

Article

Digital Availability Pressure, Digital Availability Fatigue, and Social Withdrawal among University Students in the United Arab Emirates: A Cross-Sectional Study

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Abstract: Digital mediated communication has become a key element of students' academic coordination, interaction with peers, contact with family and social participation. But with these advantages, norms on the platform can also foster a sense of pressure to be available in messaging, social media and learning platforms. This pressure could be important for emotional and cognitive fatigue and social engagement patterns, apart from general time spent online. This study investigated the relationships between digital availability pressure, digital availability fatigue and self-reported social withdrawal among university students (18-29 years) in the United Arab Emirates (UAE). The design of the study was quantitative cross-sectional. A structured online questionnaire was used to collect data from 367 university students. Descriptive statistics, Pearson correlations, hierarchical multiple regression, and a statistical indirect-effect analysis using Hayes' PROCESS Macro Model 4 with 5,000 bootstrap samples were performed. After controlling for demographic characteristics and hours spent online, digital availability pressure was positively correlated with self-reported social withdrawal. Digital availability pressure was also positively correlated with digital availability fatigue, which was positively correlated with social withdrawal. The indirect association via digital availability fatigue was statistically significantly different from zero. The study was cross-sectional, so no temporal ordering or causality can be inferred. The results indicate that the perceived expectations of constant digital responsiveness may be related to social withdrawal among UAE university students, in addition to time spent online.

Keywords: *Digital availability pressure, digital fatigue, social withdrawal, digital sociology, social acceleration, online communication, university students, United Arab Emirates*

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Introduction

The temporal organization of social interaction has dramatically changed in the context of the swift development of digital communication technologies. Physical proximity and limited social occasions are no longer constraints on communication; rather, digitally mediated communication increasingly takes place through continuous connectivity across multiple communication platforms (Rainie & Wellman, 2012). Smartphones, social media programmes, instant messaging and algorithmically organized communication environments have come to normalise a culture of permanent accessibility, in which responsiveness is increasingly being understood as a social duty instead of a voluntary practice (Turkle, 2011). In this “always-on” communication world people are expected to be accessible, visible and socially responsive in various relational situations.

Digital access and digitally mediated services have become more pertinent in students' daily lives in the United Arab Emirates. The previous studies conducted with UAE students have focused on digital access and health-related outcomes and socio-demographic conditions, which shows the significance of digital resources in student life (Alhrahshah & Ivanova, 2022; Elsayed, 2025). But digital access and overall engagement does not necessarily reflect the perceived interpersonal pressure to be constantly available and responsive. The present study therefore centres on digital availability pressure as a unique social and communicative experience which could be linked to fatigue and self-reported social withdrawal.

This change is particularly important for young adults. Young adults are more likely to see rapid responses as a norm of social engagement in today's society, and their friendships, educational experiences, emotional relationships and occupational opportunities are strongly connected to digital platforms (Arnett, 2000; Twenge, 2017). Not responding, not reading messages, or a brief period of social isolation or intentional withdrawal may be interpreted as a lack of interest, social isolation, or intent to withdraw. Digital communication systems are not only about communication, but are also a growing part of the temporal expectations that inform social life. (Vanden Abeele, 2021).

Previous studies have explored various aspects of digital communication and well-being, such as problematic smartphone use (Elhai et al., 2017); social media fatigue (Ravindran et al., 2014); fear of missing out (Przybylski et al., 2013); technostress (Brod, 1984); and digital well-being (Vanden Abeele, 2021). Most of this literature, however, is related to screen time or to individual psychological outcomes like anxiety or depression. Much less focus has been paid to the sociological implications of the permanent availability of the digital as a socially organized expectation of responsiveness. Digital availability pressure is particularly underdeveloped as a structural characteristic of accelerated communication cultures, theoretically.

Moreover, the mechanisms by which availability pressure can affect behaviour, including social withdrawal, have been poorly studied. Digital communication is often presented as a way to connect and participate in society but also can create emotional fatigue, attention deficit and avoidance of social interaction. Social withdrawal can thus be considered as a psychological symptom and a defensive adaptation to the increasing demands of digitally mediated sociality.

Some studies conducted in the past with university students in the United Arab Emirates (UAE) have shown that there might be a relationship between patterns of social networking use and key student outcomes. For instance, Alhrahshah and Al Majali (2023) found a correlation between social networking addiction and academic achievement among university students. While this study was not about problematic social networking use, but rather about perceived pressure to be digitally available, it shows the importance of digitally mediated practices for students' daily life functioning. The current study builds on this research by exploring digital availability pressure as a perceived social demand that can be linked to digital availability fatigue and self-reported social withdrawal.

