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Social media fatigue in nursing students: the role of self-control, social comparison, and fear of missing out

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Abstract

Background: The rapid expansion of social media has been accompanied by increasing reports of psychological and physical fatigue among users. Nursing students may be particularly vulnerable due to their high academic workload, clinical stress, and constant reliance on digital communication. This study aimed to examine the roles of self-control, social comparison, and fear of missing out (FoMO) in predicting social media fatigue among nursing students.

Methods: In this cross-sectional study, 223 nursing students from Guilan University of the Medical Science were recruited through convenience sampling. Validated instruments were used, including the Brief Self-Control Scale, the Iowa–Netherlands Comparison Orientation Measure, the FoMO Scale, and the Social Media Fatigue Scale. Data were analyzed using Pearson correlation and stepwise multiple regression in SPSS version 26 and the significant level was set at 0.05.

Results: Social media fatigue was negatively correlated with self-control (r = –0.394, $P < 0.001$) and positively correlated with social comparison orientation (r = 0.320, $P < 0.001$) and fear of missing out (r = 0.480, $P < 0.001$). In the regression model, FoMO (β = 0.56, $P < 0.001$), self-control (β = –0.39, $P < 0.001$), and social comparison in the ability dimension (β = 0.19, $P = 0.048$) were significant predictors of social media fatigue.

Conclusion: The findings indicate that Low self-control, high FoMO, and frequent ability-based comparisons were associated with higher levels of social media fatigue. Nursing curricula could incorporate digital self-regulation workshops, FoMO awareness training, and mindful technology-use guidelines to help reduce social media fatigue.

Keywords: Self-control, fear of missing out, nursing, social media fatigue

Introduction

The rapid advancement of internet-based technologies and the proliferation of social media platforms have revolutionized communication and social interactions worldwide. Over 77% of the global population actively uses social media, while in Iran, this figure reaches approximately 55.8% [1–3]. Among these users, nursing students make up a large demographic group. Their demanding academic and clinical responsibilities, combined with increased digital communication during the COVID-19 pandemic, place them at greater risk of social media-related fatigue [4].

Excessive social media use has been associated with elevated fatigue levels and adverse physical and mental health outcomes [5–7]. Social media fatigue appears in three domains: cognitive (reduced attention and decision-making difficulties), emotional (burnout and frustration), and behavioral (declining motivation to use social platforms) [8]. These outcomes vary widely across individuals, highlighting the importance of personal characteristics in shaping fatigue responses [9]. One such factor is self-control, defined as the capacity to regulate impulses, emotions, and behaviors in pursuit of long-term goals [10].

Evidence shows that individuals with lower self-control are more vulnerable to problematic mobile phone and social media use, while those with stronger self-control engage in more intentional and regulated online behavior [11, 12]. Prior studies also link low self-control with problematic smartphone use and a heightened fear of missing out (FoMO) among university students [10, 13, 14]. In addition to personal traits, social and cognitive processes, particularly social comparison, play a major role in influencing fatigue. Users frequently compare their abilities or opinions

with others [15–17]. Frequent or upward social comparisons can increase negative emotions, reduce motivation, and contribute to exhaustion [18, 19]. Passive browsing further intensifies these effects by amplifying unfavorable comparisons and lowering psychological well-being [20, 21]. FoMO, defined as anxiety about being excluded from rewarding experiences, is another factor strongly associated with excessive or compulsive social media use [22, 23]. It has been linked to anxiety, sleep problems, attention difficulties, and emotional dependence on digital platforms [19, 22, 24]. Some studies show that FoMO predicts social media fatigue, while others find no significant relationship [25–27]. Taken together, prior evidence suggests a psychological pathway in which social comparison and FoMO act as cognitive–emotional pressures that increase fatigue, while self-control functions as a regulatory factor that may buffer or reduce these effects. This conceptual model provides a foundation for examining how these variables jointly contribute to social media fatigue among nursing students.

