Structural Equation Modeling of Social Media Addiction Based on Subjective Well-Being with the Mediating Role of Cognitive Emotion Regulation Difficulties

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Article Info	ABSTRACT
Article type: *Original Research* **How to cite this article:** 	**Objective:** The aim of this study was to model the structural equation of social media addiction based on subjective well-being with the mediating role of cognitive emotion regulation difficulties. **Methods and Materials:** This was an applied study using a descriptive-correlational design based on structural equation modeling. From a statistical population of 98,562 undergraduate students enrolled at the North Branch of Islamic Azad University, a sample of 403 students was selected through multi-stage cluster random sampling. Participants responded to the Mobile-based Social Networks Addiction Questionnaire by Khajeh Ahmadi et al. (2016), the Subjective Well-Being Scale (SWS) by Keyes and Magyar-Moe (2003), and the Difficulties in Emotion Regulation Scale (DERS) by Gratz and Roemer (2004). Data analysis was performed using structural equation modeling in SPSS version 26 and AMOS version 24. **Findings:** The findings showed that the direct paths from subjective well-being (emotional, psychological, social) and cognitive emotion regulation difficulties to social media addiction were positive and statistically significant (P < .01). Subjective well-being (emotional, psychological, social) also indirectly affected social media addiction through cognitive emotion regulation difficulties; thus, cognitive emotion regulation difficulties played a mediating role in this model. **Conclusion:** These findings highlight that students with lower levels of subjective well-being and greater difficulties in regulating their emotions are more likely to become addicted to social media. It can be concluded that cognitive emotion regulation difficulties may serve as a key factor in preventing social media dependence and in enhancing the quality of life among students. ***Keywords:*** *social media addiction, subjective well-being (emotional, psychological, social), cognitive emotion regulation difficulties.*

1. Introduction

Across the past decade, social media platforms have evolved from optional communication channels into ubiquitous socio-technical environments that structure everyday routines, identity work, and interpersonal regulation of affect for adolescents and young adults. While these affordances enable connection and information exchange at scale, they have also coincided with rising concern over compulsive or dysregulated patterns of use commonly labeled social media addiction (SMA)—a constellation marked by salience, mood modification, tolerance, withdrawal, conflict, and relapse-like cycles that parallel other behavioral addictions (Quaglieri et al., 2021; Roberts & David, 2021). Converging evidence indicates that SMA is not merely a benign time sink; it predicts decrements in academic performance, sleep health, and psychosocial functioning, and frequently co-occurs with emotion dysregulation, cognitive intrusions, and stress-reactive coping styles (Roberts & David, 2021; Sánchez-Fernández et al., 2023; Wang et al., 2023). A pressing theoretical and empirical task, therefore, is to clarify how subjective well-being (SWB)—encompassing emotional, psychological, and social components—relates to SMA, and whether difficulties in emotion regulation, particularly at the level of cognitive regulation processes, help explain (i.e., mediate) these links (Steinberger & Kim, 2023; Zhao, 2021).

Subjective well-being is commonly parsed into (a) emotional well-being (balance of positive/negative affect and life satisfaction), (b) psychological well-being (eudaimonic functioning such as purpose, autonomy, and mastery), and (c) social well-being (integration, acceptance, contribution, and social actualization). Lower SWB—whether indexed by elevated negative affect, diminished purpose in life, or perceived alienation—has been repeatedly associated with problematic technology use, including SMA, in adolescent and university samples across cultural contexts (Koç & Turan, 2021; Zhang et al., 2022; Zhao, 2021). For instance, large-sample studies suggest that specific use patterns and intensity of engagement interact with dispositional vulnerabilities to forecast SWB decrements, thereby situating SMA within a broader transactional model of person–environment fit and self-regulation demands (Koç & Turan, 2021; Sánchez-Fernández et al., 2023). Pandemic-era stressors further amplified these dynamics by increasing screen time and reliance on mediated interaction as compensatory social support, with concomitant risks for mood dysregulation and addictive trajectories among adolescents (Kingsley, 2024). In parallel, regionally focused investigations link SMA to higher psychological distress and compromised well-being in secondary-school and university cohorts, underscoring the relevance of developmental stage and local ecologies (Al-musawi, 2024; Rustamov, 2023). Together, these strands motivate fine-grained models that integrate SWB dimensions with proximal regulatory mechanisms to explain who is most vulnerable to SMA and why (Steinberger & Kim, 2023; Zhao, 2021).