This study is based on Conservation of Resources Theory (Hobfoll, 1989) and Rosa's (2013) theory of social acceleration, and investigates the concept of digital availability fatigue as a theoretically specified mediating mechanism in the relationship between digital availability pressure and social withdrawal among university students in the United Arab Emirates. By so doing, the study makes a contribution to digital sociology, focusing the analytical lens on the social organization of responsiveness, temporal pressure, and communicative obligation in contemporary digital environments rather than just on screen exposure.

Problem Statement

Digitally mediated communication is a key means for university students in the UAE to coordinate with their colleagues, interact with their peers, connect with their families and participate in social life. This dependency can lead to demand for quick responses on messaging platforms, social media, learning-management systems, and the student network. But the amount of time spent online doesn't necessarily reflect the perceived social pressure to be seen, reached and responsive.

Previous studies have explored the phenomenon of problematic smartphone use, social media fatigue, communication overload, technostress, and fear of missing out. These views are informative but not comprehensive in understanding the difference between general digital engagement and felt pressure to be constantly 'on call' to others. Digital availability pressure could be a unique social need that is formed by interpersonal expectations, platform characteristics, and norms of speedy response.

This is significant because university students are likely to encounter digital communication not only as a means of connection, but as a means of continual social accountability. Delayed responses can be obvious and subject to interpretation by peers because of read receipts, online-status indicators, typing notifications, and immediate-message expectations. These can lead to emotional and cognitive fatigue and in turn to reduced social interaction.

The present study thus investigates the adjusted relationships between digital availability pressure, digital availability fatigue, and self-reported social withdrawal among university students (18–29 years old) in the United Arab Emirates (UAE). It also provides an estimate of the statistical indirect association between digital availability pressure and self-reported social withdrawal via digital availability fatigue. The study relies on cross-sectional data, and therefore the results are presented as patterns of association and not as temporal or causal processes.

Research Objectives

The study sought to:

1. Examine the association between digital availability pressure and self-reported social withdrawal among university students aged 18–29 years in the United Arab Emirates.
2. Investigate the association between digital availability pressure and digital availability fatigue.
3. Examine the association between digital availability fatigue and self-reported social withdrawal.
4. Estimate the statistical indirect association between digital availability pressure and self-reported social withdrawal through digital availability fatigue.

5. Contribute to digital sociology by examining perceived digital responsiveness norms in the context of university students' social participation.

Research Hypotheses

H1. Digital availability pressure was positively associated with self-reported social withdrawal among university students in the United Arab Emirates.

H2. Digital availability pressure was positively associated with digital availability fatigue.

H3. Digital availability fatigue was positively associated with self-reported social withdrawal.

H4. Digital availability fatigue showed a statistically significant indirect association in the relationship between digital availability pressure and self-reported social withdrawal.

Literature Review and Theoretical Framework

Digital Availability Pressure as a Social Norm

Digital availability pressure is the perceived pressure for people to be available and responsive via digital communication. This is not just a technological effect but a socially created one, as it is shaped by expectations and norms of interpersonal responsiveness, platform affordances, and cultural norms. Availability is made visible and socially accountable through features like read receipts, online status indicators, typing notifications and message timestamps. This means that a delayed response can be taken as neglect, disinterest or distancing.

The theory of social acceleration by Rosa (2013) is a useful sociological perspective to consider for understanding this phenomenon. Today, societies are marked by the rapidity of communication, social transformation, and daily life. Digital platforms compound this speed with shorter expectations of response time, measured in hours or days, to minutes or seconds. Wajcman (2015) also claims that digital modernity creates a heightened sense of temporal urgency, as technologies that are supposed to save time can actually create a sense of urgency, obligation and time scarcity. In this context, availability is not only a communicative practice, but also a social accountability.

Digital availability pressure is thus conceptually different from digital media consumption in general. Two people can be online for the same amount of time and feel very different about the pressure they are under to respond immediately, depending on whether they feel a social obligation to do so. This distinction is key to the current research since it helps move the discussion away from the amount of screen time and toward the social demand for constant accessibility.

Digital Availability Fatigue

Digital availability fatigue is the emotional, cognitive and motivational weariness caused by prolonged demands for digital availability. It is connected to technostress, information overload and digital burnout, but is conceptually different. Technostress is a general term for stress caused by technology, information overload is the stress caused by too much information processing, and digital burnout is related to the stress caused by too much technology use for work. Digital availability fatigue, on the other hand, is exhaustion specifically in relation to being always ready for social response.

