

Digital Disconnection as Leisure: Testing the DRAMMA Model's Recovery and Need-Fulfillment Pathways to Subjective Well-Being



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Abstract: Intentional digital disconnection is increasingly used to manage always-on media, but its associations with well-being and the psychological processes involved remain uncertain. This cross-sectional survey examines technology-based and non-technology-based disconnection among 703 Chinese university students using structural equation modeling. A study-specific adaptation of the DRAMMA framework distinguishes recovery-function from a need-related factor labelled need-fulfillment, comprising autonomy, meaning-related experiences, and affiliation. Both forms of disconnection were positively associated with subjective well-being, with standardized direct coefficients of 0.539 and 0.563. The need-related factor showed positive indirect associations in both models, with standardized coefficients of 0.157 and 0.214 and confidence intervals for the unstandardized effects excluding zero. The recovery-function indirect associations were not statistically significant. These findings identify different statistical associations under the proposed measurement specification. The cross-sectional design does not establish causal mediation, and the adapted indicators limit conclusions about individual DRAMMA dimensions. Longitudinal research and further measurement validation are needed.

Keywords: digital disconnection, subjective well-being, DRAMMA model

1. Introduction

As John Culpin (1967, p. 70) summarized Marshall McLuhan's media theory, "We shape our tools and thereafter they shape us." In an era where "always-on, always-connected" has become the default mode of existence (Vorderer et al., 2018), the proliferation of digital technologies has fundamentally transformed human behavior: by December 2024, China had 1.108 billion internet users, who spent an average of 28.7 hours online per week (China Internet Network Information Center, 2025). The proliferation of communication technologies has created a paradoxical crisis: while designed to enhance connection, persistent digital engagement often undermines well-being through information overload, digital fatigue, and disrupted mental health. This study examines how intentional disengagement from these pervasive technologies may restore balance in our increasingly mediated lives.

This highlights the significance of digital disconnection—a deliberate recalibration of technology use increasingly adopted as a behavioral strategy to restore equilibrium. Survey studies show that many adults already use disconnection strategies, such as access restrictions and technology-free moments (Nguyen & Hargittai, 2023; Vanden Abeele & Nguyen, 2024). However, critical gaps remain in understanding whether—and through what mechanisms—such practices lead to sustained well-being improvements.

Existing research faces three limitations: First, much of the literature has centered on why and how people disconnect (Nassen et al., 2023; Nguyen, 2021), whereas evidence on the well-being outcomes of disconnection remains mixed, ranging from modest benefits in intervention studies (Ansari et al., 2024) to null within-person effects in everyday life (Nguyen & Hargittai, 2024). Second, although prior studies have distinguished technology-based (device-level) from non-technology-based (behavioral) disconnection strategies (Nguyen & Hargittai, 2023; Vanden Abeele & Nguyen, 2024), little is known about whether these strategies relate to subjective well-being (SWB) through the same or distinct psychological pathways. Third, little empirical research has examined whether psychological needs—such as those outlined in the DRAMMA model (Detachment-Recovery, Autonomy, Mastery, Meaning, Affiliation)—mediate the relationship between digital disconnection and well-being.

To address these gaps, this study employs a cross-sectional survey (N=703) analyzed via structural equation modeling to investigate: (1) whether technology-based and non-technology-based digital disconnection are each associated with subjective well-being (SWB), and (2) the mediating roles of two DRAMMA-based pathways—recovery-function (detachment-recovery and mastery) and need-fulfillment (autonomy, meaning, and affiliation).

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2. Literature Review

Unlike passive digital non-use, digital disconnection is an active choice where individuals consciously distance themselves from digital media for a period of time. This paper defines digital disconnection as the deliberate abstention from devices, platforms, functions, interactions, or information, varying in frequency and duration, with the aim of restoring or enhancing one's perceived digital usage, quality of social interactions, mental well-being, work productivity, privacy protection, or perception of technology's utility (Nassen et al., 2023).

Some studies (Nguyen & Hargittai, 2023; Vanden Abeele & Nguyen, 2024) have distinguished the strategies of digital disconnection. These strategies can be classified into two major categories: non-technology-based digital disconnection and technology-based digital disconnection. Non-technology-based strategies include creating "digital detox" moments, setting rules within the family to limit the use of digital media, and simply reducing the time spent on digital media without relying on specific technical tools. On the other hand, technology-based digital strategies involve using specific functions of technical tools and applications, such as turning off notifications and making use of the "Do Not Disturb" mode of devices (Nguyen & Hargittai, 2023).

To meet this need, some platforms have launched specialized technical solutions. For instance, software developers have introduced productivity apps like Forest. These apps help users stay focused by restricting their access to mobile applications or completely disabling the functions of mobile phones. Moreover, most smartphones currently available on the market are equipped with built-in tools, such as Screen Time on iOS devices and Digital Wellbeing on Android devices, which are used to track and control mobile phone usage. The design concept of these apps is based on the assumption that digital disconnection can enhance individuals' sense of well-being and promote mental health (Vanden Abeele, 2021).