This conceptual model provides a foundation for examining how these variables jointly contribute to social media fatigue among nursing students through the lens of the Stressor-Strain-Outcome Framework. In this adapted model, FoMO and Social Comparison Orientation function as the primary cognitive-emotional stressors, leading to Social Media Fatigue as the resulting strain/outcome. Self-Control is positioned as a direct predictor that influences the level of SMF, representing an individual's core capacity to manage behavioral impulses and cognitive demands.

Based on this framework, the present study hypothesized that: lower self-control would be associated with higher social media fatigue; higher social comparison orientation would predict greater fatigue; and higher levels of FoMO would be associated with increased fatigue. In this regard, the current study aims to explore the interrelationships between self-control, social comparison orientation, and fear of missing out in predicting social media fatigue among nursing students.

Methods

Study design and participants

This cross-sectional study was conducted among 223 nursing students at Guilan University of Medical Sciences, Rasht, Iran. The sample size was determined based on the commonly recommended participant-to-item ratio of approximately 10:1 for factor analysis, which is appropriate for the 22-item SMP scale. This approach aligns with previous studies on similar constructs in nursing populations. The wide age range (18–60 years) reflects both traditional undergraduate students and older, employed nurses enrolled in bridging or part-time bsn programs, which is common in Iranian nursing education. This study was approved by the Ethics Committee at the Guilan University of Medical Sciences [IR.GUMS.REC.1403.427]. All individuals gave their informed consent to participants in the study. The participants were selected through convenience sampling method.

The questionnaires on social media fatigue, self-control and social comparison, and fear of missing out were provided online to nursing student groups via social media platforms (specifically Telegram and WhatsApp) over two months (fully anonymous). Before presenting the questionnaire questions, and demographic questions (age and gender, education level, marital status) were recorded. Missing data were minimal (<2%) and were handled using Listwise deletion, which is appropriate for regression models when missingness is very low

Social media fatigue scale by Zhang et al. [28]

This scale includes 15 items, with responses on a 7-point Likert scale from strongly agree (score 7) to strongly disagree (score 1), which measures three factors: cognitive experiences (items 1 to 5), behavioral experiences (items 6 to 10), and emotional experiences (items 11 to 15). The construct validity of the questionnaire was previously confirmed using confirmatory factor analysis (CFI = 0.97, TLI = 0.96, RMSEA = 0.06) [28]. The exploratory factor analysis reveals three factors: cognitive experiences, behavioral experiences, and emotional experiences. The Cronbach's alpha for the cognitive experiences, behavioral experiences, emotional experiences subscales, and the total score were 0.69, 0.79, 0.80, and 0.83,

respectively, indicating the desirable reliability of this questionnaire in the Iranian sample. The convergent validity was obtained at 0.51 with a significance level of 0.01 in correlation with the Mobile-based Social Network Addiction Questionnaire [29]. Therefore, this instrument has desirable validity and reliability in the Iranian population. Confirmatory factor analysis supported its construct validity in the nursing student sample, with acceptable fit indices (CFI = 0.90, TLI = 0.90, RMSEA = 0.06, SRMR = = 0.05).

Self-control scale by Tangney et al. [30]

This questionnaire measured self-control as a trait, of which the short form of the questionnaire has 13 items, and the questionnaire is scored on a five-point Likert scale from very much (5 points) to never (1 point), yielding a total score. The scoring method for questions 2, 3, 4, 5, 7, 9, 10, 12, 13 is reversed. The minimum score on this questionnaire is 13 points and the maximum is 65 points, and a higher score on this questionnaire indicates better self-control of the individual. The internal consistency reliability was 0.85 for the questionnaire [30]. Cronbach's alpha in the Persian version of the questionnaire was calculated as 0.84 [31]. In the present study, Cronbach's alpha coefficient for the entire scale was obtained as 0.81. Construct validity was confirmed via CFA in this sample, showing good model fit (CFI = 0.95, TLI = 0.94, RMSEA = 0.05, SRMR = 0.04).