Emotion regulation (ER)—the processes by which individuals monitor, evaluate, and modify emotional reactions—features centrally in prominent accounts of behavioral addictions. Multiple studies suggest that habitual reliance on maladaptive ER strategies (e.g., rumination, catastrophizing, suppression) and reduced capacity for adaptive strategies (e.g., cognitive reappraisal, problem-focused coping) are characteristic of individuals with problematic social media use (Özer et al., 2023; Quaglieri et al., 2021). Computational and network-based modeling work further indicates that feedback loops among affective states, app-driven cues, and regulatory responses can stabilize maladaptive equilibria in which social media becomes a default instrument for mood repair, thereby entrenching addictive patterns (Fokker et al., 2021). Experimental psychophysiology also links internet-related addictive tendencies to altered cortical markers of ER choice: adolescents demonstrating lower use of reappraisal show reduced frontal alpha asymmetry—an index associated with approach–withdrawal tendencies—suggesting a neurocognitive correlate of ER deficits in the digital domain (Yan et al., 2022). Complementing these mechanistic insights, adolescent clinical and counseling research consistently documents that ER difficulties partially mediate the association between psychosocial stressors and problematic digital engagement, including excessive gaming and social media use (Giordano et al., 2022; Malik et al., 2023). These convergences position ER—especially its cognitive components—as a theoretically plausible mediator linking SWB and SMA.

Beyond intrapersonal regulation, social-cognitive processes embedded in platform architectures also shape the SWB–SMA nexus. Social comparison of ability, algorithmically intensified by curated feeds, and fear of missing out (FoMO) have been identified as proximal drivers that erode well-being and escalate compulsive checking, notifications salience, and perseverative thoughts about online interactions (Malik et al., 2023; Steinberger &

Kim, 2023). Recent work in adolescent samples highlights FoMO and peer ostracism as stressors that activate darker personality pathways (e.g., Machiavellianism, narcissism, psychopathy), which in turn predict elevated SMA—a pattern pointing to complex person–platform–peer transactions (Turan, 2024). In the broader ecosystem, loneliness and emotion dysregulation have been found to co-mediate associations between FoMO and maladaptive outcomes, positioning SMA both as a coping attempt and as a stressor that rebounds on SWB (Türk & Koçyiğit, 2025). Such findings encourage integrated models in which SWB deficits heighten susceptibility to social-cognitive triggers (FoMO, comparison), which then burden cognitive ER systems, consolidating addictive engagement patterns.

Parallel literature focuses explicitly on the directional claims between SMA and health-relevant outcomes critical to well-being. Among university students, SMA covaries with psychological distress and eating-related dysregulation; both associations are consistent with maladaptive ER accounts in which digital engagement serves as short-term mood regulation while worsening long-term functioning (Huang et al., 2023). In occupational contexts, SMA has been linked to poorer sleep and downstream performance decrements, a pattern plausibly explained by bedtime procrastination, nocturnal arousal, and disrupted recovery cycles—all processes tightly coupled with ER failures (Gong & Liu, 2023; Wang et al., 2023). Systematic reviews of problematic internet use in student populations consolidate these threads, identifying ER-related traits and stress reactivity among the strongest predictive factors above and beyond sociodemographics (Sánchez-Fernández et al., 2023). These convergent data support a mediational architecture in which ER difficulties convey the effect of SWB deficits onto SMA risk.

Within developmental and cultural psychology, family, spiritual, and educational contexts intersect with SWB and ER to shape digital behavior. Population-based studies in Chinese adolescents show that demographic characteristics, family environment, and psychosocial factors jointly contribute to internet addiction risk, implicating familial scaffolding of ER and social competence pathways (Zhang et al., 2022). Other adolescent-focused research models spiritual health and emotional well-being as protective resources that reduce addiction proneness, partially through their roles in promoting adaptive regulation and meaning-making (Naderifar et al., 2023; Seddigh et al., 2022). In high-school cohorts, cognitive flexibility and self-efficacy—constructs closely aligned with psychological well-being—

appear to buffer SMA risk, again emphasizing that eudaimonic resources may fortify ER capabilities under digital temptation (Negahdari & Sayf, 2022). These findings dovetail with university-based evidence indicating that emotional intelligence and self-regulation predict academic outcomes amid SMA pressures, linking intrapersonal competencies with both performance and well-being (Roberts & David, 2021). Thematically, across developmental stages and settings, SWB resources and ER capacities emerge as mutually reinforcing determinants of healthier digital engagement.