Research indicates that well-being and health considerations constitute one of the primary motivations for individuals' decisions to limit digital media use or "disconnect". In their systematic review of the voluntary digital disconnection literature, Nassen et al. (2023) identified enhanced well-being (including alleviation of stress, depression, loneliness, and other negative emotions) and mental health preservation as predominant motives for disconnection. Evidence on whether such motives translate into everyday disconnection, however, is mixed: in a 14-day experience sampling study, Klingelhofer et al. (2024) found that motivations to avoid distractions and to be more present were associated with disconnection at the situational level, whereas the well-being motivation was not associated with disconnection either between or within persons. Moreover, whether digital disconnection effectively restores well-being remains insufficiently validated in current research.

The relationship between digital disconnection and well-being has long been a subject of research interest, yet findings remain inconsistent. Some studies suggest benefits: in a randomized field experiment, Fitz et al. (2019) found that batching smartphone notifications three times a day reduced stress and made participants feel more attentive

and in a better mood, consistent with the view that smartphones can undermine well-being by interfering with concurrent activities (Kushlev & Leita, 2020). However, others highlight potential drawbacks: in the same experiment, participants who received no notifications at all reported higher anxiety and fear of missing out (Fitz et al., 2019), and Vally and D'Souza (2019) found that participants randomly assigned to abstain from social media reported declines in life satisfaction and increases in negative affect and loneliness compared with a control group. Meanwhile, in a mobile experience sampling study of Dutch adults, Nguyen and Hargittai (2024) found no significant within-person effects of disconnection on affective well-being, social connectedness, or life satisfaction. Further complicating the picture, their exploratory analyses showed that the effects of disconnection varied greatly across participants and depended on whether people disconnected in the physical copresence of others, and Vanden Abeele and Nguyen (2024) found that adults who reported less agency over their digital media use tended to disconnect more, pointing to a highly nuanced and context-dependent relationship.

Well-being research distinguishes hedonic evaluations from eudaimonic functioning (Ryan & Deci, 2001). Subjective well-being (SWB) is conventionally represented by life satisfaction, positive affect, and negative affect (Diener, 1984). Disabato et al. (2016) found a high latent correlation between hedonic and eudaimonic self-report measures, which cautions against treating them as sharply separated experiences. This study uses SWB as its outcome; it does not separately measure eudaimonic well-being. The hedonic and eudaimonic labels in Table 1 describe theorized processes, rather than distinct outcomes or an established one-to-one allocation of DRAMMA dimensions to types of well-being.

To clearly elucidate the relationship between digital disconnection and subjective well-being, the following hypotheses are proposed:

H1a: Technology-based digital disconnection is positively associated with individuals' subjective well-being.

H1b: Non-technology-based digital disconnection is positively associated with individuals' subjective well-being.

Newman et al. (2014) proposed DRAMMA as a model linking leisure to subjective well-being through detachment-recovery, autonomy, mastery, meaning, and affiliation. These are psychological mechanisms that include both recovery experiences and need-related processes, rather than five interchangeable basic needs. Kujanpää et al. (2021) subsequently operationalized six dimensions by separating detachment from relaxation. Twilley et al. (2022) applied the framework to campus recreation. The present study draws on this literature but regroups its dimensions into two study-specific broader factors; this grouping should not be treated as the original validated DRAMMA structure.

Digital disconnection can create opportunities for leisure, but it can also serve work, study, productivity, or privacy goals (Nassen et al., 2023; Vanden Abeele et al., 2024). Harmon and Duffy (2023) offer a conceptual argument linking intentional disconnection, digital

consciousness, and meaningful leisure. That argument provides a useful perspective on agency, rather than empirical proof that all disconnection produces leisure or improves well-being. Leisure engagement is associated with well-being in broader research (Kuykendall et al., 2015), but the present survey does not establish that every disconnection episode was undertaken during leisure.

As shown in Table 1, the recovery-function pathway (detachment-recovery, mastery) is theorized to support the hedonic components of well-being through cognitive-affective restoration. Detachment-recovery helps

restore psychological and physiological resources by clearly demarcating boundaries between work and personal roles - for instance, when transitioning between professional and private life, this role separation reduces stress and negative emotions (Vanden Abeele et al., 2024). Mastery occurs when individuals engage in activities with immediate feedback during disconnection, allowing them to derive satisfaction from perceived competence; this often triggers a flow state (complete immersion with altered time perception), significantly boosting positive emotions (Csikszentmihalyi, 1990).

Table 1. Dual pathways linking digital disconnection to subjective well-being in the DRAMMA model.

