Nomophobia and Technology Addiction: Examining the Dual Mediation of Fear of Missing Out and Anxiety Using Structural Equation Modeling

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Abstract

Objectives: The objective of this study was to examine the relationships between nomophobia, Fear of Missing Out (FOMO), anxiety, and technology addiction using a Structural Equation Modeling (SEM) approach.

Methods: A cross-sectional study was conducted at Imam Abdulrahman Bin Faisal University in Saudi Arabia, involving a sample of 1,083 students selected through systematic sampling methods. Data collection utilized validated scales for nomophobia, Fear of Missing Out (FoMO), anxiety, and technology addiction. Data analysis was performed using SPSS for descriptive statistics and SmartPLS for SEM to investigate relationships and group differences by gender and type of college.

Results: A total of 1,083 students participated in the study, with a predominant representation of females (70.6%) and individuals enrolled in medical colleges (66.4%). The measurement model exhibited satisfactory reliability and validity across all constructs. Structural equation modeling revealed that nomophobia was significantly associated with technology addiction both directly ($\beta = 0.566$, $p < 0.001$) and indirectly through anxiety ($\beta = 0.088$, $p < 0.001$) and fear of missing out ($\beta = 0.064$, $p < 0.001$). The total indirect effect was significant ($\beta = 0.152$, $p < 0.001$), indicating partial mediation. The overall effect of nomophobia on technology addiction was substantial ($\beta = 0.718$, $p < 0.001$), and the model accounted for a substantial proportion of variance in technology addiction ($R^2 = 0.565$). Furthermore, multigroup analysis identified significant differences based on college type, revealing stronger associations among non-medical students.

Conclusion: This study identified nomophobia as a significant contributor to technology addiction among university students, operating both directly and indirectly through mechanisms such as anxiety and FOMO. The findings highlighted the need for targeted interventions that address underlying psychological factors to mitigate excessive technology use, particularly among non-health college students, who demonstrated greater vulnerability.

Keywords: Anxiety, Fear of Missing Out, Nomophobia, Psychological Factors, Saudi Arabia, Students, Structural Equation Modeling, Technology Addiction

Introduction

Nomophobia, defined as the fear of being without one's mobile device, has emerged as a significant psychological phenomenon in the digital age, particularly among college students. This condition is frequently associated with the fear of missing out (FOMO) and anxiety, which contribute to excessive technology addiction.[1] Empirical studies

have demonstrated a positive correlation between nomophobia and FOMO, with the latter often serving as a predictor due to the persistent need to remain connected and informed about the activities of others.[2] Furthermore, this relationship is linked to adverse mental health outcomes, including depression, anxiety, and stress (Singh & Rathore, 2023).

Research has shown that nomophobia negatively affects personality, self-esteem, and academic performance,[1] and is associated with loneliness and psychological distress. Personality traits such as neuroticism and attachment anxiety have also been positively correlated with nomophobia.[2] In addition, cognitive processes such as rumination may exacerbate FOMO and indirectly increase nomophobia.

Nevertheless, previous research has primarily explored the above variables in isolation or through a basic causal relationship without integrating these constructs into a comprehensive theoretical framework. Based on the Interaction of Person-Affect-Cognition-Execution (I-PACE) model of behavioral addiction,[3,4] this study conceptualizes nomophobia as a negative outcome of the interaction among the cognitive (FOMO), affective (anxiety), and behavioral (technology use) systems. In this regard, FOMO is a cognitive distortion that makes people more susceptible to social disconnection, whereas anxiety is an affective reaction that intensifies compulsive smartphone usage.

This study posits that FOMO and anxiety function simultaneously and sequentially to mediate the association between nomophobia and technology addiction. The current research expands existing literature by[1] studying a theoretically driven mechanism instead of mere correlations,[2] assessing the cognitive-affective pathways of technology addiction, and[3] contributing data from a non-Western setting where such frameworks have not been sufficiently explored.