Despite the accumulating evidence, several conceptual and methodological gaps motivate the present study. First, many studies treat SWB as a unitary construct or rely on narrow indicators (e.g., affect balance alone), limiting insight into how emotional, psychological, and social components independently and jointly relate to SMA (Koç & Turan, 2021; Zhao, 2021). Second, although ER difficulties are frequently implicated, work that centers specifically on cognitive emotion regulation—planning, reappraisal, cognitive flexibility, and beliefs about emotions—as a mediating mechanism is comparatively sparse, especially in non-Western university samples (Mohtadin et al., 2023; Özer et al., 2023; Quaglieri et al., 2021). Third, the field requires stronger causal inference: while cross-sectional structural models are informative, triangulation with computational, longitudinal, and experimental paradigms is necessary to advance explanatory depth (Fokker et al., 2021; Giordano et al., 2022). Addressing these limitations calls for studies that (a) operationalize SWB in its tripartite form, (b) measure cognitive ER difficulties with validated instruments, and (c) test comprehensive structural models spanning direct and indirect pathways to SMA across diverse student populations (Sánchez-Fernández et al., 2023; Yan et al., 2022).

There is also a need to reconcile heterogeneity across findings by considering boundary conditions and co-occurring psychosocial processes. For example, while some data suggest that higher social integration protects against SMA by reducing loneliness and comparison pressure, other reports indicate that hyper-socialized digital ecologies may paradoxically exacerbate FoMO, especially in adolescents navigating identity formation (Kingsley, 2024; Steinberger & Kim, 2023). Similarly, the role of aggression and externalizing tendencies—as both outcomes of stress induced by SMA and mediators linking SMA to diminished well-being—complicates simple linear models and

underscores the interplay between ER, impulse control, and social context (Rustamov, 2023). In a related vein, curriculum-level and campus-climate factors influence cyber-violence exposure and nomophobia, which are themselves associated with ER difficulties and problematic use, suggesting multi-level targets for intervention beyond the individual (Taghvaei et al., 2023). Taking stock of these cross-cutting influences can strengthen structural models by situating person-level variables (SWB, ER) within broader networks of social risk and protection.

Finally, applied implications hinge on whether ER functions as a mechanistic bridge between SWB and SMA. If so, interventions that enhance cognitive ER—such as training in reappraisal, attentional redeployment, and metacognitive awareness—may attenuate the translation of low SWB into compulsive digital behavior. Preliminary studies connecting ER-focused programs and reduced harmful internet use are promising in this regard (Mohtadin et al., 2023). Moreover, culturally responsive prevention efforts can leverage spiritual-health and eudaimonic development pathways shown to buffer addiction readiness and promote resilience, especially in adolescence when regulatory systems are still consolidating (Naderifar et al., 2023; Seddigh et al., 2022; Zhang et al., 2022). Given the centrality of social-cognitive triggers such as FoMO and comparison, psychoeducation that reframes algorithmic cues and normalizes disconnection may also protect SWB while reducing regulatory load (Malik et al., 2023; Steinberger & Kim, 2023; Türk & Koçyiğit, 2025).

Against this backdrop, the present study advances the literature by modeling SMA as a function of emotional, psychological, and social well-being with the mediating role of difficulties in cognitive emotion regulation in a university student sample.

2. Methods and Materials

2.1. Study Design and Participants

This study was fundamental in terms of research type and, given the nature of the subject, followed a descriptive-correlational design based on structural equation modeling (SEM). The statistical population consisted of all undergraduate students of the North Tehran Branch of Islamic Azad University during the 2024–2025 academic year, totaling 98,562 students. To determine the sample size, based on studies related to correlational research using SEM and the perspective of Kline (2005)—who stated that in SEM, an acceptable sample size is calculated by multiplying

the number of observed indicators of the predictor variables by 10 for small samples and by 20 for large samples, with a minimum of 200 participants—the present study, considering 29 indicators in total, required at least 290 and at most 580 participants. Considering the large diversity of the statistical population, to increase sampling accuracy and reduce Type I error, a sample of 403 undergraduate students was selected through multi-stage cluster random sampling.

During the implementation phase, out of the 10 faculties at the North Tehran Branch of Islamic Azad University, the faculties of Humanities, Management, and Foreign Languages were randomly selected. To access the study sample, the researcher attended these faculties and selected five undergraduate classes from each discipline. The research questionnaires were then distributed among students who were willing to participate. The researcher provided clear information about the study procedure and obtained their informed consent to participate. Participants were assured of the confidentiality of their personal information, which was considered a key ethical aspect of this study.

2.2. Measures

Mobile-based Social Networks Addiction Questionnaire: To measure social media addiction, the questionnaire developed by Khajeh Ahmadi et al. (2016) was used. This instrument has 23 items and four subscales: individual performance, time management, self-control, and social relationships. It is rated on a five-point Likert scale ranging from 1 (very low) to 5 (very high), yielding scores from 23 to 115, where higher scores indicate greater social media addiction. Khajeh Ahmadi et al. (2016) validated the questionnaire, reporting acceptable content, face, and construct validity. They also reported a Cronbach's alpha of 0.834, indicating good internal consistency. In the present study, Cronbach's alpha was 0.91.

