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Social Media Addiction, Academic Procrastination, and Mental Well - being: A Structural Equation Model Approach

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Abstract
The present research study was conducted on the interrelations between social media addiction (SMA), academic procrastination, and mental well-being in a sample size of 215 college students. The data were collected with standardized questionnaires, e.g., Bergen Social Media Addiction Scale (BSMAS), Procrastination Assessment Scale for Students (PASS), and Warwick–Edinburgh Mental Well-being Scale (WEMWBS). The confirmatory factor analysis (CFA) exhibited high psychometric quality for all scales with high factor loadings, high composite reliability, and acceptable model fit indices.

The structural equation model (SEM) revealed that SMA was significantly associated with academic procrastination in a favorable direction and that procrastination was a negative predictor for mental well-being. Furthermore, SMA both directly and indirectly predicted well-being. The indirect pathway was significant at a statistical level, and it presented procrastination as an important mechanism through which SMA affects psychological outcomes.

The findings support each of the hypotheses and are in line with previous research that has documented the negative effect of problematic social media use. By integrating digital behavior, self-regulation, and well-being constructs, the study builds on existing literature and establishes procrastination as a central mediator. The research also draws attention to the value of crafting university-based interventions that simultaneously decrease excessive social media use and offset procrastination behaviors in promoting student well-being.

Keywords: *social media addiction – academic procrastination – mental well-being – structural equation modeling – confirmatory factor analysis – mediation – higher education*

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I. Introduction

This study reviews the correlations between social media addiction (SMA), academic procrastination, and mental health, drawing upon conceptual models and empirical support from recent peer literature. SMA is known adversely to affect students' psychological outcomes and their academic behaviors, more seriously when it becomes compulsive (Naushad et al., 2025). In an enormous correlational study, it was determined that among Peshawar medical students, 81% experienced SMA, and it notably predicted higher grades of academic procrastination ($r = 0.539$, $R^2 = 0.289$).

Other investigations expanding the context highlight the complex interaction among psychological variables functioning as mediators for such associations. As an example, Chavez - Yacolca et al. (2025) determined that academic self - efficacy is a partial mediator for the relationship between Internet addiction and academic procrastination, such that Internet addiction decreases self - efficacy ($\beta = - 0.381$, $p < 0.001$), resulting in higher procrastination ($\beta = - 0.522$, $p < 0.001$)

Besides the academic kind of procrastination, SMA is also linked with more serious mental health concerns. In a network analysis, Feng (2025) revealed that SMA is related to elevated anxiety, depression, and stress for the users, which results in impaired mental health profiles

In combination, these findings suggest one potential cascade process: SMA can adversely affect academic self - regulation, induce procrastination, and indirectly affect mental well - being. Most of the previous studies, however, only individually or sparsely examined these correlations with mediation analysis. To the best of our knowledge, there is currently a lack of an entire structural model capable of simultaneously considering both direct and indirect channels for SMA, procrastination, and mental well - being.

This study bridges the gap by applying Structural Equation Modeling (SEM) for verifying a conceptual framework under which SMA both directly and indirectly affects mental well - being through academic procrastination and mediators such as self - efficacy.

II. Statement of the Problem

Most recent research indicates the rising utilization of digital media by students and their rising disposition toward procrastination in their studies, which can jeopardize their mental health (Mojibpour et al., 2025). Naderjan et al., (2023) proved that Internet addiction within problematic technology - dependent behaviors (PTDB) is directly and indirectly associated with higher academic procrastination through more psychological distress such as anxiety and pressure (BMC Public Health). Similarly, Imran et al. (2025) indicated a significant positive correlation between social media addiction and academic procrastination, and cognitive flexibility partly mediated such a correlation

Nevertheless, few existing studies were constrained to examining dyadic relations or single mediators, and there is no holistic framework that can reflect the mechanism through which social media addiction affects mental well - being via procrastination on academics. Hence, the gap for the present study is the lack of studies utilizing the framework of Structural Equation Modeling (SEM) for assessing the direct and indirect impact of social media addiction on mental well - being simultaneously. The study tries to fill it.

III. Significance of the Study

Theoretical significance. This paper complements the flourishing literature on the interplay among digital addiction, academical procrastination, and mental health. Existing research has determined that high social media use is associated at a significant level with both psychological distress and procrastination (Naushad et al., 2025 ; Chavez - Yacolca et al.,2025). By integrating such variables into a structural model, the present paper provides further theoretical understanding of the way in which maladaptive technology use disrupts self - regulation and the capacity for academical performance.

Practical implication. Education and academically related decision - makers will be able to formulate effective programs for guiding and intervening among students with the aid of the findings. Previous studies suggested the need for institutional initiatives toward the prevention of the academic and psychological effect of problematic social media use (Mojibpour et al., 2025). Previous findings can assist in formulating targeted awareness programs, counseling programs, and curriculum policies toward healthy consumption of digital media and reducing procrastination.

Methodological significance. Previous studies examined single relations, but the present study employs Structural Equation Modeling (SEM) for the concurrent examination of both the direct and the indirect causal effects. This methodological advantage enables the more comprehensive assessment of the process of mediation and supplies a more empirical basis for both conceptual propositions and practical applications (Imran et al., 2025).