Therefore, the study aimed to examine the relationships between nomophobia, FOMO, anxiety, and technology addiction using SEM. By testing a dual mediation mechanism grounded in the I-PACE model, the study offers a novel explanation of how cognitive and emotional processes jointly contribute to technology addiction. The following hypotheses were assessed (Figure 1):

H1: Nomophobia is associated with technology addiction.
H2: Nomophobia is associated with FOMO.
H3: Nomophobia is associated with anxiety.
H4: FOMO is associated with technology addiction.
H5: Anxiety is associated with technology addiction.
H6: FOMO and anxiety mediate the relationship between nomophobia and technology addiction.

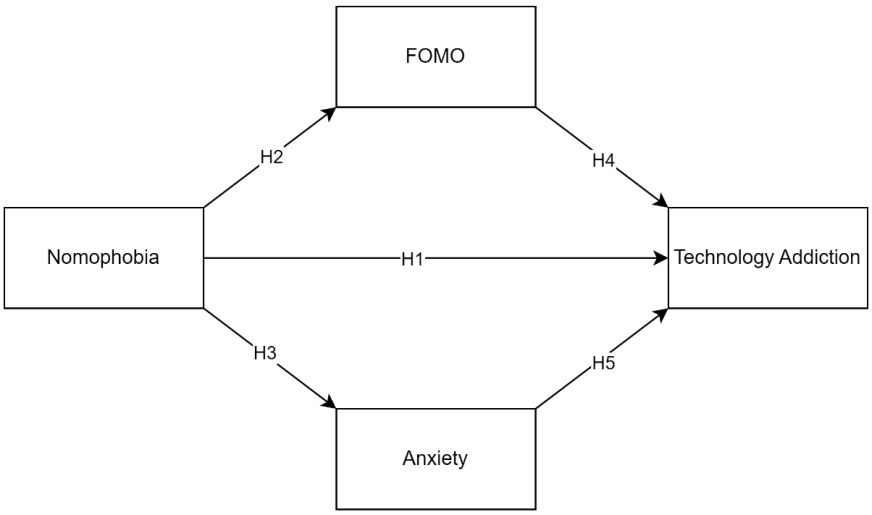

Figure 1: Conceptual framework.

Methods

A cross-sectional study was conducted across all colleges of Imam Abdulrahman Bin Faisal University (IAU) in the Eastern Province of Saudi Arabia over a period of three months.

The target population comprised students from various academic levels, including undergraduate, postgraduate, and doctoral candidates, at Imam Abdulrahman Bin Faisal University (IAU). The sampling frame was derived from the official enrollment list provided by the university registrar, encompassing approximately 31,000 students, organized sequentially by student identification number and assigned chronologically by enrollment date. The sampling technique employed was a combination of systematic and stratified sampling, categorized by gender and type of college. Specifically, the population was divided into four strata: male-medical, male-non-medical, female-medical, and female-non-medical. Within each stratum, the sampling interval (k) was calculated as the stratum population divided by the target sample size for that stratum. A random starting point, ranging from 1 to k, was generated using Excel's RANDBETWEEN function, and subsequently, every kth student within each stratum was selected for participation.

The sample size was determined based on the specifications of the Structural Equation Modeling (SEM) design. An a priori power analysis using G*Power was conducted to determine the required sample size. The analysis utilized specific parameters, including an effect size of 0.03, a significance level (α) of 0.05, and a desired statistical power of 0.80, with four constructs in the model. Based on these parameters, the estimated sample size required was 403 participants. The noncentrality parameter was computed as 12.09, and the critical F-value was established at 2.39, with degrees of freedom for the numerator and denominator set at 4 and 398, respectively. The achieved power in this analysis was 0.800, indicating that the sample size was sufficient to detect the specified effect size. The final sample size exceeded this minimum requirement, comprising 1,083 students across all academic levels.