Subjective Well-Being Scale (SWS) by Keyes and Magyar-Moe (2003): This instrument assesses three dimensions of subjective well-being: emotional, psychological, and social. It consists of three separate subscales, each scored independently, and higher scores indicate higher levels of the respective construct.

- *Emotional Well-Being Subscale:* This 12-item questionnaire measures positive and negative emotions experienced in the month preceding the study. Responses are given on a five-point Likert scale from 1 (all the time) to 5 (never). All negative

emotion items except item 5 are reverse scored. The possible score range is 16–56.

- *Psychological Well-Being Subscale:* This 19-item subscale measures six components: self-acceptance, purpose in life, environmental mastery, positive relations with others, personal growth, and autonomy. Items 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18 are reverse scored. Responses are rated on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The possible score range is 18–126.

- *Social Well-Being Subscale:* This 15-item subscale measures five components: social coherence, social integration, social acceptance, social contribution, and social actualization. Items 3, 4, 5, 6, 11, 12, and 14 are reverse scored. Responses are rated on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). The possible score range is 15–105.

Golestani-Bakht (2007) validated this questionnaire on 57 participants, reporting a correlation coefficient of 0.78 for the overall scale and 0.76, 0.64, and 0.76 for the emotional, psychological, and social well-being subscales, respectively. Cronbach's alpha values were 0.80 for the entire questionnaire and 0.86, 0.80, and 0.61 for the emotional, psychological, and social well-being subscales, respectively. Discriminant validity was confirmed by a negative correlation of −0.52 with the short form of the Beck Depression Inventory. In the present study, Cronbach's alpha values were 0.71 for emotional well-being, 0.75 for psychological well-being, and 0.72 for social well-being.

Difficulties in Emotion Regulation Scale (DERS) by Gratz and Roemer (2004): This questionnaire consists of 36 items and measures six components: nonacceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. Items are rated on a five-point Likert scale from 1 (almost never) to 5 (almost always), with items 1, 2, 6, 7, 8, 10, 17, 20, 22, 24, and 34 reverse scored. Higher scores indicate greater difficulties in emotion regulation. Gratz and Roemer (2004) reported high internal consistency (Cronbach's alpha = 0.93) and alpha values above 0.80 for all six subscales. Besharat and Bazazian (2014) examined and confirmed the psychometric properties of the Persian version of this scale in clinical and non-clinical Iranian samples, reporting Cronbach's alpha coefficients ranging from 0.73 to 0.88 for nonacceptance, 0.72 to 0.89 for goal-directed behavior difficulties, 0.75 to 0.90 for impulse control difficulties, 0.76 to 0.85 for limited strategies, 0.70 to 0.90 for emotional clarity, and 0.79 to 0.92 for the total score. In the present study, Cronbach's alpha was 0.92.

2.3. Data Analysis

The collected data were analyzed using descriptive statistics (mean and standard deviation) in SPSS version 26 and structural equation modeling in AMOS version 24 to assess model fit. The data collection instruments are described above.

3. Findings and Results

In the present study, the sample consisted of 403 participants, including 334 women and 69 men. In addition, 158 participants were first-year undergraduates, 71 were second-year undergraduates, 113 were third-year undergraduates, and 61 were fourth-year undergraduates. The mean, standard deviation, skewness, and kurtosis values of the study variables are presented in Table 1.

Table 1

Means, Standard Deviations, Skewness, and Kurtosis of the Proposed Model Variables

Study variable	Mean	SD	Skewness (Statistic)	Skewness (SE)	Kurtosis (Statistic)	Kurtosis (SE)
Positive emotions	17.96	3.513	-0.268	0.122	-0.393	0.243
Negative emotions	17.55	4.583	0.332	0.122	-0.532	0.243
Emotional well-being	35.51	4.037	0.253	0.122	0.861	0.243
Self-acceptance	9.17	4.085	0.583	0.122	-0.263	0.243
Purpose in life	10.22	2.896	0.004	0.122	-0.122	0.243
Environmental mastery	8.72	3.279	0.483	0.122	-0.134	0.243
Positive relations with others	9.13	3.904	0.316	0.122	-0.697	0.243