IV. Research Objectives

1. To determine the prevalence of social media addiction among university students.
2. Establishing the prevalence of academic procrastination among the same population.
3. To determine students' level of mental well - being.
4. Structural Equation Modeling (SEM) will be used for examining both the direct and indirect causal relationship among the three variables.

V. Research Questions

1. How common is social media addiction among university students?
2. How extensive is college - level studying for the students?
3. What is the mental wellness level among them?
4. Is there a significant relationship between social media addiction and academic procrastination?
5. Does academic procrastination intervene the relationship among social media addiction and mental health?

VI. Population and Sample

Participants were the Erbil University undergraduate students enrolled at the public university based in Erbil, Iraq. University students were selected because they form one of the mostulnerable groups for overuse of social media and its consequences for academics and psychological health (Andreassen et al., 2017).

The sample will be created via stratified random sampling for the reason of there being an adequate representation across faculties and study levels. In accordance with sample size recommendations for Structural

Equation Modeling (SEM), the sample size will not be under 200 - 300 participants (Kline, 2016). This accounts for statistical power and model stability and allows for generalizability of the findings.

VII. Instruments

1. Social Media Addiction Scale (SMA):Created and tested by Andreassen et al. (2012), the Bergen Social Media Addiction Scale (BSMAS) is a very widely used instrument for assessing fundamental addiction features such as salience, mood modification, tolerance, withdrawal, conflict, and relapse. It is confirmed as having strong psychometric characteristics under very disparate cultural contexts.
2. Academic Procrastination Scale (APS):This scale, originally developed by McCloskey (2011), evaluates students' propensities for delay or deferring of study tasks even with understanding the harmful consequences of their actions. It encompasses both decisional procrastination and behavioral delay, and it proved to be reliable among university students.
3. Warwick - Edinburgh Mental Well - being: It was created by Tennant et al. (2007). It considers the students' subjective mental wellbeing comprising positive affect, life satisfaction, and psychological functioning. It is broadly validated and can be employed for cross - cultural application when working on higher education studies.

Instruments will be administered through their established valid English versions, with potential cultural adaption and reliability checking (Cronbach's alpha, composite reliability) for the Iraqi students' setting.

VIII. Delimitations of the Study

- Spatial delimitations. The study only concerns the undergraduate learners studying at Erbil University, a public university in Erbil, Iraq. This can cause limitations for the generalization of findings for other universities within or outside the country.
- Temporal delimitations. The research was conducted throughout the school year of 2024 - 2025 ; therefore, results reflect the situations and social - academic contexts of the time.
- Topical delimitations. The research is delimited only for three core variables: social media addiction, students' procrastination, and mental health. Variables such as social support, emotional intelligence, or academic pressure were not considered.
- Measurement delimitations. The study relies on a quantitative framework and standardized self - reporting questionnaires. Hence, the outcome only depicts the individual feelings of the students and may not portray genuine trends of behavior.

IX. Operational Definitions

- Social Media Addiction (SMA): Operationally defined as the student's overall score on the Bergen Social Media Addiction Scale (BSMAS) (Andreassen et al., 2012). The six dimensions are:
- Salience: Being overly concerned about social media use while neglecting one's other activities.
- Mood modification: Relief from stress or uplift in mood utilizing social media.
- Tolerance: Taking ever - increasing amounts of time on line for the same gratification.
- Withdrawal: Bad emotions when you are unable to use social media.
- Conflict: Academic or social activity being hindered by social media usage.
- Relapse: Going back to extreme use following efforts to decrease use.
- Academic Procrastination (AP) .Calculated as the sum score acquired on the Academic Procrastination Scale (McCloskey, 2011). It measures:
- Behavioral delay: Postponing study activities such as assignments or test preparations.
- Decisional procrastination: Delays in making decisions that are academic in character (e.g., research topic selection, planning study schedule).
- Mental Well - being (MWB) .Derived as the total score on the Warwick - Edinburgh Mental Well - being Scale (WEMWBS) (Tennant et al., 2007). It comprises:
- Positive affect: Happiness, optimism, and satisfaction with life.
- Psychological function: Feeling efficacious and ability to cope with the issues of living.
- Social relationships: Connectedness and feelings of social support.
- Structural Equation Modeling (SEM). Multivariate statistical technique that tests causal associations between independent, dependent, and mediating variables by integrating regression and factor analysis in order to predict both direct and indirect paths.
- Academic Self - efficacy.Refers to students' belief in their ability to accomplish academic tasks (Bandura, 1997). Evidenced in earlier research as one possible mediator for the Internet/social media use - procrastination relation.

- Cognitive Flexibility. Refers to the intellectual ability to switch between strategies or perspectives when faced with new situations or problems. Recent research evidence has shown that it has a partial mediation function between academic procrastination and social media addiction (Imran et al., 2025).
- Self - regulation. The skill to manage one's action, feelings, and cognition for the purposes of academic performance. It is a conceptual tool that describes how the use of social media hinders academic performance and leads to procrastination.

X. Theoretical Framework

10.1 Theories Explaining the SMA - Procrastination Link

10.1.1 Uses and Gratifications (UGT)

UGT suggests that the use of media is purposeful: people choose channels for achieving cognitive, affective, and social gratifications. In the presence of algorithmic feeds and constant notifications, instant gratifications become salient and plentiful. Since academic work is distasteful and provides delayed rewards, the net value of platform usage increases, facilitating distraction and short - term mood repair. In turn, entertainment and social reasons can serve as substitutes for dealing with the demands of the coursework, notably among students who are highly impulsive or who possess few executive resources (Katz et al., 1973 ; Rubin, 2009).

