education on social media addiction in Turkey. *Sustainability*, 13(16), 9097. <https://doi.org/10.3390/su13169097>
- Kula, H., Ayhan, C., Soyer, F., & Kaçay, Z. (2020). The relationship between smartphone addiction and life satisfaction: Faculty of Sport Sciences students. *International Journal of Psychology and Educational Studies*, 7(1), 86–95. <https://doi.org/10.17220/ijpes.2020.01.008>
- Kwon, M., Kim, D. -J., Cho, H., & Yang, S. (2013). The Smartphone Addiction Scale: Development and validation of a short version for adolescents. *PLOS ONE*, 8(12), e83558. <https://doi.org/10.1371/journal.pone.0083558>
- Laranjeira, C. A. (2012). The effects of perceived stress and ways of coping in a sample of Portuguese health workers. *Journal of Clinical Nursing*, 21(11–12), 1755–1762. <https://doi.org/10.1111/j.1365-2702.2011.03948.x>
- Lopez-Fernandez, O. (2018). Generalised versus specific internet use-related addiction problems: A mixed methods study on internet, gaming, and social networking behaviours. *International Journal of Environmental Research and Public Health*, 15(12), 2913. <https://doi.org/10.3390/ijerph15122913>
- López-Ortega, M., Torres-Castro, S., & Rosas-Carrasco, O. (2016). Psychometric properties of the Satisfaction with Life Scale (SWLS): Secondary analysis of the Mexican health and aging study. *Health and Quality of Life Outcomes*, 14, 170. <https://doi.org/10.1186/s12955-016-0573-9>
- Panova, T., & Carbonell, X. (2018). Is smartphone addiction really an addiction? *Journal of Behavioral Addictions*, 7(2), 252–259. <https://doi.org/10.1556/2006.7.2018.49>

Pavot, W., & Diener, E. (1993). Review of the Satisfaction with Life Scale. *Psychological Assessment*, 5(2), 164–172. <https://doi.org/10.1037/1040-3590.5.2.164>

Pedalino, F., & Camerini, A. -L. (2022). Instagram use and body dissatisfaction: The mediating role of upward social comparison with peers and influencers among young females. *International Journal of Environmental Research and Public Health*, 19, 1543. <https://doi.org/10.3390/ijerph19031543>

Pryde, S., & Prichard, I. (2022). TikTok on the clock but the #fitspo do not stop: The impact of TikTok fitspiration videos on women's body image concerns. *Body Image*, 43, 244–252. <https://doi.org/10.1016/j.bodyim.2022.09.004>

Şahin, C. (2017). The predictive level of social media addiction for life satisfaction: A study on university students. *Turkish Online Journal of Educational Technology*, 16(4), 120–125.

Saiphoo, A. N., & Vahedi, Z. (2019). A meta-analytic review of the relationship between social media use and body image disturbance. *Computers in Human Behavior*, 101, 259–275. <https://doi.org/10.1016/j.chb.2019.07.028>

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>

Satici, B., Kayis, A. R., & Griffiths, M. D. (2023). Exploring the association between social media addiction and relationship satisfaction: Psychological distress as a mediator. *International Journal of Mental Health and Addiction*, 21, 2037–2051. <https://doi.org/10.1007/s11469-021-00658-0>

Skinner, B. F. (1965). *Science and human behavior*. Simon and Schuster Inc.

Swami, V., & Chamorro-Premuzic, T. (2009). Psychometric evaluation of the Malay Satisfaction with Life Scale. *Social Indicators Research*, 92, 25–33. <https://doi.org/10.1007/s11205-008-9295-7>

Vujić, A., & Szabo, A. (2022). Hedonic use, stress, and life satisfaction as predictors of smartphone addiction. *Addictive Behaviors Reports*, 15, 100411. <https://doi.org/10.1016/j.abrep.2022.100411>

World Bank. (2018). *Malaysia's digital economy: A new driver of development*. <https://openknowledge.worldbank.org/bitstream/handle/10986/30383/129777.pdf>

World Medical Association. (2013). Declaration of Helsinki: Ethical principles for medical research involving human subjects. *JAMA*, 310(20), 2191–2194. <https://doi.org/10.1001/jama.2013.281053>

Xuan, Y. J., & Che Amat, M. A. (2021). The gender differences in the relationships between self-esteem and life satisfaction with social media addiction among university students. *Asian Social Science*, 17(11), 48–56. <https://doi.org/10.5539/ass.v17n11p48>

Yi, C. W., & Ahmad, Y. (2023). Relationships between social media addiction and self-esteem among university students in Malaysia. *Journal of Human Development and Communication*, 12, 27–34. <https://doi.org/10.58915/johdec.v12.2023.630>

Zhu, C., Li, S., & Zhang, L. (2025). The impact of smartphone addiction on mental health and its relationship with life satisfaction in the post-COVID-19 era. *Frontiers in Psychiatry*, 16, 1542040. <https://doi.org/10.3389/fpsy.2025.1542040>