Personal growth	8.34	3.367	0.353	0.122	-0.282	0.243
Autonomy	9.52	3.353	0.490	0.122	0.445	0.243
Psychological well-being	55.10	13.314	0.288	0.122	-0.444	0.243
Social coherence	11.78	3.414	-0.275	0.122	-0.138	0.243
Social integration	12.03	3.796	0.090	0.122	-0.245	0.243
Social acceptance	12.97	3.494	0.002	0.122	-0.166	0.243
Social contribution	9.91	3.901	0.337	0.122	-0.154	0.243
Social actualization (realism)	10.26	2.782	-0.013	0.122	-0.168	0.243
Social well-being	56.95	11.385	0.089	0.122	0.166	0.243
Nonacceptance of emotional responses	15.12	6.465	0.535	0.122	-0.550	0.243
Difficulties engaging in goal-directed behavior	15.35	5.348	0.096	0.122	-0.842	0.243
Impulse control difficulties	15.62	5.834	0.373	0.122	-0.515	0.243
Lack of emotional awareness	15.45	3.946	0.165	0.122	-0.072	0.243
Limited access to (emotion) regulation strategies	21.45	7.918	0.404	0.122	-0.739	0.243
Lack of emotional clarity	12.49	3.887	0.375	0.122	0.006	0.243
Difficulties in cognitive emotion regulation	95.42	25.337	0.272	0.122	-0.502	0.243
Individual performance	20.69	7.413	0.307	0.122	-0.465	0.243
Time management	16.07	5.481	0.089	0.122	-0.331	0.243
Self-control	10.56	3.412	0.055	0.122	-0.261	0.243
Social relationships	12.12	3.354	-0.144	0.122	-0.106	0.243
Social media addiction	59.24	15.817	0.035	0.122	-0.192	0.243

The results in Table 1 report the mean and standard deviation of the study variables. The skewness and kurtosis statistics are less than 1 in absolute value, indicating that the normality assumption for the study data is met. Next, Pearson correlation coefficients for the model were examined and the results are presented in Table 2.

Table 2

Pearson Correlation Coefficients Among Variables in the Proposed Model

	Emotional	Psychological	Social	Difficulties	Addiction
Emotional well-being	1				
Psychological well-being	0.244	1			
Social well-being	0.202	0.611	1		
Difficulties in cognitive emotion regulation	-0.388	-0.652	-0.581	1	
Social media addiction	-0.228	-0.482	-0.344	0.498	1

As Table 2 shows, emotional well-being has a positive and significant relationship with psychological well-being (β = 0.244) and social well-being (β = 0.202), and a negative and significant relationship with difficulties in cognitive emotion regulation (β = -0.388) and social media addiction (β = -0.228). Psychological well-being has a positive and significant relationship with social well-being (β = 0.611) and negative and significant relationships with difficulties in cognitive emotion regulation (β = -0.652) and social media addiction (β = -0.482). Social well-being has negative and significant relationships with difficulties in cognitive emotion regulation (β = -0.581) and social media addiction (β = -0.344). Difficulties in cognitive emotion regulation has a positive and significant relationship with social media addiction (β = 0.498; p < .01).

Before fitting the model, univariate normality, the linearity assumption, variance inflation factor (VIF) and tolerance for each variable, multivariate normality, and

multivariate outliers were examined. The Shapiro–Wilk test was not significant for any variable, indicating a normal distribution. In addition, the scatterplot results supported the linearity assumption among the study variables. The specific SEM assumptions showed that none of the skewness or kurtosis values fell outside the ±2 range. According to Kline (2005), skewness and kurtosis indices between +2 and -2 indicate no substantial deviation from normality. The results for independence of errors (Durbin–Watson) also indicated that the statistics for the study variables fell between 1.5 and 2.5, supporting this assumption. Moreover, the diagnostics showed no multicollinearity among the predictor variables, as tolerance values were not less than 0.10 and VIF values for each predictor did not exceed 10 (Meyers et al., 2006).

The results of factor loadings for the measurement model parameters in the confirmatory factor analysis showed that all standardized factor loadings were greater than 0.32. According to Tabachnick and Fidell (2013), factor loadings below 0.32 are considered weak and such indicators may lack sufficient power to measure their latent construct. Model fit indices of the measurement model were also examined in the confirmatory factor analysis, and the results

showed that all goodness-of-fit indices—including the chi-square to degrees of freedom ratio, chi-square significance level, and the normed fit index, comparative fit index, relative fit index, and incremental fit index—were within the acceptable range of 0.90 and above, and the root mean square error of approximation (RMSEA) was within the acceptable range of less than 0.08.

Examination of the fit indices from testing the study's structural model showed that the indices were within acceptable ranges, indicating that both the measurement model and the proposed model were adequate. In other words, based on the perspective of [40], overall, when at least three indices fall within acceptable ranges, the model fit can be considered good and acceptable. In the present study, CMIN/DF = 2.235 (less than 3); chi-square significance level p = 0.132 (greater than .05); RMSEA = 0.623 (less than 0.08); CFI = 1.000; NFI = 0.984; and IFI = 0.962, all exceeding 0.90, indicating that the model or the obtained data demonstrate an appropriate fit.