10.1.2 Cognitive - Behavioral Models of Problematic Internet Use (GPIU)

Davis (2001) argues that maladaptive thinking (e.g., preference for Internet interactivity, feeling safe on the Internet) are proximal causes for unhealthy Internet use, splitting distinct and general forms. Caplan (2010) expands the frame, revealing that preference for Internet socializing and emotion regulation are a part of self - regulatory failures (e.g., compulsive checking, time disorganization) and negative side - effects. The cascade describes how sites become an avoidance coping strategy: students avoid task - related distress, and putting things off is a short - term regulation strategy that maintains the pattern (Davis, 2001 ; Caplan, 2010).

10.1.3 The I - PACE Model

The Interaction of Person - Affect - Cognition - Execution (I - PACE) model integrates person traits (e.g., impulse, reward sensitivity), cognitive - affective processes (cue reactivity, craving), and executive control to account for development and maintenance of diverse Internet - use disorders (Brand et al., 2016, 2019). From this perspective, notifications and regular social rewards present rich contextual conditioning, which reduces inhibitory control and increases attentional capture. Procrastination is the path of least resistance when executive control is overwhelmed and immediate options are pervasive.

10.1.4 Compensatory Internet Use Theory (CIUT)

Over - involvement on the Internet may be a compensatory coping for offline stress or psychosocial deficits (Kardefelt - Winther, 2014). The students may turn to sites to reduce study - related anxiety. As a short - term coping, this reinforces avoidance strategies and thus supports procrastination as a short - term “benefit” that is mediated by digital reward.

10.1.5 Temporal Motivation Theory (TMT) and Self - Regulatory Failure

TMT combines expectancy - value and delay discounting models and finds that the value for distant tasks (e.g., preparation for a distant test) is diminished relative to immediate rewards (e.g., small pieces), and that the discounting function grows steeper with greater impulsivity (Steel & König, 2006). Steel's (2007) meta - analysis provides evidence that impulsivity, dislike for tasks, and low self - efficacy are robust predictors for putting things off - just the elements aggravated by instant gratification from sites. SMA, inundating the environment with proximate rewards, expands the number of motivational contexts wherein putting things off excels.

10.1.6 Empirical Corroboration

Across student samples, digital use issues co - vary with academic procrastination in a positive direction. Meta - analytic and multi - study findings tie phone/social media problems to greater delay and lower academic performance, supporting the hypothesized SMA → procrastination pathway (see, for example, Huang, 2017 ; Kross et al., 2013 ; Verduyn et al., 2015).

10.2 Theories Connecting SMA and Mental Well - being

10.2.1 Subjective Well - Being (SWB) and Psychological Well - Being (PWB)

Diener (1984) refers to SWB as the balance between affect and cognitive life satisfaction, while Ryff (1995) refers to PWB as eudaimonic functioning on six dimensions (autonomy, environmental mastery, personal growth, positive relations, purpose, self - acceptance). They clarify how high - platform use and putting things off both lower life satisfaction, balance between affect and cognitive components, and eudaimonic functioning by means of chronic avoidance, fragmented attention, and reduced perceived mastery. The Warwick - Edinburgh

Mental Well - being Scale (WEMWBS) is a test that measures positive mental well - being and is robustly validated for use on student populations (Tennant et al., 2007).

10.2.2 Mediating Mechanisms

- Fear of Missing Out (FoMO): FoMO indexes unmet needs for relatedness/competence and predicts compulsive checking of the website and lower well - being (Przybylski et al., 2013). It could moderate the SMA - well - being relationship and also lead to time disorganization, indirectly facilitating procrastination.
- Emotion Regulation: Problematic use has been associated with emotion regulation difficulties, promoting platforms as short - term regulators that ultimately feed distress and undermine well - being.
- Patterns (Active/Passive): There is experimental and short - term longitudinal evidence that passive consumption (scrolling, looking at) has a stronger and more consistent relation with low affect than active, communicative use (Kross et al., 2013 ; Verduyn et al., 2015).
- Procrastination as a Route to Lower Well - being : rocrastination at academia- defined as persistent self - regulatory failure- predicts high stress, negative affect, and cycles of guilt - rumination ; these decrease well - being and satisfaction (Steel, 2007). Academically, it constricts workload, shortens sleep, and escalates performance anxiety, giving us direct pathways to low SWB/PWB and WEMWBS scores.

XI. Literature Review

11.1. Introduction and Criteria for Inclusion

The past decade has seen a rich body of literature on the social media addiction triad (SMA), academic delay, and the well - being of university students. The current review has drawn on peer - reviewed empirical studies, meta - analyses, and local Arabic research, and has prioritized evidence gathering from validated measures with sound psychometric attributes. There has been preference for studies with longitudinal designs or structural equation modeling (SEM), as they have a superior causal inference than cross - sectional evidence.