Social comparison scale by Gibbons & Buunk [32]

The *social comparison scale* measures individual differences in social comparison, which has 11 items and two subscales, ability and opinion, that are scored on a five-point Likert scale from strongly disagree (1 point) to strongly agree (5 points) [32]. The reliability of the scale in various samples was between 0.77 and 0.85 and confirmed the validity of the scale using criterion-related validity and construct validity methods [33]. Cronbach's alpha coefficient for the ability factor was 0.72, for the opinion factor 0.80, and for the entire questionnaire 0.80 [34]. In the current study, Cronbach's alpha coefficient for the subscales of ability and belief was calculated as 0.83, 0.67 respectively, and 0.84 for the entire scale. CFA

results indicated adequate construct validity among nursing students (CFI = 0.96, TLI = 0.95, RMSEA = 0.05, SRMR = 0.04).

FoMO scale by Przybylski et al. [35]

The FoMO scale includes 10 questions on a five-point Likert scale from does not apply (1 point) to applies very much (5 points). The score range is between 10 and 50, and a higher score indicates a greater fear of being left out of events and surrounding information. The convergent validity of this scale with the social media addiction scale (SMAS) and calculated its reliability using Cronbach's alpha in a sample of students as 0.86 was previously confirmed [35]. In the present study, Cronbach's alpha coefficient for the entire scale was obtained as 0.86. The reliability of this questionnaire was obtained as 0.87 by [36]. The scale's construct validity was confirmed with CFA in the nursing student sample (CFI = 0.96, TLI = 0.95, RMSEA = 0.06, SRMR = 0.05).

Statistical analysis

Data were reported as number, percentage, and mean ± standard deviation (SD). The Kolmogorov–Smirnov test indicated that the data were normally distributed ($p > 0.05$). Descriptive statistics, including mean, SD, skewness, and kurtosis, were calculated for all study variables. Relationships between variables were examined using the Pearson correlation coefficient. Stepwise multiple regression analysis was conducted to identify predictors of social media fatigue. Regression assumptions were verified: univariate normality was supported with skewness values ranging from –0.45 to 0.52 and kurtosis values from –0.60 to 0.70; independence of residuals was confirmed by a Durbin–Watson statistic of 2.02; multicollinearity was ruled out as all VIF values ranged from 1.12 to 1.45 and tolerance values from 0.69 to 0.89; residual plots indicated homoscedasticity. Data analyses were performed using SPSS version 26.0 (IBM Corp., Armonk, NY, USA), and statistical significance was set at $p < 0.05$.

Results

A total of 223 nursing students participated in the study, with a mean age of 28.05 ± 9.83 years (range: 18–60). The majority of participants were female (n = 177, 79.4%), while 46 (20.6%) were male. Regarding marital status, 150 (67.3%) were single, 67 (30%) were married, and 6 (2.7%) were divorced or widowed. Descriptive indices including mean, standard deviation, skewness, and kurtosis for the main study variables, self-control, social comparison (ability and opinion subscales), FoMO, and the cognitive, behavioral, and emotional dimensions of social media fatigue, are summarized in Table 1. All skewness and kurtosis values were within the acceptable range, confirming normal data distribution.

The Pearson correlation coefficients demonstrated that self-control was significantly and negatively correlated with social media fatigue (r = –0.40, p < 0.01), indicating that higher self-control was associated with lower levels of fatigue. In contrast, FoMO and social comparison orientation (both ability and opinion subscales) were positively correlated with social media fatigue (p < 0.01). Furthermore, the total score of social comparison exhibited a moderate positive correlation with FoMO (r = 0.47, p < 0.01) and with the cognitive (r = 0.23, p < 0.05), behavioral (r = 0.22, p < 0.05), and emotional (r = 0.35, p < 0.01) dimensions of social media fatigue. These results suggest that individuals with higher tendencies toward social comparison and fear of missing out experience greater levels of fatigue associated with social media use (Table 2).