Pathway	DRAMMA dimension	Theoretical basis	Theorized well-being aspect	Expected manifestation
Recovery-Function	Detachment-Recovery	Attention Restoration Theory (ART)	Hedonic well-being	Reduced stress & negative affect
	Mastery	Flow Theory		Enhanced focused pleasure & immediate sense of accomplishment (positive affect)
Need-Fulfillment	Autonomy	Self-Determination Theory (SDT)	Eudaimonic well-being	Strengthened sense of autonomy
	Meaning	Existential Psychology		Elevated sense of life purpose
	Affiliation	Social Support Theory		Deepened sense of social belonging

The need-fulfillment pathway (Autonomy, Meaning, Affiliation) is theorized to foster the eudaimonic aspects of well-being through psychological need satisfaction. Autonomy is reflected in voluntary control over digital engagement levels, making disconnection a choice rather than restriction (Chick, 1998). Meaning emerges when reflecting on digital device value and consciously shifting to purposeful activities (meditation, family interactions, volunteering), enhancing life purpose (Baumeister & Vohs, 2002; Creswell & Lindsay, 2014). Affiliation develops through prioritized face-to-face interactions after disconnecting, strengthening real-world social support and

emotional bonds. Based on this, the study proposes the following research questions:

RQ1: Is digital disconnection behavior associated with subjective well-being through recovery-function mechanisms (detachment-recovery and mastery)?

RQ2: Is digital disconnection behavior associated with subjective well-being via need-fulfillment processes (autonomy, meaning, and affiliation)?

Figure 1 depicts the theoretical model linking digital disconnection to well-being through two mediating pathways.

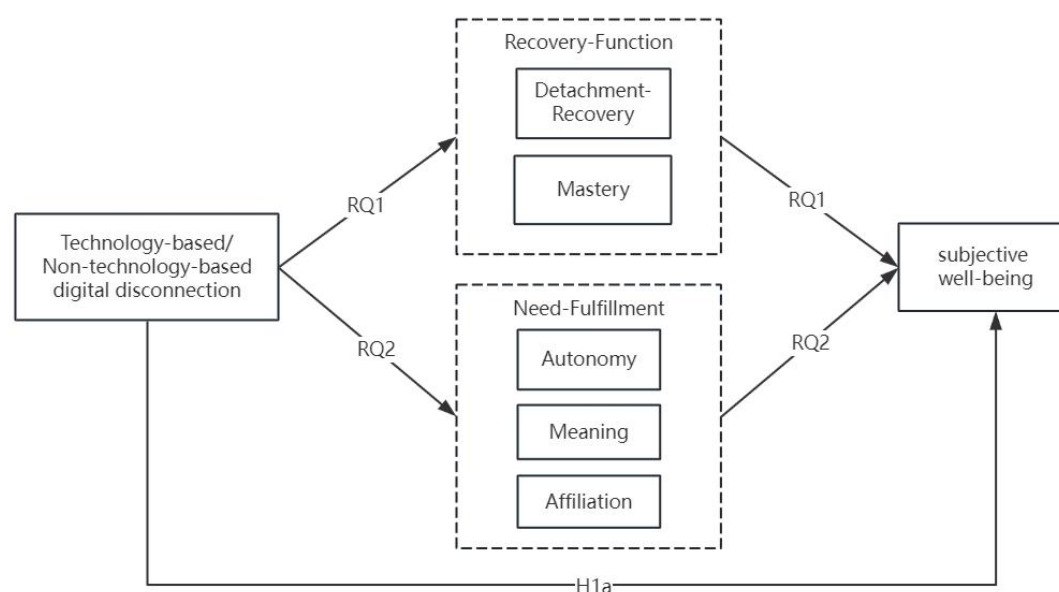


Figure 1. Theoretical model of digital disconnection and subjective well-being.

Note. The direct path corresponds to H1a for technology-based disconnection and H1b for non-technology-based disconnection.

3. Methods

3.1. Data Sources

The study population consisted of university students, a group characterized by younger age, higher education levels, frequent internet use, and strong digital skills—traits associated with a higher propensity for digital disconnection attempts (Nguyen & Hargittai, 2023). Data were collected via an online survey distributed through the “Wenjuanxing” platform between September and November 2024. A total of 766 questionnaires were initially obtained. After excluding 63 responses with logical inconsistencies (e.g., conflicting answers or patterned responses), 703 valid questionnaires were retained.

3.2. Measures

3.2.1. Digital Disconnection

To accurately assess digital disconnection behaviors, measurements can be conducted from both technology-based and non-technology-based perspectives, focusing exclusively on individuals' active choices and personal practices while excluding group and institutional influences (Vanden Abeele & Nguyen, 2024).