Conservation of Resources Theory offers a theoretical foundation to predict that availability pressure should be linked to fatigue. Hobfoll (1989) maintains that people try to safeguard resources that are important to them, including time, attention, energy, and emotional resources. These resources can become depleted over time when digital communication is a constant and requires a quick response from you. The person may not be talking at all at any time, but be psychologically alert and socially “on standby”.

This tiredness can manifest itself in three different ways. Emotional exhaustion is a state of being drained by the frequent use of digital interactions. Constant responsiveness leads to cognitive depletion, or diminished concentration and clarity of thought. Motivational decline is when social interaction becomes demanding instead of rewarding. The dimensions contribute to understanding why the digital availability might be linked to lower, not higher, social engagement. They also provide a basis for the operationalisation of digital availability fatigue in the current study.

Social Withdrawal as a Response to Digital Fatigue

Social withdrawal is defined as decreased involvement in social interaction, avoidance of social situations. This can involve saying no to invitations, wanting to be left alone, minimizing in-person contact, or minimizing relational engagement. In this study, social withdrawal is defined as a decrease in social interaction and relational participation, not just a decrease in digital device use. In psychological terms, social withdrawal can be regarded as a phenomenon, but it also has a sociological dimension, as it can be a reaction to the pressure created by society.

According to the effort-recovery model, people need recovery after high demands to replenish their psychological and energetic resources (Meijman & Mulder, 1998). Withdrawal can be a protective mechanism when digital communication is fatiguing. Young adults might not be interested in socializing because they are feeling drained from being always on call.

But withdrawal can cause a paradox. It can help limit social and communicative demands in the short-term. Over time, it can diminish social support, contribute to isolation and deepen disconnection. In this way, digital availability fatigue can lead to a vicious cycle of pressure, exhaustion, and withdrawal, which can diminish meaningful social connection.

Theoretical Integration

This study combines digital sociology, Conservation of Resources Theory and social acceleration theory. Digital sociology is about an availability pressure as a norm in society, not as a personal choice. According to the Conservation of Resources Theory, continued availability needs can be linked to emotional and cognitive exhaustion. Social acceleration theory provides an explanation for the compression of response expectations in today's digital life.

These perspectives help to support a theoretically specified mediation model in which digital availability pressure is hypothesized to be related to increased digital availability fatigue, which is hypothesized to be related to increased social withdrawal. This approach enables the study to see withdrawal not as a personal failing, but as a behaviour that is linked to the fast and challenging digital social environment.

Methodology Research Design

This study used a quantitative cross-sectional survey design to examine adjusted associations between digital availability pressure, digital availability fatigue, and self-reported social withdrawal among university students aged 18–29 years in the United Arab Emirates. The design was suitable for the estimation of relationships between well-defined self-reported constructs at one time.

Additionally, a statistical indirect-effect analysis was conducted to determine if digital availability fatigue was related to the relationship between digital availability pressure and self-reported social withdrawal. All variables were measured cross-sectionally, so the indirect-effect estimates were interpreted as association patterns that were consistent with the proposed theoretical model and not as evidence of temporal or causal mediation.

Population and Sample

The target population consisted of students aged 18-29 years enrolled in higher education institutions in UAE during the period of data collection. The participants were recruited from university mailing lists, student networks, online student groups and social media platforms that are popular among

university students in the United Arab Emirates. A non-probability convenience sampling strategy was used.

Data were collected from 01 Sep 2025 to 21 Dec 2025. The eligibility criteria were: (a) age (18-29 years); (b) being currently enrolled in a university or higher education institution in the United Arab Emirates; (c) Internet usage (regular); and (d) active use of at least two digital communication platforms.

There were 400 respondents to the survey. Of this number, 16 were not eligible for the age or enrolment criteria and 17 did not complete the principal study measures, leaving 367 university students for analysis

Table 1

Participant Characteristics of University Students in the United Arab Emirates

Characteristic	n	%
Gender		
Female	218	59.4
Male	137	37.3
Prefer to self-describe / prefer not to say	12	3.3
Age group		
18–20 years	126	34.3
21–23 years	141	38.4
24–26 years	68	18.5
27–29 years	32	8.7
Educational level		
Diploma or foundation programme	41	11.2
Undergraduate degree	267	72.8
Postgraduate degree	59	16.1
Employment status		
Not currently employed	201	54.8
Part-time employment	109	29.7
Full-time employment	57	15.5
Daily hours online		
Less than 3 hours	38	10.4
3–5 hours	121	33.0
6–8 hours	132	36.0
More than 8 hours	76	20.7

Research Instruments

Three researcher-developed scales were used to assess the principal constructs to assess the main constructs. In the present study, internal consistency and content validity were investigated.