A stepwise multiple regression analysis indicated that FoMO, self-control increased the explained variance to 27.9%, and adding social comparison ability increased it further to 28.8% (Adjusted R² = 0.288). In the first model, FoMO alone explained 22.7% of the variance in social media fatigue (R² = 0.230). This increment indicates that each variable added unique explanatory value beyond FoMO. The Durbin–Watson statistic (2.02) indicated the independence of residuals, confirming the validity of the regression assumptions (Table 3).

The analysis of variance for the regression models showed that all three models were statistically significant (F = 66.08, 43.92, and 30.99; p < 0.001, respectively). These findings confirm that the combination of FoMO,

self-control, and social comparison ability effectively predicted social media fatigue among the nursing students (Table 4).

The standardized beta coefficients presented in Table 5 revealed that in the final model, FoMO (β = 0.56, p < 0.001) exerted the strongest positive effect on social media fatigue, indicating that greater fear of missing out was associated with increased fatigue. Self-control (β = –0.39, p < 0.001) showed a significant negative effect, implying that higher self-regulation was linked to lower fatigue. Social comparison ability (β = 0.19, p < 0.01) also contributed positively, though to a smaller extent. Together, these findings indicate that while FoMO is the most powerful predictor of social media fatigue, low self-control and higher social comparison orientation also play meaningful roles in exacerbating fatigue symptoms among nursing students.

Discussion

This study examined the roles of self-control, social comparison, and FoMO in predicting social media fatigue among nursing students. Our findings revealed that lower self-control, higher FoMO, and greater social comparison were significantly associated with increased levels of social media fatigue. Self-control demonstrated a significant negative association with social media fatigue, indicating that individuals who can effectively regulate their impulses and behaviors experience less exhaustion from social media use. This finding aligns with prior study by Hinojo et al., which observed that self-control mitigates maladaptive internet use and its negative outcomes [37]. Hu et al. also reported that excessive social media engagement becomes problematic mainly when it surpasses one's ability to regulate impulses [38].

When individuals repeatedly check notifications or engage in habitual scrolling despite their intentions to stop, self-control failure results in emotional strain and eventual fatigue [10]. Crucially, this failure in self-regulation is a significant concern in nursing, as depleted cognitive resources directly impair a student's ability to maintain the sustained clinical concentration necessary for safe medication administration and

accurate patient monitoring, thereby posing a potential risk to patient safety. Similarly, Wang et al. found that self-control mediates the relationship between information overload, social overload, and social media fatigue, as it helps users manage media-related demands more effectively [39].

In situations of high information exposure and constant online social demands, individuals must rely on self-control to prioritize essential tasks and resist distractions [40]. However, as self-control resources become depleted, users' capacity to manage these pressures diminishes, leading to increased fatigue. Intermittent failures of social media self-control have also been linked to reduced emotional well-being and increased daily stress [41], reinforcing that poor self-regulation contributes not only to behavioral fatigue but also to psychological distress.

The findings also revealed a strong positive association between FoMO and social media fatigue. FoMO, conceptualized by Przybylski et al., reflects anxiety about being excluded from rewarding experiences or social interactions [35]. This anxiety can drive compulsive online engagement to maintain social connections and positive self-presentation. The constant exposure to a flood of social information contributes to information and communication overload, amplifying psychological fatigue [42, 43]. In the nursing profession, the emotional exhaustion resulting from this fatigue and FoMO-driven compulsion directly increases susceptibility to the high demands of Emotional Labor and hastens the progression toward Compassion Fatigue. Moreover, consistent with a cognitive-behavioral model, feelings of loneliness can increase compulsive online behaviors, fostering a cycle of dependence and fatigue [44]. Individuals who excessively engage with social media to reduce loneliness or social anxiety often fail to obtain the expected emotional reward, which exacerbates feelings of emptiness and exhaustion. Thus, FoMO may act both as a cause and a consequence of media fatigue, intensifying users' emotional burden over time.