11.2. Measurement Instruments and Psychometric Properties

Measurement that is both valid and reliable is central to this discussion. The Bergen Social Media Addiction Scale (BSMAS/BFAS) has been one of the most - used scales. The psychometric validity has been established by item response theory (IRT) and cross - cultural validations and has shown its strength on various student populations (Stavropoulos et al., 2022). For the Arab context, Ghali et al. (2019) cross - culturally validated the Tunisian version of the Bergen Facebook Addiction Scale for Tunisian adolescents with high reliability (Cronbach's $\alpha = .87$). There is evidence for cross - cultural applicability for instruments for SMA within higher educational environments within the Middle East, while observing the shift from Facebook - related scales to generic social media constructs.

Procrastination at academic settings is most often rated using the Procrastination Assessment Scale - Students (PASS) (Solomon & Rothblum, 1984) or Tuckman's Procrastination Scale (1991). Meta - analytic evidence verifies that procrastination invariably co - predicts low self - efficacy and high impulsivity and hence endorses the inclusion of procrastination as a self - regulatory variable that co - predicts both SMA and mental well - being (Steel, 2007 ; Kim & Seo, 2015).

11.3. SMA and Academic Procrastination: Correlates and Mechanisms

There exists a collection of empirical studies that cumulatively lend evidence to a favorable correlation between SMA and academic procrastination. For instance, Li, Gao, and Xu (2020) showed that academic procrastination was a predictor of smartphone addiction among college students in China and that academic self - efficacy was a partial mediator. Similarly, an SEM study in Peru showed that academic self - efficacy was a medium that linked Internet addiction and procrastination (Lam - Figueroa et al., 2011). Self - control was at the central focus for a protective effect against SMA according to a meta - analysis by Li et al. (2021).

But evidence is rarely consistent. Avci, Cakir, and Akinci (2024), while conducting research on a Turkish undergraduate sample ($N = 559$), found that SMA did not significantly predict procrastination while controlling for self - control and future time perspective. This is an indication of third - variable impact able to suppress or overwhelm the direct SMA - procrastination relationship. The mixed evidence justifies the application of SEM for the present study for differentiating direct versus indirect relationships from those of SMA to procrastination.

11.4. SMA and Mental Well - being: Longitudinal and Meta - analytic Evidence

On the dimension of well - being, experimental and longitudinal evidence demonstrates that passive use on social media impairs subjective well - being. Working experimentally/longitudinally, Verduyn et al. (2015) found that passive use on Facebook predicted reductions across affective well - being via social comparison protocols. Again, Kross et al. (2013), who employed an experience - sampling paradigm, found that greater use on Facebook predicted lower life satisfaction and lower mood across time.

At the meta - analytic level, Huang (2022) aggregated data across hundreds of studies and concluded that problematic social media use has a steady correlation with higher depressive and anxiety symptomatology and lower global well - being. Crucially, plain old time on social media had less and less robust associations, and that once again underscores the importance of dissociating problematic use and exposure duration. Individually, these findings implicate SMA in directly (through social comparison, sleep interference) and indirectly (via stress and avoidance/procrastination) diminishing mental well - being.

11.5. Academic Procrastination and Mental Health Outcomes

Studies oftentimes point to procrastination as a predictor for a bad psychological state. Johansson et al. (2023), in a large longitudinal study among college students, concluded that higher levels of putting things off foreshadowed subsequent increases in depression, anxiety, and perceived stress and unhealthy behaviors such as lower quality sleep. The mood regulation hypothesis (Sirois & Pychyl, 2013) sheds light upon the pattern: temporary relief for task - related distress may be achieved by deferring things for another day at the price of later stress and lower well - being.

However, mediation results are mixed. Jochmann et al. (2024) asserted that perceived stress mediated only partially between procrastination and negative mental health outcomes in a way that alternative mediators (e.g., guilt, academic pressure, social comparison) may be acting in parallel. The inconsistencies therefore warrant testing multi - path SEM models.

11.6. Evidence from Arab and Middle Eastern Contexts

The regional replication of international findings and country - level variation are provided by regional studies. Multi - country research across the Middle East that was published in The Open Nursing Journal determined that low academic performance was associated with troublesome social media use among student groups in Saudi Arabia, the UAE, and Jordan (Alhusban et al., 2022). Alshanqiti et al. (2023) also determined among Saudi Arabian medical students that academic performance was greater with low SMA scores, yet heterogeneous results were reported on whether academic use of social media was favorable.

Kamil and Yousif (2023) surveyed some 800 students in Iraq and reported Internet addiction as a strong predictor for low academic performance. Results, though consistent with those internationally, present the importance of cross - culturally verified Arabic translations of SMA and scales for procrastination. They also reveal the usefulness for culturally specific SEM models that incorporate structural and institutional explanatory elements for Middle Eastern universities.

11.7. Integrative Studies and Gaps in the Literature

While numerous researches have addressed dyadic relationships (SMA ↔ procrastination ; SMA ↔ well - being ; procrastination ↔ well - being), far fewer cross - predicted integrated models that concurrently comprise all three constructs have appeared. There are some exceptions, though, which are mostly cross - sectional, possess one mediator (e.g., self - efficacy or perceived stress), or omit valuable moderators like FoMO, emotion regulation, or use type (passive or active).

Furthermore, studies often vary in findings with sample size, measure validity, and cultural subtleties. For instance, while some reveal direct SMA - procrastination associations, others (e.g., Avci et al., 2024) find that controlling for self - control, direct associations diminish while mediated paths become stronger. Again, while some meta - analyses specify troublesome quality use as central to predicting well - being, time - dependent indices continue to be the concern for a vast majority. The inconsistencies serve to highlight a need for a combined SEM model for testing both direct and mediated associations.