Technology-based digital disconnection was measured through the frequency of the following behaviors: (TDD1) Using screen time monitoring applications (e.g., regularly checking usage reports and adjusting behavior accordingly); (TDD2) Proactively deleting time-consuming applications to minimize digital media interference; (TDD3) Utilizing “Do Not Disturb/Busy” mode or similar features to avoid non-essential notifications; (TDD4) Actively disabling notifications for mobile or computer applications. ($\alpha = 0.809$)

Non-technology-based digital disconnection assessed the frequency of these behaviors: (NTDD1) Creating digital detox periods (e.g., designated timeframes without

digital device usage); (NTDD2) Disabling internet connectivity during focus sessions; (NTDD3) Deliberately limiting email/message/social media checks to a few times daily; (NTDD4) Habitually setting aside computers/phones during activities to avoid distractions. ($\alpha = 0.803$)

3.2.2. Subjective Well-Being

Diener (1984) conceptualizes subjective well-being as comprising three dimensions: life satisfaction, positive affect, and negative affect. Life satisfaction was measured using Diener's Satisfaction with Life Scale (SWLS) (Diener et al., 1985), which includes five items: In most ways my life is close to my ideal. The conditions of my life are excellent. I am satisfied with my life. So far I have gotten the important things I want in life. If I could live my life over, I would change almost nothing. Higher scores indicate greater life satisfaction.

Positive and negative affect were assessed using items adapted from the Scale of Positive and Negative Experience (SPANE; Diener et al., 2010). The original SPANE uses five response options; this study used seven options, from 1 (very rarely) to 7 (very often), referring to the past four weeks. Negative-affect items were reverse-coded so that higher NM scores indicate less negative affect. The SEM outcome was a latent subjective well-being factor represented by life satisfaction (SAT), positive affect (PM), and reverse-coded negative affect (NM), rather than a single positive-minus-negative difference score. For this modeled construct, $\alpha = 0.850$, CR = 0.853, and AVE = 0.660.

3.2.3. Recovery-Function

The adapted recovery and need-related measures drew on existing instruments and the DRAMMA literature (Kujanpää et al., 2021). Recovery-function and need-fulfillment were specified as broader latent constructs using observed indicators derived from the corresponding measures. This is a study-specific measurement

arrangement, distinct from directly administering the original six-dimensional DRAMMA operationalization.

Detachment-recovery was assessed with context-adapted recovery-experience items based on Sonnentag and Fritz (2007). Examples included "When temporarily disconnecting from digital devices, I can use my time more effectively to relax" and "During screen-free periods, I can fully enjoy leisure activities" ($\alpha = .71$). These examples emphasize relaxation and enjoyment during disconnection; the adapted measure is therefore interpreted as a recovery-oriented composite, rather than an isolated measure of psychological detachment.

Mastery: This dimension was similarly assessed using three items selected from The Recovery Experience Questionnaire (REQ; Sonnentag & Fritz, 2007). The items included: (1) "I can access/learn new things," (2) "I can do things that challenge myself and broaden my horizons," and (3) "I can decide how to spend my time." ($\alpha = .71$)

3.2.4. Need-Fulfillment

Autonomy was measured using three adapted items from the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS; Chen et al., 2015). Examples included "I feel I am doing things I am truly interested in," "I experience a sense of choice and freedom," and "I feel my decisions reflect what I really want" ($\alpha = .74$). The selected items were administered using the study's seven-point response format rather than the original five-point format.

Meaning-related experiences were assessed with a study-specific three-item composite adapted from the Meaning in Life Questionnaire (MLQ; Steger et al., 2006). The items were "I have a clear sense of purpose in my life," "My life lacks a clear sense of meaning" (reverse-scored), and "I am searching for ways to make my life feel more significant" ($\alpha = .78$). The first two items concern the presence of meaning, whereas the third concerns searching for meaning. Their seven-point responses were combined into one score, so this measure represents mixed meaning-related content and does not isolate the original MLQ Presence or Search subscale. It is not interpreted as direct evidence that disconnection generated a greater sense of meaning.

Affiliation was measured using three adapted items from the relatedness-satisfaction component of the BPNSFS (Chen et al., 2015). The items concerned feeling connected to people who care about one another, feeling close to important others, and experiencing warmth with companions ($\alpha = .83$). The selected items used a

seven-point response format and were interpreted as perceived affiliation in the context of disconnection.

The psychometric items used seven-point response scales; demographic and smartphone-use variables retained their own units. Where an observed indicator corresponded to a multi-item measure, the corresponding item responses were averaged. These observed composite scores are distinct from latent constructs, which were estimated through SEM. Recovery-function was represented by DF1 and DF2, and need-fulfillment by NF1, NF2, and NF3. The latter label denotes the study-specific combination of autonomy, mixed meaning-related experiences, and affiliation, rather than a direct measurement of three independently established fulfilled needs.