Social comparison was another significant predictor of social media fatigue. Evidence demonstrated that individuals assess their abilities and

opinions by comparing themselves with others, particularly in the absence of objective standards [45, 46]. In the digital environment, these comparisons become more salient and pervasive because social media platforms are designed for selective self-presentation, allowing users to highlight their achievements and positive experiences [47, 48]. Such comparisons often lead to feelings of inadequacy, envy, and lowered self-esteem, especially when individuals perceive others as superior in abilities or accomplishments.

For nursing students striving for clinical excellence, continuous upward social comparison with idealized online peer representations creates unrealistic benchmarks that heighten psychological strain, potentially accelerating professional Burnout and eroding confidence in their developing professional competence. Niu et al. further proposed that online information overload enhances social comparison tendencies, which in turn increases fatigue and decreases the desire to continue social media use [49]. Our findings support this view, suggesting that the ability-based dimension of social comparison, focusing on others' skills, successes, or life achievements, plays a particularly strong role in inducing fatigue. Exposure to idealized representations online may create unrealistic benchmarks that heighten psychological strain and reduce users' satisfaction with their own lives and performance.

Overall, the integrated findings suggest that social media fatigue arises from the interplay of self-regulatory deficits, maladaptive comparison tendencies, and FoMO-driven compulsions. Collectively, these deficits indicate that high social media fatigue in nursing students represents a significant risk factor for diminished clinical performance, increased susceptibility to professional burnout and compassion fatigue, and potential compromises to future patient safety due to impaired self-regulatory functions. This study has several limitations. First, the cross-sectional design, reliance on self-reported data, and a predominantly female sample from a single nursing faculty restrict the generalizability of findings and preclude causal inference. Furthermore, data regarding

platform type, duration, and purpose of use were not collected, precluding the analysis of usage duration's moderating effect on the predictor-fatigue relationships. To foster sustainable online habits among nursing students, it is recommended to promote awareness of social media fatigue, teach time-management and self-monitoring skills, and encourage scheduled digital breaks.

Conclusion

This study identified self-control, fear of missing out, and ability-based social comparison as key predictors of social media fatigue. Strengthening digital self-regulation and promoting balanced online behaviors are essential not only for protecting nursing students' mental well-being but also for safeguarding future quality of care. Nursing curricula can support this by incorporating brief digital well-being training, such as self-control exercises, education on recognizing unrealistic social comparisons, and strategies to manage FoMO, into professional development or mental health courses. Clinical instructors must reinforce the connection between digital habits and professional outcomes, emphasizing how reduced fatigue supports essential clinical concentration and mitigates the risk of compassion fatigue and burnout. These targeted educational approaches can help nursing students develop sustainable digital habits and reduce social media–related fatigue.

Declarations

Ethics approval and consent to participate

All subjects gave their informed consent to participate in the study. This study has been confirmed by the ethics committee of the Guilan University of the Medical Sciences, Rasht, Iran (IR.GUMS.REC.1403.427). All methods followed relevant guidelines and regulations, such as the Declaration of Helsinki.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analyzed in the current study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Declaration of generative AI in scientific writing

The authors used ChatGPT to improve the manuscript's language and grammar.

Authors' contributions

A.P., M.M.M., and M.B. participated in the research design. M.M.M., A.P., F.R.N., M.R.K., M.T., and M.B. participated in investigation, writing the first draft and performance of the research, and analytic tools. A.P., M.M.M., and M.B. participated in data analysis and figures design. All authors reviewed and confirmed the final manuscript.

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Clinical trial code

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Table 1. Descriptive indices (mean and standard deviation) of research variables in nursing students (n=223).