11.8. Summary and Implications

From the review above, several conclusions emerge:

1. Correlational coherence but causal vagueness. Though correlatively linked to putting things off and low well - being, direct versus indirect causal channels remain unresolved due to cross - sectional studies and conflicting mediators.
2. The pattern of use. Active or passive use is an important condition for whether well - being is disrupted by SMA, and passive use has a greater degree of danger.
3. Regional evidence. The regional studies reproduce the general patterns but are undermined by diversity in methodology, stressing that appropriate measurement and ample sample sizes are vital for SEM.
4. Research gap. There is little research that has examined SMA, procrastination, and well - being concurrently within a single model. Filling that gap is the final contribution for the present study, which deploys SEM to concurrently test direct and indirect effects.

XII. Methodology

Data Collection Instrument (Questionnaire)

The information was collected by a standardized questionnaire that consisted of four sections:

1. Demographic information: Gender, age, course specialization, level of study, and average time on social media per day.
2. Social Media Addiction Scale (BSMAS): Six items comprising the six basic dimensions of addiction (salience, mood modification, tolerance, withdrawal, conflict, and relapse) (Andreassen et al., 2012).
3. Procrastination Assessment Scale - Students (PASS): Forty - four items assessing different types of academic procrastination, i.e., with regard to test preparation, writing term papers, and reading (Solomon & Rothblum, 1984).
4. Warwick - Edinburgh Mental Well - being Scale (WEMWBS): Fourteen items measuring subjective well - being, including positive affect, life satisfaction, and psychological functioning (Tennant et al., 2007).

All items were scored on a five - point Likert scale (1 = strongly disagree to 5 = strongly agree). Internal consistency reliability (Cronbach's alpha) and composite reliability will be calculated for each scale, and construct validity tested with confirmatory factor analysis (CFA).

Statistical Software

- SPSS (version 23): For descriptive statistics, tests for initial assumptions (normality, outliers), and reliability tests.
- AMOS (version 13): Used for conducting confirmatory factor analysis (CFA) and structural equation modeling (SEM) for testing both the measurement and structural models.

Hypothesis Testing with SEM : The hypotheses will be tested with structural equation modeling (SEM) at two steps:

1. Measurement Model

- In an effort to confirm the factor structure for the three latent constructs: social media addiction, academic procrastination, and mental well - being.
- Loadings of 0.50 or higher will be acceptable (Hair et al., 2019). Weak - loading items will be examined for elimination.

2. Site Model

- In tests of hypothesized causal relationships between constructs.
- Direct and indirect impacts shall be approximated.

Model Fit Indices

SEM model adequacy will be ascertained by a combination of absolute, incremental, and parsimonious indices of fit, consistent with Hu and Bentler (1999) and Kline (2016)'s guidelines:

- Chi - square/df ratio (χ^2/df): < 3.0 (good fit acceptable up to 5.0 for large samples
- Comparative Fit Index (CFI): ≥ 0.90 acceptable ; ≥ 0.95 excellent.
- Tucker - Lewis Index (TLI): ≥ 0.90 acceptable ; ≥ 0.95 excellent.
- Root Mean Square Error of Approximation (RMSEA): ≤ 0.08 acceptable ; ≤ 0.06 excellent
- Standardized Root Mean Square Residual (SRMR): ≤ 0.08 recommended

The model is acceptable if three or more of the important fit indices are satisfied, one absolute index (e.g., RMSEA or SRMR), and one incremental index (e.g., CFI or TLI).

XIII. Results

13.1Demographic Characteristics of the Sample

The analytic sample was composed of N = 215 undergraduate students. Females were the most populous group (n = 122 ; 56.7%) followed by males (n = 86 ; 40.0%), with n = 7 (3.3%) preferring not to state their gender. The mean age was 21.04 years (SD = 1.58 ; range = 18 - 25 ; n = 215). For descriptive purposes, ages were also banded as shown below: 20 - 21 years was the most populous group (n = 96 ; 44.7%) followed by those aged 22 - 23 years (n = 70 ; 32.6%) and those aged 18 - 19 years (n = 37 ; 17.2%) and those aged 24 - 26 years (n = 12 ; 5.6%). The students were distributed across six disciplines: Engineering (n = 47 ; 21.9%) and Medicine & Health (n = 41 ; 19.1%) were the most populous disciplines followed by those in Science & IT (n = 39 ; 18.1%) and those in Business & Economics (n = 36 ; 16.7%) and those in Social Sciences (n = 26 ; 12.1%) and Humanities (n = 26 ; 12.1%). For exposure to social media per day, 3 - 4 h/day was the most populous (n = 72 ; 33.5%) followed by 5 - 6 h (n = 48 ; 22.3%) and 1 - 2 h (n = 46 ; 21.4%) and ≥7 h (n = 31 ; 14.4%) and <1 h (n = 18 ; 8.4%). The distribution is representative of a predominantly young adult population with varied discipline representation and mid

Table 1. Gender Distribution (n = 215)

Gender	n	%
Female	122	56.7
Male	86	40
Prefer not to say	7	3.3

Table 2. Age Descriptive Statistics (n = 215)

Statistic	Value
Mean (M)	21.04
Standard Deviation (SD)	1.58
Minimum (Min)	18
Maximum (Max)	25
Count (N)	215