3.2.5. Control Variables

In our model, we controlled for demographic variables (gender, age, university grade), school level (accounting for China's educational disparities), and daily smartphone usage (averaged across weekdays/weekends to assess digital engagement).

3.3. Statistical Analysis

Analyses used the lavaan package in R. The specified procedure employed maximum likelihood estimation and 5,000 bootstrap repetitions, with indirect paths defined as products of the relevant coefficients (Preacher & Hayes, 2008). Standardized coefficients are reported for comparison of paths; unstandardized coefficients, standard errors, and their 95% confidence intervals are reported separately. Interpretation of indirect associations focuses on whether the confidence interval contains zero. The cross-sectional model estimates between-person associations and cannot determine their temporal order or establish causal mediation.

4. Results

4.1. Descriptive Statistics

Table 2 summarizes the sample of 703 university students. There were 343 male participants (48.79%) and 360 female participants (51.21%), with a mean age of 22 years ($SD = 5.45$). Eastern China accounted for 345 participants (49.07%), and central and western China for 358 (50.92%). Natural sciences accounted for 245 participants (34.85%), while humanities, social sciences, and other non-natural sciences accounted for 458 (65.15%). A total of 279 participants attended key universities (39.69%), and 424 attended other universities (60.31%). Mean university grade was 3 ($SD = 1.44$).

Table 2. Participant demographics (N = 703).

Variable	N (%) or M (SD)
Gender	
Male	343 (48.79%)
Female	360 (51.21%)
Age	22 (5.45)
Place	
East	345 (49.07%)

Variable	N (%) or M (SD)
Central and West	358 (50.92%)
Major	
Natural sciences	245 (34.85%)
Humanities & social sciences and other non-natural sciences	458 (65.15%)
Level of school education	
Key universities	279 (39.69%)
Other universities	424 (60.31%)
Grade	3 (1.44)

4.2. Measurement Model

Table 3 summarizes the indicators of the five modeled constructs. Standardized loadings ranged from 0.663 to 0.865, Cronbach's α from 0.703 to 0.850, composite reliability (CR) from 0.703 to 0.853, and

average variance extracted (AVE) from 0.509 to 0.660. These values support internal consistency and convergence under the specified measurement arrangement. They do not establish that the adapted measures reproduce the original instruments or isolate every underlying DRAMMA dimension.

Table 3. Results of the confirmatory factor analysis.

Construct	Indicator	Standardized loading	Cronbach's α	CR	AVE
Technology-based digital disconnection	TDD1	0.722	0.809	0.809	0.516
	TDD2	0.768			
	TDD3	0.706			
	TDD4	0.673			
Non-technology-based digital disconnection	NTDD1	0.819	0.803	0.805	0.509
	NTDD2	0.663			
	NTDD3	0.679			
	NTDD4	0.683			
Recovery-Function	DF1	0.741	0.703	0.703	0.542
	DF2	0.732			
Need-Fulfillment	NF1	0.802	0.837	0.837	0.631
	NF2	0.779			
	NF3	0.801			
Subjective Well-being	SAT	0.865	0.850	0.853	0.660
	PM	0.836			
	NM	0.729			

Note. CR = composite reliability; AVE = average variance extracted. DF and NF are observed indicators; multi-item indicators use item means. NM is reverse-coded negative affect.

Fornell and Larcker (1981) distinguish convergent from discriminant validity: assessing the latter requires comparison of AVE with interconstruct relationships. The AVE values in Table 3 exceed .50, but those values alone do not establish discriminant validity or resolve the content overlap introduced by the adapted measures.

Table 4 reports the fit indices for the two structural models. Model 1 yielded $\chi^2/df = 2.716$, RMSEA = 0.049, SRMR = 0.038, CFI = 0.953, and TLI = 0.951. Model 2 yielded $\chi^2/df = 2.633$, RMSEA = 0.048, SRMR = 0.037, CFI = 0.954, and TLI = 0.952. CFI and TLI exceeded .95 and SRMR was below .04 in both models. These indices are consistent with broadly favorable approximate-fit heuristics informed by Hu and Bentler (1999), whose recommendations depend

on the estimator, sample characteristics, and model conditions. Overall fit does not establish the causal direction of paths or the substantive purity of adapted indicators.

Table 4. Fit indices of the two structural models.

Fit index	Model 1	Model 2
χ^2/df	2.716	2.633
RMSEA	0.049	0.048
SRMR	0.038	0.037
CFI	0.953	0.954
TLI	0.951	0.952

Note. Model 1 uses technology-based digital disconnection; Model 2 uses non-technology-based digital disconnection.

4.3. Hypothesis Testing

4.3.1. Disconnection and Subjective Well-Being

Table 5 reports the direct and indirect effects in the two structural models. Technology-based digital disconnection was positively associated with subjective

well-being ($\beta = 0.539$, $B = 0.758$, $SE = 0.161$, 95% CI [0.443, 1.073], $p < .001$), supporting H1a. Non-technology-based digital disconnection was also positively associated with subjective well-being ($\beta = 0.563$, $B = 0.681$, $SE = 0.136$, 95% CI [0.415, 0.947], $p < .001$), supporting H1b.