Sample Representativeness and Generalizability: The final sample consisted of 70.6% female and 29.4% male students, closely aligning with the overall university population (71.4% female, 28.6% male). However, medical college students were disproportionately represented in the sample (66.4%) in comparison to the university population (20.5%). This discrepancy is likely attributable to differential response rates, suggesting that medical students may have been more inclined or available to participate. Accordingly, the findings are more directly generalizable to female students and those enrolled in medical colleges. Caution should be exercised when extrapolating conclusions to male students or those in non-medical fields such as business, engineering, humanities, and design.

Ethical approval was obtained from the Institutional Review Board at Imam Abdulrahman Bin Faisal University. Informed consent was obtained from all potential participants, ensuring they were aware of the voluntary nature of their participation and their right to withdraw at any time during the study. Participants were assured that their involvement would not affect their university enrollment or any associated benefits.

1. **Nomophobia**: The Nomophobia Questionnaire Short-Form (NMPQ-SF)[5] consists of ten items designed to evaluate four dimensions of nomophobia: the inability to access information, the sacrifice of convenience, the inability to communicate, and the loss of connection. Respondents were instructed to rate each item on a Likert scale ranging from 0 ("totally disagree") to 4 ("totally agree"). The scale demonstrates excellent internal consistency, with a Cronbach's alpha of .93 for the overall instrument and between .78 and .90 for each individual dimension. It effectively assesses behaviors, emotions, and sensations associated with the discomfort experienced when individuals lose access to information, communication, and connectivity due to the absence of smartphone access.[6] The scale has been shown to be a valid and reliable instrument for assessing nomophobia in adolescents. It demonstrates robust construct validity, as evidenced by factor analysis that corroborates its structural integrity and demonstrates convergent validity through significant correlations with related constructs such as anxiety, stress, and depression. Furthermore, the questionnaire displays high internal consistency, with Cronbach’s alpha values typically exceeding 0.80, and strong test-retest reliability, indicating the stability of results over time. Overall, the NMP-Q-SF constitutes a psychometrically robust measure for the evaluation of nomophobia.[5]

2. **Fear of Missing Out**: The FOMO scale, developed by,[7] is a self-report instrument intended to evaluate individuals' proclivity to experience FOMO on rewarding experiences. The scale comprises 10 items, each assessing distinct dimensions of FoMO. Respondents were asked to indicate their level of agreement with each statement on a Likert scale, which typically ranges from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha coefficient for the FoMO scale has been reported to be approximately 0.85, indicating high internal consistency among its items. The scale's validity and reliability have been established as suitable for use within Arabic-speaking populations.[8]

3. **Anxiety**: The Generalized Anxiety Disorder Scale - 7 (GAD-7) consists of seven items, each assessed on a scale from 0 to 3, corresponding to responses that range from "Not at all" to "Nearly every day." Alghadir et al., (2020) conducted a validation of the scale specifically among Saudi university students, reporting a strong internal consistency (Cronbach's $\alpha = 0.83$) and confirming its unidimensional structure.[9] More recently, the scale has been utilized in a national screening study involving 6,015 Saudi participants (Alhabeeb et al., 2023) as well as in a large-scale investigation of 1,084 Saudi adults. In the present sample, the GAD-7 exhibited excellent internal consistency (Cronbach's $\alpha = 0.91$) and convergent validity (AVE = 0.65), thereby reinforcing its suitability for the current study.

4. Technology Addiction: The Smartphone Addiction Scale Short Version (SAS-SV) comprises 10 items, each evaluated on a Likert scale ranging from 1 (Strongly Disagree) to 6 (Strongly Agree). The scale has exhibited satisfactory internal consistency, evidenced by a Cronbach's alpha of 0.79, as well as high test-retest reliability, recorded at 0.83. These results substantiate the SAS-SV as a valid and reliable instrument for the assessment of smartphone addiction.[10]

Excel software and SPSS version 22.0 were employed for data cleaning and screening. Categorical variables, including nomophobia, FOMO, anxiety, and technology addiction, were analyzed using frequencies and percentages, whereas continuous variables were described using means and standard deviations. The reliability of the study instruments was evaluated by calculating Cronbach's alpha coefficients to assess internal consistency.