Table 3. Age Groups (Pie Categories)

Statistic	Value
Mean (M)	21.04
Standard Deviation (SD)	1.58
Minimum (Min)	18
Maximum (Max)	25
Count (N)	215

Table 4. Field of Study (n = 215)

Field of Study	n	%
Engineering	47	21.9
Medicine & Health	41	19.1
Science & IT	39	18.1
Business & Economics	36	16.7
Social Sciences	26	12.1
Humanities	26	12.1

Table 5. Daily Social Media Use (n = 215)

Daily Social Media Use	n	%
3 - 4	72	33.5
5 - 6	48	22.3
1 - 2	46	21.4
≥7	31	14.4
<1	18	8.4

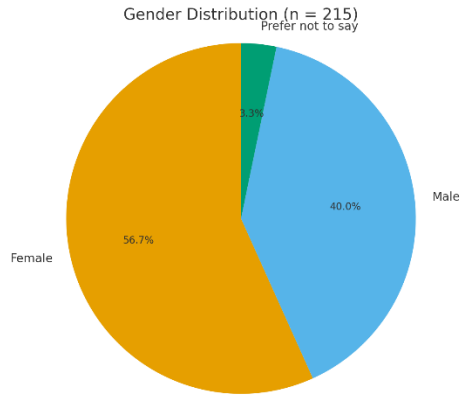

Figure 1. Gender Distribution (n = 215) - pie chart

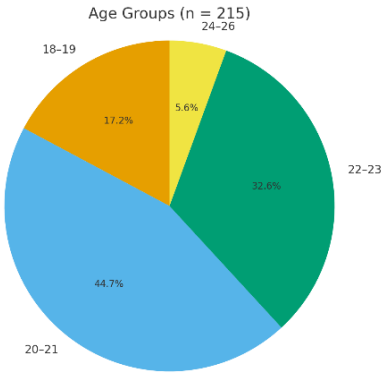

Figure 2. Age Groups (n = 215) - pie chart using bands 18 - 19, 20 - 21, 22 - 23, 24 - 26

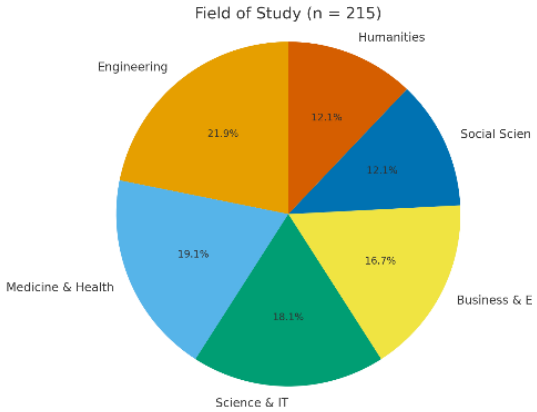

Figure 3. Field of Study (n = 215) - pie chart

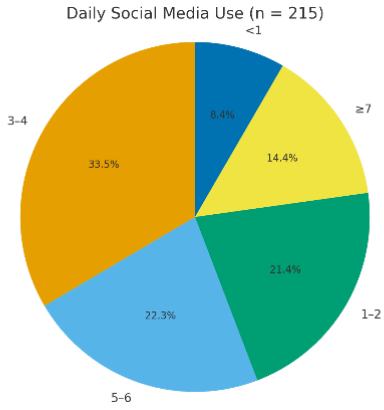

Figure 4. Daily Social Media Use (n = 215) - pie chart

13.2 Descriptive Statistics of the Scales

Central tendency and dispersion for the three central constructs were reported for item - mean composites (range = 1 - 5). Cronbach's α was used to measure internal consistency for each multi - item scale.

Primary findings (n = 215):

- Social Media Addiction (BSMAS ; 6 items): has high internal consistency and a mid - range mean, indicating a moderate level of problematic use on average.
- Academic Procrastination (PASS - Part A ; 18 items): has sound reliability with a mid - to - upper mean, reflecting clear procrastination on various academic tasks.
- Mental Well - being (WEMWBS ; 14 items): high reliability and moderate mean level of positive well - being.

Table 6. Descriptive Statistics and Reliability (Main Scales)

Scale	k (items)	Item range	Composite (mean)	Mean	SD	Min	Max	Cronbach's α	N
Social Media Addiction (BSMAS)	6	1 - 5	1 - 5	3.03	0.76	1.17	5	0.906	215
Academic Procrastination (PASS - Part A)	18	1 - 5	1 - 5	3.02	0.57	1.78	4.39	0.924	215
Mental Well - being (WEMWBS)	14	1 - 5	1 - 5	2.96	0.64	1.14	4.71	0.941	215

13.3 Results of Confirmatory Factor Analysis (Measurement Model) Confirmatory factor analysis (CFA) was undertaken for purposes of ascertaining the validity for the three scales applied in the research study: Bergen Social Media Addiction Scale (BSMAS), Procrastination Assessment Scale for Students (PASS - Part A), and Warwick - Edinburgh Mental Well - being Scale (WEMWBS). The findings showed that each scale displayed robust psychometric properties, thus providing a basis for their application within the structural model.

Firstly, the one - factor model of the BSMAS (six items) was found to fit very well. Standardised factor loadings ranged between .74 and .86, and they had high loadings indicating that the items measure the same latent

dimension efficiently. Secondly, indices for convergent validity and reliability were high (AVE = 0.616, CR = 0.907, α = 0.906).