Table 5. Direct and indirect effects in the structural models.

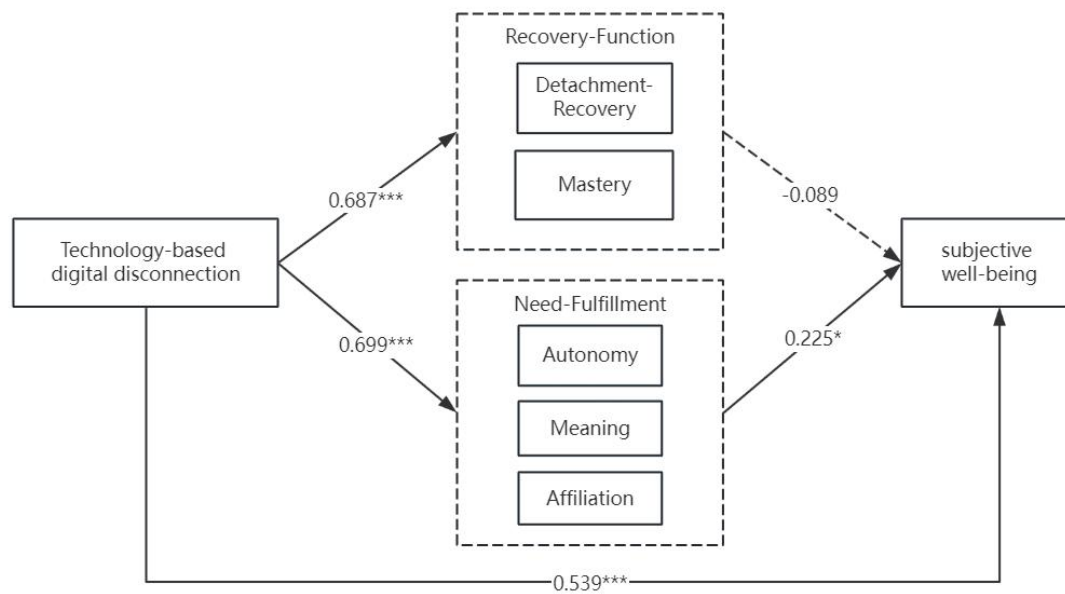
Model	Path	β	B	SE	95% CI Lower	95% CI Upper
1	TDD $\rightarrow$ SWB	0.539***	0.758	0.161	0.443	1.073
2	NTDD $\rightarrow$ SWB	0.563***	0.681	0.136	0.415	0.947
1	TDD $\rightarrow$ RF $\rightarrow$ SWB	-0.061	-0.086	0.092	-0.266	0.094
1	TDD $\rightarrow$ NF $\rightarrow$ SWB	0.157*	0.221	0.082	0.060	0.382
2	NTDD $\rightarrow$ RF $\rightarrow$ SWB	-0.112	-0.136	0.084	-0.301	0.029
2	NTDD $\rightarrow$ NF $\rightarrow$ SWB	0.214**	0.259	0.095	0.073	0.445

Note. TDD = technology-based digital disconnection; NTDD = non-technology-based digital disconnection; RF = recovery-function; NF = need-fulfillment; SWB = subjective well-being. β = standardized coefficient; B = unstandardized coefficient; SE = standard error. Confidence intervals refer to unstandardized effects. * $p < .05$; ** $p < .01$; *** $p < .001$.

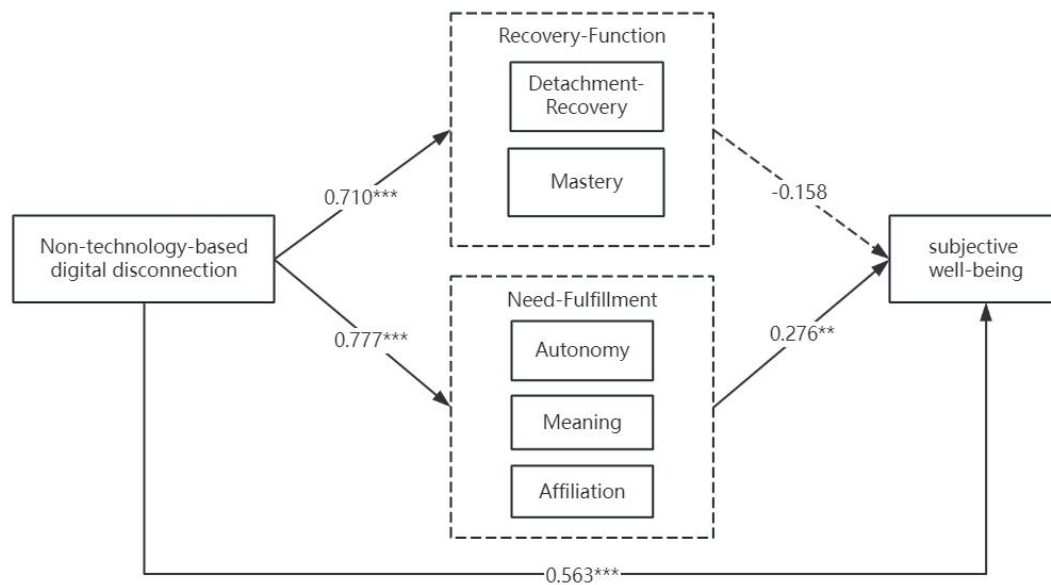
4.3.2. Indirect Associations in the DRAMMA-Based Model