	Variable	Mean	SD	Min-Max	Skewness	Kurtosis
	Self-control	44.70	7.48	24-64	-0.14	-0.12
Social Comparison	Ability	23.48	7.96	6-40	-.027	-0.74
	Opinion	23.52	5.13	6-35	-.056	0.78

	Total Social Comparison Score	47.00	11.78	16-70	-.029	-0.66
	Fear of Missing Out	23.39	7.32	10-47	0.67	0.25
	Cognitive	20.44	4.01	10-35	0.40	0.83
Social Media Fatigue	**Behavioral**	17.20	6.01	5-35	0.18	-0.16
	Emotional	14.68	5.54	5-30	0.23	-0.37
	Total Social Media Fatigue Score	52.31	12.31	25-98	0.34	0.42

Standard Deviation (SD)

	1	2	3	4	5	6	7	8	9
1. Self-control	1								
2. ability	**-0.27	1							
3. opinion	**-0.25	**0.60	1						
4. Social comparison total	**-0.29	**0.93	**0.84	1					
5. Fear of missing out	**-0.37	**0.47	**0.43	**0.50	1				

	1	2	3	4	5	6	7	8	9
6. cognitive	**-0.20	**0.23	0.12	**0.20	**0.29	1			
7. behavioral	**-0.37	**0.22	0.10	**0.20	**0.38	**0.38	1		
8. emotional	**-0.33	**0.37	**0.24	**0.35	**0.46	**0.31	**0.55	1	
9. Social media fatigue - total	**-0.40	**0.35	**0.20	**0.32	**0.48	**0.65	**0.86	**0.82	1

Table 2. Pearson Correlation Coefficient

**P<0.01 ،*P<0.05

Table 3. Stepwise regression predicting social media fatigue through self-control, fear of missing out, and social comparison components in students.

Model	R	R-squared	Adjusted R-squared	Error of the Estimate	Durbin-Watson
1	0.480	0.230	0.227	10.82	
2	0.534	0.285	0.279	10.45	2.02
3	0.546	0.298	0.288	10.38	

Model 1: Predictor: Fear of Missing out
Model 2: Predictor: Fear of Missing out – Self-control
Model 3: Predictor: Fear of Missing out – Self-control – Ability

Table 4. Analysis of Variance Test for the Significance of Regression Coefficients

Model	Source of Variation	df	Sum of Squares	Mean Square	F	Sig.
Model 1 (Predictor: FoMO)	Regression	1	7746.57	7746.57	66.08	<0.001
	Residual	221	25905.45	117.21		
	Total	222	33652.02			
Model 2 (Predictors: FoMO, Self-control)	Regression	2	9602.89	4801.44	43.92	<0.001
	Residual	220	24049.13	109.31		
	Total	222	33652.02			
Model 3 (Predictors: FoMO, Self-control, Ability-based comparison)	Regression	3	10029.57	3343.19	30.99	<0.001
	Residual	219	23622.45	107.86		
	Total	222	33652.02			

Model 1: Predictor: Fear Missing out
Model 2: Predictor: Fear of Missing out – Self-control
Model 3: Predictor: Fear of Missing out – Self-control – Ability

Table 5. Table of β coefficients and t-test for the significance level of FOMO, self-control, and ability in predicting social media fatigue in nursing students.

Model	Predictor	β	Std. Error	Standardized β	t	Sig.
Model 1	Constant	33.44	2.43	–	13.75	<0.001
	Fear of Missing Out	0.80	0.09	0.48	8.12	<0.001
Model 2	Constant	55.60	5.86	–	9.47	<0.001
	Fear of Missing Out	0.65	0.10	0.38	6.33	<0.001
	Self-control	–0.41	0.10	–0.25	–4.12	<0.001
Model 3	Constant	52.08	6.09	–	8.55	<0.001
	Fear of Missing Out	0.56	0.11	0.33	4.98	<0.001
	Self-control	–0.39	0.10	–0.23	–3.89	<0.001
	Ability-based Comparison	0.19	0.10	0.13	1.98	<0.001

Model 1: Predictor: Fear of Missing out
Model 2: Predictor: Fear of Missing out – Self-control
Model 3: Predictor: Fear of Missing out – Self-control – Ability