SmartPLS 3 was used for data analysis, including the assessment of factor loadings, composite reliability, and the average variance extracted (AVE) to establish convergent validity. Prior to structural equation modeling (SEM), the assumptions of normality and multicollinearity were assessed. The SEM analysis, conducted with SmartPLS 3.0, examined the relationships among latent constructs such as nomophobia, FOMO, anxiety, and technology addiction, accounting for both direct and indirect relations. Bootstrapping, set at a significance level of $p < 0.05$ and 5,000 resamples, was employed to determine confidence intervals and significance levels. The outcomes of the SEM analysis facilitated the assessment of the proposed model and the exploration of the potential mediating roles of anxiety and technology addiction in the association between nomophobia, FOMO, and the outcomes. Additionally, Henselers Multigroup Analysis (MGA) was utilized to examine gender and type of college variations in the links between nomophobia, FOMO, anxiety, and technology addiction. Significance was assessed with a 5% error probability, with p-values below 0.05 or above 0.95 indicating a significant difference in path coefficients between males and females. The PLS-MGA method in SmartPLS provided a robust evaluation of path coefficient differences through bootstrap-based PLS-SEM.

Before conducting the Structural Equation Modeling (SEM), the dataset was assessed for multivariate outliers utilizing Mahalanobis Distance. The analysis encompassed the total scores of four principal variables: nomophobia, FOMO, anxiety, and technology addiction. Mahalanobis Distance values were computed in SPSS, and cases exceeding the critical chi-square threshold of 18.47 ($df = 4$, $p < 0.001$) were designated as multivariate outliers. In accordance with this criterion, two participants were identified and subsequently excluded from the final analysis to enhance the robustness and validity of the SEM results. Common method bias was evaluated using the full collinearity approach. The variance inflation factor (VIF) values ranged from 1.36 to 3.21, all remaining below the recommended threshold of 3.3, indicating that common method bias is unlikely to present a significant concern in this study. Concerning missing data, the dataset exhibited no missing values; consequently, no imputation procedures were necessary.

Results

A total of 1,083 students participated in the study. The majority of participants were female, comprising 70.6% (n = 765). Most participants were single, accounting for 94.6% (n = 1,025), while 5.4% (n = 58) were married. In terms of academic level, 36.1% (n = 391) were in their first year, whereas 5.2% (n = 56) were in their fifth year. Approximately two-thirds of the participants (66.4%, n = 719) were enrolled in health-related colleges. The mean age of the participants was 20.5 years (SD = 2.07), with a median age of 20.0 years (IQR = 2.0).

The assessment of the reliability and validity of the measurement model was conducted prior to the evaluation of the structural model (Table 1). All constructs exhibited high internal consistency, as evidenced by Cronbach's alpha coefficients of 0.94 for nomophobia, 0.84 for FOMO, 0.91 for anxiety, and 0.91 for technology addiction. The composite reliability values ranged from 0.88 to 0.95, indicating satisfactory reliability across the constructs.

Convergent validity was established, with average variance extracted (AVE) values of 0.64 for nomophobia, 0.51 for FOMO, 0.65 for anxiety, and 0.55 for technology addiction, all exceeding the recommended threshold of 0.50. Furthermore, the rho_A values were consistent with Cronbach's alpha coefficients, providing additional support for the constructs reliability. Collectively, these findings suggest that the measurement model demonstrates adequate reliability and convergent validity.

Table 1: Reliability and validity.

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Technology Addiction	0.91	0.91	0.92	0.55
FOMO	0.84	0.84	0.88	0.51
Anxiety	0.91	0.91	0.93	0.65
Nomophobia	0.94	0.94	0.95	0.64

AVE: Average Variance Extracted

Table 2 presents an assessment of discriminant validity through the application of both the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. The diagonal values, represent the square roots of the Average Variance Extracted (AVE) for each construct and exceed the inter-construct correlations displayed below the diagonal, thereby fulfilling the Fornell-Larcker criterion. Furthermore, all HTMT values, located above the diagonal, remain below the recommended threshold of 0.85, thereby confirming adequate discriminant validity among the constructs. These findings support the conclusion that the constructs are conceptually distinct from one another.