In Model 1, technology-based digital disconnection was positively associated with recovery-function ($\beta = 0.687$, $p < .001$), whereas the path from recovery-function to subjective well-being was negative and non-significant ($\beta = -0.089$). It was also positively associated with need-fulfillment ($\beta = 0.699$, $p < .001$), which was positively associated with subjective well-being ($\beta = 0.225$, $p < .05$), as shown in Figure 2a. The indirect effect through recovery-function was non-significant ($\beta = -0.061$, $B = -0.086$, $SE = 0.092$, 95% CI [-0.266, 0.094]). The indirect effect through need-fulfillment was significant and positive ($\beta = 0.157$, $B = 0.221$, $SE = 0.082$, 95% CI [0.060, 0.382], $p < .05$).

In Model 2, non-technology-based digital disconnection was positively associated with recovery-function ($\beta = 0.710$, $p < .001$), whereas the path from recovery-function to subjective well-being was negative and non-significant ($\beta = -0.158$). It was also positively associated with need-fulfillment ($\beta = 0.777$, $p < .001$), which was positively associated with subjective well-being ($\beta = 0.276$, $p < .01$), as shown in Figure 2b. The indirect effect through recovery-function was non-significant ($\beta = -0.112$, $B = -0.136$, $SE = 0.084$, 95% CI [-0.301, 0.029]). The indirect effect through need-fulfillment was significant and positive ($\beta = 0.214$, $B = 0.259$, $SE = 0.095$, 95% CI [0.073, 0.445], $p < .01$). Together, these results indicate a significant need-fulfillment pathway and a non-significant recovery-function pathway in both models, addressing RQ1 and RQ2.



(a) Model 1



(b) Model 2

Figure 2. Standardized paths in the two structural models. (a) Technology-based digital disconnection (Model 1); (b) non-technology-based digital disconnection (Model 2).

Note. Coefficients are standardized. Dashed outcome paths are non-significant. * $p < .05$; ** $p < .01$; *** $p < .001$.

5. Discussion

5.1. Summary of Results

Both types of digital disconnection showed positive direct associations with subjective well-being under the specified models. Each also showed a positive indirect association through the study-specific factor labelled need-fulfillment, with a confidence interval excluding zero. Recovery-function indirect associations were not statistically significant. These results describe the joint operationalization of autonomy, mixed meaning-related experiences, and affiliation, and do not identify the unique contribution of any one component.

The positive between-person associations are broadly compatible with evidence that digital-detox interventions yield a small average improvement in SWB (Ansari et al., 2024). The meta-analysis also reports substantial heterogeneity, so its average does not imply that every strategy or individual benefits. The present cross-sectional survey is not an intervention test and does not establish that disconnecting increases an individual's well-being.

The non-significant recovery-function indirect paths should not be interpreted as evidence that recovery experiences are unimportant. Kujanpää et al. (2021) examined six recovery and need-related experiences longitudinally among employees, whereas the present study uses broader adapted indicators in a student sample. Syrek et al. (2021) investigated vacation experiences and creativity, a different outcome and context. Those findings motivate attention to timing and measurement, but they do not demonstrate that a delayed effect explains the null indirect associations observed here.

The significant indirect association through the need-related factor is compatible with a role for perceived autonomy, meaning-related experiences, and affiliation. Because those indicators were modeled together, the result cannot be assigned to a particular need or used to conclude that all three were fulfilled. In particular, the meaning composite combines presence and search, which limits its interpretation as meaning attained. Twilley et al. (2022) provide a related DRAMMA application in campus recreation, but contextual and measurement differences

preclude treating the two studies as tests of an identical mechanism.

5.2. Interpretation of Results

The study applies DRAMMA-informed constructs to digital disconnection and finds different statistical patterns for its two broader factors. Newman et al. (2014) supply the theoretical starting point, while Harmon and Duffy (2023) offer a conceptual account of agency and meaningful leisure. The observed indirect paths remain conditional on the study-specific indicators and do not validate the regrouping as a general psychological mechanism.