Digital Availability Pressure was measured with a 10-item scale that included perceived expectations to respond immediately, pressure to be available and worry about delayed digital communication.” The answers were given on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The items were averaged and a higher score represented a higher level of perceived digital availability pressure. The internal consistency of the present sample was acceptable (Cronbach’s $\alpha = .84$).

Digital Availability Fatigue was measured with a 8 item scale of emotional fatigue, cognitive fatigue, and decreased motivation to engage in digitally mediated communication.

The same 5-point Likert scale was used to record responses and item scores were averaged. Higher scores indicated greater digital availability fatigue. The internal consistency of the present sample was good (Cronbach’s $\alpha = .88$).

Self-Reported Social Withdrawal was evaluated with a 7 -item scale that included items related to decreased social interaction, desire for solitude, and avoidance of social events or face-to-face interaction. The same 5 point Likert scale was used for responses and the item scores were averaged. The higher the scores, the more self-reported social withdrawal. This measure was created for research use and was not designed for clinical use as a diagnostic tool. Internal consistency was good in the present sample (Cronbach’s $\alpha = .86$).

Content Validity, Pilot Testing and Ethical Considerations

Content validity was determined by five experts who were specialists in the field of sociology and education. The experts rated the relevance, clarity, coverage and cultural appropriateness of the items for university students in the United Arab Emirates. After receiving feedback, the wording of some questions was modified to make them clearer, unambiguous, and consistent across items, and to ensure that the questions were about the perceived pressure to be responsive online and not the amount of time spent online. The underlying constructs, response scale and scoring procedures were not changed.

Before the main data collection, the questionnaire was tested with 15 students of the university. The pilot evaluated the clarity of the items, flow of the survey, estimated time to complete the online questionnaire, and the technical functionality of the online questionnaire. Pilot participants were included in / excluded from the final analytical sample.

Participation was voluntary. Study information was given to all participants prior to participation and electronic informed consent was obtained. There was no time limit to the survey and participants were free to leave at any time without penalty. No unnecessary identifying information was gathered and de-identified data were securely stored and only accessed by the research team.

Data Analysis

IBM SPSS Statistics version 26 and Hayes' PROCESS Macro for SPSS v5.0 were used to analyse the data. Means and standard deviations were computed for the main study variables. Zero-order correlations were then performed to explore the relationship between digital availability pressure, digital availability fatigue, and self-reported social withdrawal.

To control for gender, age, educational level, employment status, and daily hours online, hierarchical multiple regression analysis was performed to estimate the adjusted association between digital availability pressure and self-reported social withdrawal. Dummy coded variables were used for categorical covariates. Linearity, normality of residuals, multicollinearity (variance inflation factors) and influential observations (Cook's distance) were tested by regression diagnostics.

Hayes' PROCESS Model 4 was used to perform a statistical indirect-effect analysis with 5,000 bias-corrected bootstrap resamples. Digital availability pressure was used as the predictor, digital availability fatigue as the indirect-path variable, and self-reported social withdrawal as the outcome. If the 95% bootstrap confidence interval for the estimated indirect association did not contain zero, then the association was deemed to be statistically different from zero. As all variables were measured at a single point in time, all results were described as associational patterns, rather than as evidence of temporal or causal mediation.

A two-sided significance threshold of $p < .05$ was used for inferential analyses.

Results

The results are shown in 4 steps. Descriptive statistics and bivariate relationships between digital availability pressure, digital availability fatigue, and the self-reported social withdrawal are presented for the university-student sample. Second, hierarchical multiple regression analysis is used to analyse the adjusted relationship between digital availability pressure and self-reported social withdrawal.

Third, a statistical indirect-effect analysis is conducted on the hypothesized role of digital availability fatigue. Lastly, sensitivity and diagnostic analyses evaluate the stability of the estimated associations.

Descriptive Statistics and Correlation Analysis

The analysis started with the descriptive statistics of the study variables and the bivariate relationships between them. This step provides a first impression of the direction and magnitude of the relationships between digital availability pressure, digital availability fatigue and social withdrawal. Table 2 shows the means, standard deviations and Pearson correlation coefficients of the main variables of the study.

Table 2

Descriptive Statistics and Pearson Correlations among University Students in the United Arab Emirates

Variable	Mean	SD	1	2	3
1. Digital Availability Pressure	3.42	0.86	—		
2. Digital Availability Fatigue	3.15	0.92	.58**	—	
3. Social Withdrawal	2.78	0.94	.45**	.52**	—

Note. N = 367. Values below the diagonal are Pearson correlation coefficients. **p < .01.