Table 2: Discriminant Validity of the Measurement Model Using Fornell-Larcker Criterion and HTMT Ratio.

Variables	Anxiety	FOMO	Nomophobia	Tech. Addiction
Anxiety	***0.804***	0.355	0.523	0.560
FOMO	0.314	***0.711***	0.466	0.506
Nomophobia	0.484	0.420	***0.799***	0.769
Tech. Addiction	0.504	0.446	0.718	***0.741***

The diagonal and italicized elements represent the square roots of the Average Variance Ex-tracted (AVE). The elements located below the diagonal indicate the correlations among the constructs, while those situated above the diagonal present the Heterotrait-Monotrait Ratio (HTMT) values

The model demonstrated an overall acceptable fit. Both the saturated model (SRMR = 0.054) and the estimated model (SRMR = 0.056) were below the threshold of 0.08, indicating a good fit. The discrepancy values (d_ULS and d_G) fell within acceptable limits, while the Chi-Square values, although elevated, were expected given the large sample size. The Non-Fit Index (NFI) value of 0.867 indicated a reasonably good fit, albeit slightly below the ideal cutoff of 0.90.

The R^2 and Q^2 values in Table 3 indicated the model's explanatory power and predictive relevance, respectively. Technology Addiction demonstrated the most robust results, with an R^2 of 0.565 and a Q^2 of 0.305, indicating a substantial degree of variance explained and a high level of predictive relevance. Anxiety followed, demonstrating a moderate R^2 of 0.234 and a Q^2 of 0.149, which reflected a fair level of explanatory and predictive capability. In contrast, FOMO showed the lowest R^2 at 0.176 and Q^2 at 0.085, thereby suggesting limited explanatory power and diminished predictive accuracy. In summary, the model was most effective in explaining technology addiction.

Table 3: The R^2 and Q^2 values.

Construct	R^2	Q^2
Anxiety	0.234	0.149
FOMO	0.176	0.085
Tech. Addiction	0.565	0.305

As illustrated in Table 4, nomophobia exerted a moderate effect on both the mediating and outcome variables, whereas anxiety and FOMO each exhibited relatively smaller direct effects on technology addiction.

Table 4: Effect Sizes (f^2) for Structural Paths.

Path	f^2	Effect Size
Nomophobia → Technology Addiction	0.506	Large
Nomophobia → Anxiety	0.306	Medium
Nomophobia → FOMO	0.214	Medium
Anxiety → Technology Addiction	0.057	Small
FOMO → Technology Addiction	0.043	Small

Note: f^2 values interpreted using (Cohen, 1988) benchmarks (small ≥ 0.02, medium ≥ 0.15, large ≥ 0.35).

Table 5 presents the findings from the structural model analysis. Nomophobia demonstrated a significant direct effect with technology addiction ($\beta = 0.566$, $p < 0.001$). Additionally, a noteworthy total indirect relation was identified ($\beta = 0.152$, $p < 0.001$), indicating the presence of mediation. A decomposition of the indirect relation revealed that the relationship between nomophobia and technology addiction was mediated by both anxiety ($\beta = 0.088$, $p < 0.001$) and fear of missing out ($\beta = 0.064$, $p < 0.001$). The cumulative association of nomophobia on technology addiction was substantial ($\beta = 0.718$, $p < 0.001$), supporting partial mediation. Moreover, nomophobia was significantly correlated with fear of missing out ($\beta = 0.420$, $p < 0.001$) and anxiety ($\beta = 0.484$, $p < 0.001$). Both fear of missing out ($\beta = 0.151$, $p < 0.001$) and anxiety ($\beta = 0.182$, $p < 0.001$) were also significantly associated with technology addiction, further supporting their role as mediators. Overall, these findings supporting the hypothesized relationships proposed in the model.