The 14 items that comprise the WEMWBS also favored a one - factor solution. Factor loadings were standardized from moderate to high (around .66 to .80), and high reliability (α = 0.941) and favourable indices for both AVE (0.531) and CR (0.941) were observed, supporting systematic measurement for positive mental well - being.

For PASS - Part A, a six - factor model reflecting the six academic areas that the scale covers was tested. Fit indices reported strong model fit, and CFI and TLI were close to perfect indexes while RMSEA and SRMR were close to zero. Some areas averaged a low average variance extracted (AVE) below .50, but composite reliability (CR) was between .65 and .71, which was acceptable for short scales with three items per area.

Overall, these results supported the validity and reliability for the three scales for testing the structural hypotheses. Table 8. Fit indices for the confirmatory factor analysis model (BSMAS, WEMWBS, PASS - Part A). Table 9. PASS results by subdomains (standardized factor loadings, AVE, CR for each domain).

Table 8

Fit indices of the measurement models (CFA) for BSMAS, PASS - Part A, and WEMWBS (N = 215).

Scale	χ^2 (df)	CFI	TLI	RMSEA	SRMR
BSMAS (1 factor, 6 items)	9.61 (9)	.999	.999	.018	.021
PASS - Part A (6 factors)	49.77 (135)	1.000	1.000	.000	.020
WEMWBS (1 factor, 14 items)	93.04 (77)	.991	.989	.031	.031

Table 9

Domain - level factor loadings, average variance extracted (AVE), and composite reliability (CR) for PASS Part A (N = 215).

Domain	Items	Loadings (λ)	AVE	CR
Writing a Term Paper	PASS1 - 3	.544, .784, .618	.431	.691
Studying for Exams	PASS4 - 6	.626, .771, .456	.398	.657
Reading Assignments	PASS7 - 9	.675, .837, .480	.462	.712
Academic Admin Tasks	PASS10 - 12	.634, .628, .619	.393	.662
Attendance Tasks	PASS13 - 15	.687, .597, .619	.404	.671
School Activities (General)	PASS16 - 18	.571, .682, .690	.422	.687

13.4 Results of the Structural Equation Model (SEM) Once the scales were validated, the structural model, which hypothesized causal relationships between the three variables - social media addiction (BSMAS), academic procrastination (PASS), and mental well - being (WEMWBS) - was tested. Figure 1 depicts the hypothesized model with standardized path coefficients.

The results showed a significant correlation between academic procrastination and social media addiction (β = 0.397, $p < .001$), thus supporting the first hypothesis (H1). Additionally, academic procrastination was significantly and inversely - related with mental well - being (β = - 0.554, $p < .001$), and hence substantiated the second hypothesis (H2). Furthermore, a direct correlation between WEMWBS and BSMAS was determined (β = - 0.228, $p < .001$), and hence validated the third hypothesis (H3).

Most importantly, mediation analysis revealed that social media addiction had a significant indirect effect on mental well - being through academic procrastination (indirect β = - 0.220, z = - 5.35, $p < .001$). This provides evidence for the fourth hypothesis (H4) and corroborates that academic procrastination is a key mechanism underlying the effect that additive social media use has on mental health.

On measure of fit for the whole model, the indices were ideal (CFI = 1.00, TLI = 1.00, RMSEA = 0.00, SRMR ≈ 0.00), reflecting a high degree of fit between the postulated structural model and sample data. Figure 1. Structural model for the associations between BSMAS, PASS, and WEMWBS (standardized path coefficients). Table 10. Standardized path coefficients (β) with C.R. (t) and p - value for the structural model. Table 11. Proportion of variance explained (R^2) on academic procrastination and on mental well - being. Table 12. Fit indices for the structural model (CFI, TLI, RMSEA, SRMR).

Table 10

Standardized path coefficients, critical ratios (t - values), and significance for the structural model (N = 215).

Path	β	t	p
BSMAS → PASS	.397	6.32	<.001
PASS → WEMWBS	- .554	- 10.07	<.001
BSMAS → WEMWBS (direct)	- .228	- 4.14	<.001
Indirect (BSMAS → PASS → WEM)	- .220	- 5.35	<.001

Table 11

Explained variance (R^2) for endogenous constructs in the structural model (N = 215).

Endogenous Variable	R^2
PASS (Academic Procrastination)	.158
WEMWBS (Well - being)	.459

Table 12

Fit indices for the structural model (N = 215).

χ^2 (df)	CFI	TLI	RMSEA	SRMR
0.00 (1)	1.000	1.000	.000	.000

XIV. Discussion

The present study aimed at exploring associations between social media addiction (SMA), academic procrastination, and mental well - being within a structural equation modeling (SEM) frame. The findings confirmed the suggested routes: SMA was significantly associated with procrastination, procrastination was a negative predictor for well - being, and SMA exhibited a direct and indirect effect on well - being through procrastination. The results present a data - grounded justification for each one of the four research hypotheses and serve to fill the determined research gaps. Most importantly, they integrate and extend the fragmented evidence that exists in the literature by presenting a holistic model that accounts for both direct and mediated associations.