The analysis started with descriptive statistics and bivariate associations between digital availability pressure, digital availability fatigue, and self-reported social withdrawal among the university students in the United Arab Emirates. The results show that the respondents experienced moderately high levels of digital availability pressure (M = 3.42, SD = 0.86) and digital availability fatigue (M = 3.15, SD = 0.92). There were also moderate differences across participants in social withdrawal (M = 2.78, SD = 0.94), indicating meaningful differences in social withdrawal tendencies among university students in the United Arab Emirates.

The correlation analysis showed that all three variables had statistically significant positive correlations. Digital availability pressure was a significant correlate of digital availability fatigue ($r = .58, p < .01$); that is, the greater the pressure felt to be available at all times digitally, the greater the emotional and cognitive fatigue. Social withdrawal was also positively correlated with digital availability pressure ($r = .45, p < .01$), which indicated that higher expectations of digital responsiveness were associated with higher tendencies towards social disengagement.

Fatigue had the highest correlation with social withdrawal ($r = .52, p < .01$), indicating that fatigue may be an important explanatory factor in the link between digital pressure and social withdrawal behaviour. All together, these results offer initial evidence for Hypotheses 1, 2, and 3.

Hierarchical Multiple Regression Analysis

After the correlation analysis, hierarchical multiple regression was carried out to determine whether the digital availability pressure was related to social withdrawal after controlling for demographic characteristics and general online engagement. This analysis addresses Objective 1 and evaluates H1, and tests Hypothesis 1.

The regression model was estimated in two blocks. Control variables were gender, age, education, employment status, and hours online per day in the first block. The second block included digital availability pressure, to test its independent contribution to social withdrawal. Table 4 shows the results.

Table 3

Hierarchical Multiple Regression Predicting Self-Reported Social Withdrawal among University Students in the United Arab Emirates

Panel A. Block 1: Demographic Characteristics and Daily Hours Online

Predictor	B	SE	β	t	p	95% CI
Age	0.08	0.06	.09	1.33	.184	[-0.04, 0.20]
Gender (Male vs. Female)	0.18	0.09	.11	2.00	.046	[0.00, 0.36]
Gender (Other vs. Female)	0.10	0.12	.03	0.83	.407	[-0.14, 0.34]
Educational Level (Undergraduate vs. Diploma)	0.05	0.08	.03	0.63	.529	[-0.11, 0.21]
Educational Level (Postgraduate vs. Diploma)	0.02	0.08	.01	0.25	.803	[-0.14, 0.18]
Employment Status (Part-time vs. Not employed)	0.10	0.09	.05	1.11	.268	[-0.08, 0.28]
Employment Status (Full-time vs. Not employed)	0.15	0.10	.06	1.50	.134	[-0.05, 0.35]
Daily Hours Online	0.28	0.06	.24	4.67	<.001	[0.16, 0.40]

Model statistics:

$R^2=.136$; Adjusted $R^2=.117$; $F(8,358)=7.04$; $p<.001$.

Panel B. Block 2: Digital Availability Pressure Added

Predictor	B	SE	β	t	p	95% CI
Age	0.03	0.04	.06	0.75	.454	[-0.05, 0.11]
Gender (Male vs. Female)	0.08	0.06	.08	1.33	.184	[-0.04, 0.20]
Gender (Other vs. Female)	0.08	0.11	.03	0.73	.466	[-0.14, 0.30]
Educational Level (Undergraduate vs. Diploma)	0.03	0.08	.02	0.38	.704	[-0.13, 0.19]
Educational Level (Postgraduate vs. Diploma)	0.01	0.10	.01	0.10	.920	[-0.19, 0.21]
Employment Status (Part-time vs. Not employed)	0.06	0.08	.03	0.75	.454	[-0.10, 0.22]
Employment Status (Full-time vs. Not employed)	0.10	0.10	.04	1.00	.318	[-0.10, 0.30]
Daily Hours Online	0.14	0.06	.14	2.37	.018	[0.02, 0.26]
Digital Availability Pressure	0.34	0.04	.31	8.50	< .001	[0.26, 0.42]

Model statistics:

$R^2 = .342$; Adjusted $R^2 = .325$; $F(1,357) = 111.77$; $p < .001$.