The multigroup analysis indicated no significant gender differences across the majority of the examined pathways. However, the association between FOMO and technology addiction approached significance ($p = 0.059$), suggesting a minor divergence between female and male participants. In terms of health and non-health groups, significant differences were observed in two pathways: from nomophobia to FOMO ($p = 0.035$) and from nomophobia to technology addiction ($p = 0.030$), with the non-health group exhibiting stronger relationships. Other pathways, including anxiety to technology addiction, FOMO to technology addiction, and nomophobia to anxiety, did not demonstrate significant differences between the groups (Table 6).

Table 5: Direct, Indirect, and Total Effects of the Structural Model Paths.

		Direct Effect				Indirect Effect				Total Effects			
Hypotheses	**Path**	**β**	**SD**	**T Statistics**	**P Values**	**β**	**SD**	**T Statistics**	**P Values**	**β**	**SD**	**T Statistics**	**P Values**
H1	Nomophobia -> Technology Addiction	0.566	0.025	22.611	< 0.001	0.152	0.017	9.183	< 0.001	0.718	0.017	42.710	< 0.001
H2	Nomophobia -> FOMO	0.420	0.025	16.675	< 0.001	-	-	-	-	0.420	0.025	16.675	< 0.001
H3	Nomophobia -> Anxiety	0.484	0.026	18.574	< 0.001	-	-	-	-	0.484	0.026	18.574	< 0.001
H4	FOMO -> Technology Addiction	0.151	0.023	6.532	< 0.001	-	-	-	-	0.151	0.023	6.532	< 0.001
H5	Anxiety -> Technology Addiction	0.182	0.026	7.006	< 0.001	-	-	-	-	0.182	0.026	7.006	< 0.001

Table 6: Multigroup Analysis of Path Coefficients: Gender and College Type Differences.

	Gender		**Type of College**	
Relationship	**difference (Female - Male)**	**p-Value (Female vs Male)**	**difference (Health - non-Health)**	**p-Value (Health vs non-Health)**
Anxiety -> Tech. Addiction	0.020	0.742	0.060	0.277
FOMO -> Tech. Addiction	-0.106	0.059	0.052	0.284
Nomophobia -> Anxiety	0.044	0.402	0.060	0.272
Nomophobia -> FOMO	0.003	0.967	0.116	0.035
Nomophobia -> Tech. Addiction	0.082	0.147	-0.108	0.030

Discussion

The study aimed to explore the relationships among nomophobia, FOMO, anxiety, and technology dependence in college students using SEM. The main findings highlighted the model's moderate explanatory and predictive power, particularly regarding technological dependence ($R^2 = 0.565$, $Q^2 = 0.305$). The strongest association was observed for nomophobia, which had both a direct and an indirect effect on technology addiction through FOMO and anxiety, resulting in a significant overall effect ($\beta = 0.718$). This pattern extends preceding research by representing not only associations but also the simultaneous operation of multiple mediating pathways, highlighting a more complex mechanism underlying technology addiction. FOMO and anxiety also showed significant mediating roles, each contributing independently to technology addiction. Multivariate analysis revealed significant differences by college type, with non-health students showing a stronger association between nomophobia and both FOMO and tech dependence, while gender differences were generally insignificant.

In the current study, the SEM model demonstrated a moderate explanatory ($R^2 = 0.565$) and predictive ($Q^2 = 0.305$) capacity regarding technological dependence. This is consistent with Al-Abyadh et al. (2024),[11] who reported that smartphone addiction correlates with cognitive failures and reduced academic life satisfaction. Though unlike earlier studies that primarily reported bivariate associations, the present findings provide a theoretically integrated explanation by quantifying the joint contribution of cognitive (FOMO) and emotional (anxiety) processes to technology dependence. In Saudi Arabia, the increasing integration of smartphones in educational settings (e.g., online platforms, digital textbooks) may unintentionally have promoted overuse, blurring the lines between academic utility and compulsive behavior.