The results of hypothesis testing based on the structural model path coefficients are presented in Table 3.

Table 3

Direct Regression Coefficients Among Model Variables

Path	Unstandardized B	Standardized Beta	SE	t	p-value
Emotional well-being → Social media addiction	-0.480	-0.334	0.111	-5.739	0.001
Psychological well-being → Social media addiction	-0.222	-0.214	0.087	-2.551	0.011
Social well-being → Social media addiction	-0.655	-0.481	0.184	-6.772	0.001
Emotional well-being → Difficulties in cognitive emotion regulation	-1.209	-0.371	0.186	-6.515	0.001
Psychological well-being → Difficulties in cognitive emotion regulation	-0.809	-0.510	0.108	-7.508	0.001
Social well-being → Difficulties in cognitive emotion regulation	-0.543	-0.313	0.104	-5.194	0.001
Difficulties in cognitive emotion regulation → Social media addiction	0.210	0.319	0.061	3.451	0.001

As shown in Table 3, emotional well-being is negatively and significantly related to social media addiction ($p < .01$; $\beta = -0.334$), psychological well-being is negatively and significantly related to social media addiction ($p < .05$; $\beta = -0.214$), and social well-being is negatively and significantly related to social media addiction ($p < .01$; $\beta = -0.481$). Emotional well-being ($p < .01$; $\beta = -0.371$), psychological well-being ($p < .01$; $\beta = -0.510$), and social well-being ($p <$

$.01$; $\beta = -0.313$) are negatively and significantly related to difficulties in cognitive emotion regulation. Difficulties in cognitive emotion regulation is positively and significantly related to social media addiction ($p < .01$; $\beta = 0.319$). Considering the regression coefficients for the indirect paths, it can be concluded that difficulties in cognitive emotion regulation played a mediating role in the relationships among dimensions of subjective well-being.

Figure 1

Fitted Conceptual Model
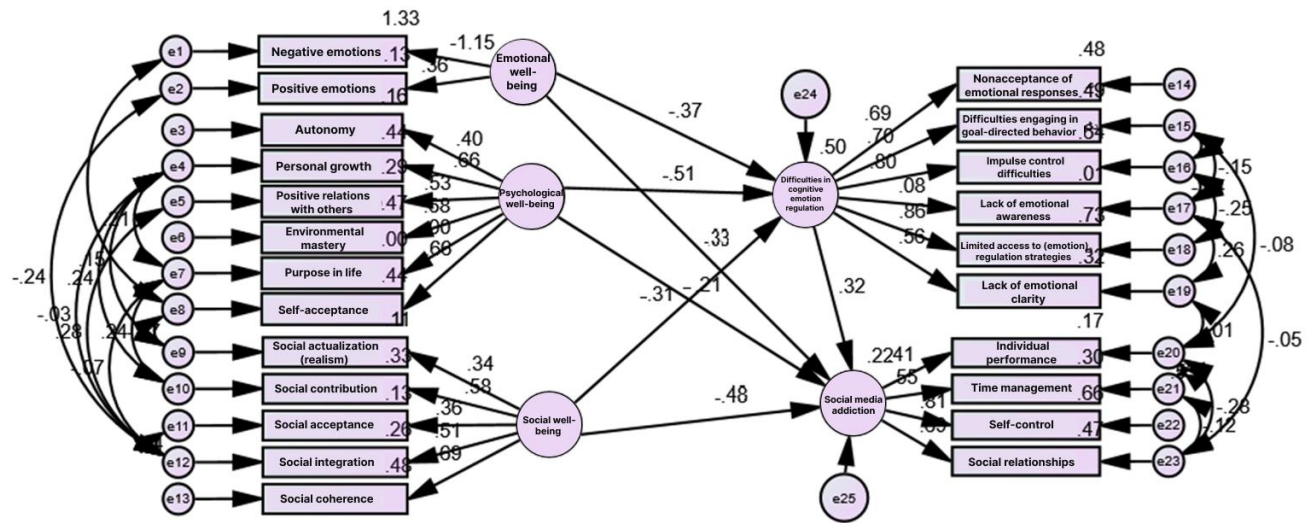
4. Discussion and Conclusion

The present study sought to examine the structural relationships between social media addiction (SMA) and the three dimensions of subjective well-being (SWB)—emotional, psychological, and social well-being—with the mediating role of cognitive emotion regulation difficulties (CERD) in a university student sample. The structural equation modeling results revealed that emotional, psychological, and social well-being all had significant negative relationships with SMA, indicating that students with higher well-being reported lower levels of addictive social media use. Furthermore, all three dimensions of SWB negatively predicted CERD, and CERD, in turn, showed a significant positive relationship with SMA. Importantly, the indirect effects showed that CERD partially mediated the relationships between SWB dimensions and SMA, highlighting that the depletion of well-being resources increases the risk of SMA largely by undermining the effectiveness of cognitive emotion regulation strategies.