The findings show that the control variables included in Block 1 explained 13.6% of the variance in social withdrawal ($R^2 = .136$). Of the controls, daily hours online proved to be the strongest predictor ($\beta = .24$, $p < .001$), with the more time that was spent online, the greater the withdrawal tendencies

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The explanatory power of the model was significantly increased when digital availability pressure was introduced in Block 2. Availability pressure accounted for an additional 20.6% of the variance in social withdrawal ($\Delta R^2 = .206$, $\Delta F(1,360) = 112.47$, $p < .001$, $p < .001$), suggesting that it contributed significantly beyond the demographic factors and time spent online.

To support Hypothesis 1, digital availability pressure was positively correlated with social withdrawal ($\beta = .31$, $p < .001$). Interestingly, the influence of hours online per day was reduced once availability pressure was added to the model, indicating that availability pressure may be a more important predictor of withdrawal symptoms than the amount of time spent online. Gender was also not statistically significant in the final model, suggesting that gender differences may be partly due to different experiences of availability pressure.

The overall results indicate that social withdrawal is linked not only to the use of technology, but also to the social demands that are part of digitally mediated communication.

Statistical Indirect-Effect Analysis

Mediation analysis was used to explore whether digital availability fatigue mediated this relationship between digital availability pressure and social withdrawal. The purpose of this stage is to answer Objectives 2–4 and to test Hypotheses 2, 3, and 4.

The mediation model was estimated with PROCESS Model 4 (5,000 bootstrap samples, bias-corrected confidence intervals). Four effects were analysed: the effect of digital availability pressure on fatigue (a path), the effect of fatigue on social withdrawal, controlling for pressure (b path), the total effect of pressure on social withdrawal (c path), and the direct effect after controlling for the mediator (c' path).

Table 4 shows the results.

Table 4

Statistical Indirect-Effect Analysis Using PROCESS Model

Effect	B	SE	t	p	95% CI
Pressure → Fatigue (a path)	.62	.05	12.40	< .001	[.52, .72]
Fatigue → Withdrawal (b path)	.39	.05	7.80	< .001	[.29, .49]
Total Effect (c path)	.48	.06	8.00	< .001	[.36, .60]

Effect	B SE	t	p	95% CI
Direct Effect (c' path)	.24 .06	4.00	< .001	[.12, .36]
Indirect Effect (ab)	.24 .05	—	—	[.15, .34]

Note. N = 367. Unstandardised coefficients are reported. Mediation was tested using PROCESS Model 4 with 5,000 bootstrap samples. The indirect effect is statistically significant when the 95% bootstrap confidence interval does not include zero.

Digital availability fatigue was positively correlated with digital availability pressure ($B = .62$, 95% CI [.52, .72], $p < .001$). Self-reported social withdrawal was, in turn, positively associated with digital availability fatigue, after controlling for digital availability pressure ($B = .39$, 95% CI [.29, .49], $p < .001$). The indirect association between digital availability pressure and self-reported social withdrawal via digital availability fatigue was statistically significant ($B = .24$, 95% CI [.15, .34]).

Digital availability pressure was still statistically significant with self-reported social withdrawal when digital availability fatigue was added to the model ($B = .24$, 95% CI [.12, .36], $p < .001$). The point estimate of the indirect association was approximately half of the estimated total association. This proportion should not be viewed as variance explained or as evidence of temporal or causal mediation, however. The results should be understood as an associational pattern that is consistent with the theoretical pathway proposed, due to the cross-sectional design.

Robustness and Diagnostic Checks

To test the robustness of the mediation model, several robustness checks were performed to examine the stability of the mediation model across alternative specifications. The indirect effect was investigated with alternative model structures and sample conditions. Table 5 summarises the robustness checks.

Table 5
Sensitivity and Diagnostic Analyses

Analysis	Result	Interpretation
Sobel test	$z = 4.78, p < .001$	Consistent with the bootstrap indirect-association estimate
Reverse indirect-effect specification	Indirect association = .03, 95% CI [−.02, .08]	No statistically precise indirect association in the alternative specification

Analysis	Result	Interpretation
Model with all covariates	Indirect association = .23, 95% CI [.14, .33]	Estimated indirect association remained similar after covariate adjustment
Excluding influential observations	Indirect association = .25, 95% CI [.16, .35]	Estimated indirect association remained similar after excluding influential observations
Alternative indirect-path variable: daily hours online	Indirect association = .08, 95% CI [.02, .15]	Smaller estimated indirect association; exploratory comparison

N=367. Sensitivity analyses were conducted to assess the stability of the estimated indirect association. Bootstrap confidence intervals were treated as the primary basis for inference. The reverse specification and alternative indirect-path analysis do not establish temporal direction or causal mediation. Influential observations were identified using Cook's distance, with cases exceeding the conventional threshold of > 1 considered influential and excluded in the sensitivity analysis.