Nomophobia was identified as the most influential factor, consistent with findings from Alodhialah et al. (2025) and Al-Mamun et al. (2023).[12,13] The present study builds on these findings by showing that nomophobia operates not only as a direct predictor but also as an upstream driver of both FOMO and anxiety, which in turn reinforces addictive technology use. This suggests a cascading psychological process rather than isolated effects. In Saudi Arabia, cultural factors such as strong social connectedness and high reliance on digital communication may intensify this effect.[14] A plausible interpretation is that constant connectivity becomes psychologically internalized as a necessity, making disconnection more distressing and thereby amplifying dependence.

The mediating roles of FOMO and anxiety are consistent with Wibowo and Safaria (2025) and Albikawi and Abuadas (2025).[15,16] Importantly, the current findings suggest that FOMO and anxiety function as complementary rather than competing mechanisms, FOMO reflecting anticipatory cognitive concern about missing experiences, and anxiety reflecting emotional distress, both of which jointly sustain compulsive smartphone use. This dual-process explanation offers a more nuanced understanding of technology addiction.

The high prevalence of nomophobia reported in regional studies.[17] Further supports the present findings. In comparison to these prevalence-focused studies, the current research contributes by explaining how and why such high levels of nomophobia translate into problematic technology use through specific psychological pathways. Cultural expectations of constant availability via platforms such as WhatsApp may further intensify FOMO and anxiety.

The stronger associations observed among non-health students are consistent with Aslani et al. (2025) and Aslan and Polat (2024).[18,19] A plausible explanation is that differences in academic structure and health literacy may influence self-regulation abilities, with non-health students potentially having fewer opportunities or motivations to critically reflect on their technology use. This highlights the role of contextual and educational factors in shaping digital behaviors.

The absence of gender differences aligns with Mohammad et al. (2024) and Sadeghi et al. (2025).[17,20] This finding may reflect the normalization of smartphone use across genders in Saudi society, suggesting that technology-related behaviors are becoming increasingly universal rather than demographic-specific.

The findings have several practical and policy implications. Educational institutions should integrate digital well-being programs into curricula, particularly in non-health disciplines, with a focus on reducing FOMO and managing anxiety related to technology use. Structured interventions such as mindfulness training, cognitive-behavioral strategies, and digital detox programs may help students develop healthier usage patterns. At the policy level, universities could establish guidelines that promote balanced technology use and incorporate mental health support services to address digital overdependence. In nursing education, future professionals should be trained to recognize and address technology-related behavioral issues. From a clinical perspective, incorporating screening for nomophobia and related constructs into student health services may facilitate early identification and intervention.

Future research should adopt longitudinal and experimental designs to establish causality and examine potential bidirectional effects. Comparative cross-cultural studies between Arab and non-Arab contexts would help determine the model's generalizability. Additionally, future studies could explore moderating variables such as personality traits, coping styles, and sleep quality to further refine the theoretical model.

Although this study presented significant findings, several limitations were acknowledged. First, the cross-sectional design precludes causal inferences; thus, the directional pathways proposed in the model cannot be definitively established. It is possible that reciprocal or bidirectional relationships exist among nomophobia, FOMO, anxiety, and technology addiction. Longitudinal or experimental studies are needed to confirm the temporal ordering of these variables. Second, the use of self-reported data may have introduced response bias. Third, the sample was drawn from a single university in the Eastern region of Saudi Arabia, which limits the generalizability of the results to broader populations. Fourth, Medical college students were overrepresented in the study; therefore, the findings were primarily generalizable to female and medical college students, rather than to male or non-medical college students. Therefore, these findings should be interpreted with caution, and future research is recommended to address these limitations and enhance the robustness of the conclusions.

Conclusion

This study investigated the interrelations of nomophobia, FOMO, anxiety, and technology addiction in Saudi university students using SEM. Nomophobia emerged as a notable association with technology use, while FOMO and anxiety were identified as crucial mediators. The findings reflected the cultural value of mobile connectedness in Saudi Arabia and suggested that non-health students were vulnerable to overdependence on online platforms. Targeted interventions that promote digital well-being and address underlying psychological factors were deemed essential for reducing excessive technology use and supporting student mental health.

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