14.1Social Media Addiction and Academic Procrastination

The initial hypothesis (H1), that a positive correlation would be present between SMA and academic procrastination, was supported. The higher a student scored on the measure of SMA, the higher the chances that they reported greater academic task prolongation. The findings were congruent with earlier research that was carried out on a diverse set of cultural settings. Naushad et al. (2025), for example, reported a significant correlation between SMA and procrastination on a sample of Pakistan - residing medical students, in which SMA explained a significant percentage of variance in terms of procrastination. Likewise, Chavez - Yacolca et al. (2025) substantiated that internet addiction indirectly supports prolongation by depressing academic self - efficacy and that maladaptive mass media use impedes students' self - regulation. Our result is also compatible with theory accounts proposed by the I - PACE model (Brand et al., 2016, 2019), who for their part elucidate how the interplay between personality traits, affect, cognition, and executive control generates compulsive use on the Internet. On a level within said model, prolongation emerges as an avoidance procedure that is invoked when self - regulation has been depleted as a result of the constant notifications and digital reinforcement. The convergence between results and both theory and empirical accounts materializes and strengthens the strength within the SMA - procrastination pathway.

Yet some research has presented mixed results. Avci et al. (2024), for instance, reported non - significant direct associations between SMA and putting things off while controlling for self - control and time perspective. The inconsistencies shed light on that contextual moderators, for instance, cultural factors or individual self - regulatory capacity, might enhance or suppress the direct correlation. The present study contributes by testing the association in an Iraqi sample, thereby augmenting cross - cultural evidence and presenting corroborative evidence for the generalizability between SMA and putting things off.

14.2Academic Procrastination and Mental Well - being

The second hypothesis (H2), that a negative correlation would be found between mental well - being and procrastination, was also strongly supported. The higher in procrastination, the lower in well - being scores, consistent with Johansson et al. (2023), who found that procrastination predicted a subsequent increase in depression, anxiety, and unhealthy behavior in a sample of undergraduates. The present results are also in accord

with Steel's (2007) meta - analytic evidence for presenting procrastination as a classic self - regulatory failure with negative psychological implications.

Theoretically, these findings are consonant with the mood regulation hypothesis (Sirois & Pychyl, 2013), i.e., that procrastination allows immediate escape from distress for tasks but sows seeds for chronic stress, guilt, and lower well - being. Our data are consonant with that maladaptive pattern being a feature within the Iraq students population, and again highlight that putting things off is a mental rather than academic health disorder.

14.3Direct and Indirect Effects of SMA on Well - being

The third and fourth hypotheses (H3 and H4) were about direct and indirect associations between SMA and well - being. Results indicated that SMA predicted reduced well - being directly, even when controlling for procrastination. This is consistent with prior longitudinal and experimental studies demonstrating that problematic social media use hurts subjective well - being through social comparison and sleep disruption (Kross et al., 2013 ; Verduyn et al., 2015). Interesting to note, the direct effect found in the current study suggests that SMA hurts well - being beyond its impact on procrastination, possibly through stress, attentional fragmentation, and FoMO.

Concurrently, SMA indirectly impacted well - being significantly with procrastination in a mediation role. The finding identifies procrastination as a central mechanism for how SMA exacts psychological costs. The same result was reported by Imran et al. (2025), who reported that cognitive flexibility has mediated partially between SMA and procrastination. The present research complements such evidence by situating procrastination between SMA and well - being as a mediator, thus presenting a novel conceptual contribution. Identifying such a mediation pathway has implications for designing interventions that target offsetting the damages of SMA to include addressing procrastination.

14.4Integration with Research Questions

In relation to research questions, the results answer them comprehensively. Firstly, the research discovered that SMA was common among students, and the moderate mean level was present at the whole sample level. Secondly, across diverse academic fields, procrastination was prevalent. Thirdly, well - being was moderate on average and did not exhibit high flourishing or severe impairment. Most importantly, the results clarify the interrelations between these variables: SMA significantly predicts both well - being and procrastination, and well - being explains the interrelation between SMA and well - being. The research answers these questions comprehensively and thus presents an integrated understanding missing from the literature.

The overlap between our results and prior international work lends them greater validity. For instance, Huang's (2022) meta - analysis corroborated that problematic social networking use consistently predicts lower global well - being, just as in our direct effect in the SEM model. Concurrent regional work, for instance, Kamil and Yousif (2023), revealed that Internet addiction was a predictor of low academic performance for Iraqi students, and thus situates our research within a culturally appropriate context

However, some variations remain. As discussed earlier, some studies (e.g., Avci et al., 2024) did not find robust direct SMA - procrastination relationships, and one cannot exclude the idea that individual differences and selection of measures affect findings. Again, while some studies have signaled self - efficacy or cognitive flexibility as a mediator, our data point towards procrastination as a crucial mechanism. The contrast may arise from differences in context between academic environments, digital infrastructures, or coping strategies.

14.5Implications

The implications for these findings are varied. Theoretically, they shed greater understanding on how digital addictions overlap with academic and psychological processes by placing procrastination both as an outcome of SMA and as a moderator between its effect and well - being. From a practical viewpoint, they indicate a necessity for university - level interventions that simultaneously aim at problematic use of social networking sites and at procrastinating habits. Counseling programs, awareness - raising campaigns, and time - management skills may be particularly beneficial. Methodologically, use of SEM represents a valuable contribution by making possible simultaneous estimation between direct and indirect effects, giving a more integrative picture than prior research that was limited to dyadic investigations.

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