The Sobel test yielded a statistically significant estimate ($z = 4.78$, $p < .001$), and this estimate was consistent with the bootstrapped indirect-association estimate in Table 4. The estimated indirect association was, however, assessed primarily using the bootstrap confidence interval.

There was no statistically significant estimate of the reverse indirect effect ($B = .03$, 95% CI $[-.02, .08]$). This sensitivity analysis did not offer statistical support for that alternative specification, but did not determine the direction of the associations over time.

The indirect association was similar after the inclusion of all covariates and when influential observations were removed. The estimated indirect association was smaller when daily hours online was specified as an alternative indirect-path variable, compared to digital availability fatigue. The analyses should be viewed as sensitivity analyses and do not provide evidence of causal mediation or of the direction of the proposed theoretical pathway.

Discussion

Interpretation of the findings.

This study investigated the relationships between adjusted digital availability pressure, digital availability fatigue, and self-reported social withdrawal among university students (18-29 years) in the United Arab Emirates. The results showed that, after controlling for demographic factors and hours spent online per day, perceived digital availability pressure was positively correlated with social withdrawal. Digital availability pressure was also positively correlated with digital availability fatigue, which was positively correlated with social withdrawal. The indirect association via digital availability fatigue was statistically significantly different from zero.

The cross-sectional results are consistent with the potential relevance of perceived expectations of constant digital responsiveness in social withdrawal among UAE university students. The data, however, do not provide temporal ordering or causality. Students who already have a negative attitude towards social withdrawal may have a more negative attitude towards digital communication or may feel more tired.

This aligns with Rosa's (2013) theory of social acceleration, which suggests that time expectations are being accelerated and pressure for rapid responses are being increased in modern societies. Digital communication technologies can help to create interactional rhythms by creating a norm of immediacy. In this context, delayed responses are socially interpreted and can be interpreted as indifference, neglect or relational disengagement. These expectations are associated with emotional and cognitive demands that are more than just typical communication behaviour, as suggested by the present results.

The second key finding is that digital availability fatigue is a mediating factor. About 50% of the variance in the relationship between availability pressure and social withdrawal was explained by the findings. This is in line with Conservation of Resources Theory (Hobfoll, 1989) which suggests that people try to conserve valued resources like time, attention, energy, and emotional resources.

In this sense, a constant feeling of being responsive to digital could be correlated with long-term psychological resource depletion. Receiving messages, notifications and social needs on a regular basis can cause a constant state of attentional vigilance, which can limit opportunities for psychological recovery.

Importantly, the mediation was not a final mediation, but rather a partial mediation. This indicates that fatigue is a significant explanatory variable, but there may be other factors contributing to withdrawal behaviours. Availability pressure can, for instance, be related to interpersonal conflict, anxiety about delayed responses, or a perceived social obligation, all of which can be independent factors that promote

withdrawal. Other mediators such as social anxiety, sleep disturbance, emotional exhaustion or relational overload should therefore be explored in further studies.

The findings also contribute to the ongoing debates in digital sociology, as they challenge the screen time-based explanations of digital well-being. Digital availability pressure was still statistically significant, but had a smaller effect than hours spent online per day. Theoretically, this distinction is important, as it implies that digital strain is not solely a technological phenomenon. Even if two people are online for the same amount of time, they may feel different levels of psychological stress because of social demands for connectivity.

Therefore, the present study calls for a move away from the question of how much technology people use to how technology shapes social expectations. Availability pressure is not just a personal feeling, but a norm that is socially organised, and reinforced by platform affordances like read receipts, typing indicators, visibility of online presence, and instant notifications. Such technological affordances can serve as mechanisms of temporal accountability, which can alter interactional expectations and increase perceived need to respond quickly.

The results of this study are compared with previous research.

The results of this study have several important implications for previous studies on digital stress, technostress and social media fatigue. While the study of Reinecke et al. (2017) showed that communication overload led to psychological stress and health impairment, the authors' model was mainly about the amount of communication, and not about the norm of response. The current study builds on this literature by proposing that subjective pressure of availability may be more strongly related to social withdrawal than overall communication volume.

Likewise, research on problematic smartphone use and fear of missing out (Elhai et al., 2016; Przybylski et al., 2013) has emphasized emotional reliance on digital interaction, but not consistently brought the social aspect of expectations of availability to the fore. The present study sheds light on the relationship between digitally mediated social norms and fatigue and withdrawal by separating availability pressure from general platform engagement.

The results also align with Vanden Abeele's (2021) conceptualisation of digital well-being as a balance between connectivity and dysconnectivity. The present findings indicate that, when opportunities for dysconnectivity are limited by social norms of responsiveness, psychological fatigue can become more pronounced and withdrawal behaviours may become adaptive coping strategies.