Nguyen and Hargittai (2024) used repeated observations to examine within-person changes associated with digital disconnection. The present study instead uses a single cross-sectional survey, so the two designs address different quantities. A positive association between people who disconnect more and people who report greater well-being can coexist with a null short-term change within the same person. The simpler survey design does not establish a methodological advantage over experience sampling.

The Chinese university context broadens the setting in which disconnection-related associations are examined. Differences from the Dutch adult sample studied by Nguyen and Hargittai (2024) may reflect sampling, measurement, or the distinction between between-person and within-person analyses. Cultural norms, social relationships, and academic pressures could also matter, but they were not directly tested as explanations here. Agai (2022) shows how adolescent disconnection narratives relate to identity development; that qualitative context does not establish a cultural mechanism for the present coefficients.

Digital disconnection involves intentional regulation of media use, and the capacity to disconnect can be unequally distributed (Nguyen & Hargittai, 2023). The present study does not directly measure resistance to technological power or socioeconomic inequalities. Its contribution is therefore limited to the reported

associations among disconnection practices, adapted psychological indicators, and SWB.

5.3. Theoretical Implications

The study offers a context-specific application of the DRAMMA framework to digital-disconnection practices. Intentional non-use can support leisure, work, or other goals, so the leisure perspective should be treated as one possible context rather than a universal definition of disconnection (Harmon & Duffy, 2023; Vanden Abeele et al., 2024). The associations observed here motivate further examination of how those contexts shape well-being.

The two broader factors are analytical regroupings of recovery-oriented and need-related indicators. Only the need-related indirect paths had confidence intervals excluding zero, but a significant path and a non-significant path are not by themselves evidence that the two path magnitudes differ. A direct contrast would be required to establish that difference. The adapted measures also mean that these results cannot validate every original DRAMMA dimension.

A balance between digital activity and other life domains remains a possible direction for future research. This survey did not measure such a balance or test it as a mechanism. Longitudinal work would need to operationalize the proposed balance and examine its association with subsequent changes in SWB.

The present results do not resolve whether boundary-management processes contribute to well-being. Recovery-function combines experiences broader than boundary demarcation, while role conflict and attention regulation were not directly modeled. Its non-significant indirect paths should therefore not be generalized to all boundary-management processes (Vanden Abeele et al., 2024).

Nguyen and Hargittai (2023) show that voluntary disconnection practices relate to digital inequalities. Whether the ability to obtain well-being benefits from disconnection is also unequally distributed remains a separate question. The current sample and measures do not establish a socioeconomic gradient in disconnection outcomes.

5.4. Practical Implications

The results support studying a range of disconnection practices, while retaining attention to personal goals and context. Because the two strategies were examined in separate models and were not compared through a direct contrast, the coefficients do not establish that one strategy is superior. Recommendations should be provisional until experiments or longitudinal analyses show which practices benefit which users.

The need-related association suggests that future interventions could examine agency and social experiences alongside reduced media engagement. This study did not test an intervention, mindfulness, meditation, or sustained behavior change. It therefore cannot establish that adopting any of those practices increases happiness or psychological resilience.

5.5. Limitations and Future Research

The sample consists of Chinese university students recruited through an online survey, which limits generalization beyond that population. Representation from eastern and central/western regions does not make the sample nationally representative. The recruitment frame and institution-level selection may also affect which students participated.

The self-report and adapted measurement strategy limits inference about specific psychological mechanisms. The seven-point versions of SPANE and selected BPNSFS items differ from their original response formats, and the meaning composite combines presence with search. Reliability and loadings do not establish equivalence to the original scales. Future research should validate the adapted indicators and combine self-reports with objective usage records or physiological measures where appropriate.

The cross-sectional design cannot establish temporal order, rule out reverse associations, or show that a significant indirect path represents a causal process. All variables were assessed in the same survey, so shared reporting tendencies may contribute to the associations. Longitudinal or experimental designs should distinguish pre-existing well-being from changes following

disconnection and test the duration and context of disconnection.

The study does not separately estimate each need-related dimension or directly test differences between the two disconnection strategies. Cultural influences, personality, and socioeconomic conditions also remain untested as moderators. These limits constrain the scope of explanations that can be drawn from the two models.

6. Conclusion

Technology-based and non-technology-based digital disconnection were positively associated with SWB in this cross-sectional student sample. Positive indirect associations appeared through the study-specific need-related factor, whereas recovery-function indirect associations were not statistically significant. The results concern the reported operationalization and do not establish causal mediation, the superiority of a strategy, or the unique contribution of each underlying dimension. They provide a basis for more precise measurement and longitudinal testing of when intentional disconnection relates to well-being.

Conflict of Interest

The authors declare that they have no conflicts of interest.

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