These findings align with a growing body of evidence linking low well-being to maladaptive social media engagement. Prior work has shown that adolescents and university students with diminished emotional well-being, such as higher negative affect or lower life satisfaction, are more prone to using social media compulsively as an emotion regulation tool (Kingsley, 2024; Zhao, 2021). For example, students with high negative affect and stress levels often report turning to social media for mood repair, which can temporarily alleviate distress but ultimately reinforces

compulsive use cycles and undermines overall well-being (Malik et al., 2023; Roberts & David, 2021). Our results extend this literature by showing that this association holds when emotional well-being is analyzed as part of a broader SWB construct and that it operates partly through cognitive regulatory deficits. Students low in emotional well-being may lack the cognitive resources needed to reinterpret emotional experiences, plan adaptive responses, or disengage from emotionally salient online stimuli, thereby becoming more susceptible to addictive engagement patterns (Giordano et al., 2022; Özer et al., 2023).

The negative association found between psychological well-being and SMA is also consistent with previous studies emphasizing the protective role of eudaimonic functioning against compulsive digital use. High psychological well-being encompasses self-acceptance, autonomy, purpose in life, environmental mastery, and personal growth—resources that promote self-regulatory strength and resilience in the face of digital temptations (Koç & Turan, 2021; Negahdari & Sayf, 2022). Research indicates that students with strong purpose and autonomy are less likely to engage in compulsive online behaviors because they can prioritize long-term goals over immediate gratification (Roberts & David, 2021; Zhao, 2021). In our study, lower psychological well-being predicted higher CERD, which in turn predicted higher SMA, suggesting that deficits in meaning, mastery, and self-direction may erode cognitive regulatory capacities. This finding resonates with work by (Parchami Khorram et al., 2023) and (Parchami Khoram et al., 2022), who showed that basic psychological need

satisfaction predicts well-being, and that social media addiction mediates this link, underscoring the self-regulatory role of psychological well-being in digital behavior.

Similarly, the observed negative relationship between social well-being and SMA supports the contention that feeling integrated, accepted, and effective within one's social environment can buffer against problematic social media use. Students with high social well-being may be less reliant on online platforms to fulfill social needs, reducing the risk of compulsive checking and validation-seeking behaviors (Steinberger & Kim, 2023; Zhang et al., 2022). In contrast, low social well-being may drive compensatory engagement with social media to alleviate feelings of isolation, thereby fueling addiction cycles (Rustamov, 2023; Türk & Koçyiğit, 2025). Our findings also showed that lower social well-being predicted higher CERD, suggesting that socially disconnected students may experience heightened emotional reactivity and fewer cognitive strategies for regulating these emotions, increasing vulnerability to SMA. This is consistent with evidence that loneliness and social exclusion amplify emotion regulation demands and diminish regulatory effectiveness, which indirectly fosters addictive online behavior (Malik et al., 2023; Turan, 2024).

Crucially, this study demonstrated that CERD serves as a mediating mechanism linking all three dimensions of SWB to SMA. This aligns with theoretical models positioning emotion regulation as a proximal driver of behavioral addictions (Mohtadin et al., 2023; Quaglieri et al., 2021). Students with lower SWB may experience chronic negative affect and cognitive load, which compromise their ability to deploy adaptive regulation strategies such as reappraisal, attentional redeployment, or planning. In turn, this regulatory deficit may prompt the use of social media as an accessible, albeit maladaptive, means of mood regulation. This pathway is corroborated by (Giordano et al., 2022), who found that difficulties in emotion regulation significantly mediated the relationship between psychosocial stressors and SMA in adolescents. Neurocognitive research also supports this account, showing that individuals with internet-related addictive behaviors exhibit lower frontal alpha asymmetry, indicating diminished cognitive control over emotion regulation choices (Yan et al., 2022). Similarly, (Özer et al., 2023) found that nursing students with internet addiction scored significantly higher on emotion regulation difficulties, reinforcing that poor regulatory functioning is a key risk factor for compulsive digital use.

The positive relationship between CERD and SMA observed here echoes a substantial body of prior work. (Rahimi et al., 2024) reported that cognitive emotion regulation strategies mediated the relationships between family functioning, psychological distress, and SMA among adolescents, showing that regulatory deficits heighten vulnerability to compulsive use under stress. (Fokker et al., 2021) used adaptive network modeling to demonstrate how maladaptive regulatory responses can form self-reinforcing cycles that stabilize SMA over time. Likewise, (Yan et al., 2022) highlighted that individuals with lower use of cognitive reappraisal—a core CER skill—show neurophysiological markers of lower regulatory control, which predicts higher internet addiction tendencies. These convergent findings support our conclusion that CERD constitutes a central mechanism through which diminished SWB translates into addictive social media behavior.