Sociological Implications

The results indicate that from a sociological perspective, the UAE university students' self-reported social withdrawal is not necessarily a sign of personal dysfunction, but rather of perceived pressures of digitally mediated responsiveness. Digital availability pressure can be conceptualized as a socially constructed norm set that is established through peer norms, academic coordination, communication practices, and platform affordances that facilitate responsiveness.

Digital communication can facilitate university learning, student relationships, family communication, and student life for university students. Meanwhile, there can be a sense of obligation to be socially available, especially if there is a sense of urgency for a response and ongoing visibility. The present results are in line with the hypothesis that these expectations are linked to emotional and cognitive fatigue, and to reduced motivation to engage in social interaction.

The results also highlight the importance of platform affordances in the creation of norms in everyday communication. Read-receipts, typing indicators, online-status displays, and immediate notifications can all help to create a sense of 'temporal accountability' that makes delayed responses observable to others. These features do not, however, establish a cross-sectional relationship between these features and digital availability pressure, fatigue or social withdrawal. Further research is needed to explore these relationships over time.

Practical Implications

The results indicate that the perceived digital availability pressure can be considered as a factor of student well-being, and that this factor should be acknowledged by universities. Communication norms that limit the expectation of instant responses may be encouraged by student-support services, academic departments and student organisations, especially in the context of peer-group coordination and academic communication.

Discussion of notification management, boundary setting, delayed-response norms, and expectations for respectful communication are examples of potential topics for digital well-being initiatives. These efforts should not only focus on individual responsibility for digital disconnection, but also consider how expectations of peers and platform design contribute to digital disconnection.

Digital-boundary literacy can also be integrated into orientation programmes, counselling services and student well-being workshops at universities. These efforts could be used to remind students of the

implications of constant responsiveness on attention, recovery, and social participation, while not making blanket statements about the negative consequences of digital communication.

The results are in line with the possible benefits of user control over visibility settings, read receipts, notification times, and online-status indicators at the platform design level. The cross-sectional design does not, however, provide evidence that a change in such features would decrease fatigue or social withdrawal. More longitudinal and intervention studies are needed before specific recommendations can be assessed.

Limitations

There are a number of caveats to take into account. First, the cross-sectional design does not allow for temporal ordering or causal relationships between digital availability pressure, digital availability fatigue, and self-reported social withdrawal. Second, the study used self-reported measures that could be subject to recall bias, common-method bias, and social-desirability bias. Third, the non-probability convenience sample of university students in the UAE restricts the transferability to students at other universities and to young adults who are not attending higher education institutions. Fourth, the study measures need to be further validated in independent samples and in cross-cultural settings. Future longitudinal, experimental and cross-cultural studies should investigate whether the changes in perceived availability pressure precede changes in fatigue and social participation.

Longitudinal designs should be used in future studies to investigate if the change in perceived digital availability pressure is followed by the change in digital availability fatigue and social participation among university students. This would aid in understanding the temporal ordering that cannot be determined in the present cross-sectional design. More psychometric studies are also required to investigate the factor structure, convergent and discriminant validity, and measurement invariance of the digital availability pressure and digital availability fatigue scales. Replication in other universities, emirates, and cultures would confirm the stability of the observed associations in other student populations. Other factors that may be related to digital availability pressure can also be explored in future research, such as sleep quality, social anxiety, perceived peer support, academic load, relational overload, and fear of missing out. Qualitative research might offer a better understanding of the ways in which UAE university students deal with the expectations of response, visibility, and boundaries of communication in academic and social contexts. Lastly, intervention studies could examine the relationship between the implementation of programmes like notification-management strategies,

communication-boundary education, or digital well-being programmes at universities and changes in perceived availability pressure, fatigue, and social participation.

Conclusion

The present cross-sectional study aimed to investigate digital availability pressure, digital availability fatigue, and self-reported social withdrawal in university students aged 18–29 years in the United Arab Emirates. After controlling for demographic factors and hours spent online, greater perceived pressure to be digitally available was linked to greater social withdrawal self-reported. There was also a statistically significant indirect association in this relationship for digital availability fatigue.

The results indicate that digital strain can be influenced not only by the time spent online, but also by the expectations of the students of being instantly responded to and always available. The results of this study should be viewed with some caution as it was a cross-sectional study with self-reported data and a non-probability sample. They still suggest that more positive norms of digital communication and increased autonomy over availability could be relevant fields for future research and university-based well-being programmes.

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Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this paper.

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