Furthermore, our findings contribute to clarifying the complex interplay between affective, cognitive, and social processes underlying SMA. (Malik et al., 2023) found that fear of missing out (FoMO) and boredom proneness mediate the relationship between psychological distress and SMA, suggesting that individuals with poor emotion regulation are more vulnerable to emotionally charged platform cues. Our finding that CERD mediates the SWB–SMA link suggests that low well-being heightens the emotional salience of social media cues, while poor cognitive regulation limits the ability to disengage from these cues, fostering compulsive use. (Steinberger & Kim, 2023) similarly demonstrated that social comparison of ability and FoMO mediated the link between SWB and SMA, which is consistent with our interpretation that well-being deficits and cognitive regulatory difficulties jointly create a vulnerability profile for SMA.

In addition, our results resonate with studies situating SMA within broader psychosocial and developmental contexts. (Zhang et al., 2022) highlighted that family environment and psychosocial factors predict internet addiction risk among adolescents, partly by shaping emotion regulation and social competence. (Naderifar et al., 2023) found that spiritual health predicts lower addiction tendency through enhanced emotional well-being, implying that supportive meaning systems may bolster both well-being and regulation capacities. Our findings align with these perspectives by showing that diminished SWB undermines regulation, thereby fostering addictive use, whereas supportive environments that enhance well-being could

indirectly reduce SMA risk by strengthening regulatory resources.

Overall, these findings suggest that SMA emerges not merely from external platform designs or time-use habits but from deeper intrapersonal vulnerabilities involving depleted well-being resources and impaired cognitive regulation capacities. This aligns with comprehensive reviews identifying emotion regulation as one of the strongest predictors of problematic internet use in student populations (Sánchez-Fernández et al., 2023). It also echoes the argument by (Roberts & David, 2021) that emotional intelligence and self-regulation competencies are critical buffers against the academic and psychological harms of SMA. By situating CERD as a mediator, our study contributes to an integrated framework linking well-being, regulation, and addiction, which can inform both theoretical models and practical interventions targeting student mental health in the digital age.

5. Limitations & Suggestions

Despite its contributions, this study is subject to several limitations. First, its cross-sectional design precludes causal inference about the directionality of relationships between SWB, CERD, and SMA. While the structural model is theoretically grounded and statistically robust, longitudinal data are needed to confirm the temporal ordering of these constructs. Second, all measures relied on self-report instruments, which are susceptible to social desirability bias and shared method variance. Incorporating multi-informant reports or behavioral and physiological indicators of emotion regulation would enhance validity. Third, the sample was drawn from a single university population, which may limit the generalizability of findings to other cultural or developmental contexts. Factors such as cultural norms, academic pressures, and campus digital cultures may moderate the observed relationships. Finally, the study did not control for potential confounding variables such as personality traits, sleep quality, or mental health disorders, which may also influence SMA and emotion regulation.

Future research should adopt longitudinal and experimental designs to establish causal pathways between SWB, CERD, and SMA. Experience sampling methods could capture within-person fluctuations in well-being and regulation that precipitate compulsive social media use episodes. Neurocognitive measures, such as EEG markers of regulatory control, could be integrated to triangulate self-reported CERD. Research should also examine potential moderators of the SWB–SMA pathway, including gender, personality traits, and cultural context, to identify which students are most vulnerable. Multi-site studies across diverse cultural settings could test the cross-cultural robustness of the model. Additionally, future work could explore protective factors such as social support, mindfulness, and spiritual health, which may buffer the impact of low well-being on regulation and SMA. Incorporating machine learning approaches to model complex interactions among these variables may also yield novel predictive insights.

Practically, these findings underscore the importance of university-based mental health interventions that simultaneously target well-being enhancement and cognitive emotion regulation skills to mitigate SMA. Programs could include training in cognitive reappraisal, problem-solving, attentional control, and metacognitive awareness to strengthen regulatory capacity. Parallel initiatives to foster emotional, psychological, and social well-being—such as positive psychology workshops, peer support networks, and purpose-building activities—may reduce the motivational drivers of compulsive social media use. Psychoeducation campaigns could normalize digital disconnection and teach students to recognize and manage emotionally triggering online content. Institutional policies promoting balanced digital engagement, such as device-free study zones or structured offline social opportunities, may further reduce SMA risk. Finally, integrating well-being and regulation training into first-year orientation or counseling curricula could proactively equip students with protective skills before maladaptive patterns become entrenched.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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