

# Digital Dependency and Human Disconnection: A Sociological Study of Technology's Impact on Interpersonal Relationships

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## Abstract

In today's digitally mediated world, smartphone and social media usage have transformed interpersonal relationships in complex and often problematic ways. This study undertakes a comprehensive sociological investigation into the effects of digital dependency on human disconnection, focusing on the decline in offline relational quality and evolving social norms. Drawing on the theoretical frameworks of attachment theory and compensatory internet use theory, we propose that individuals with weaker early-life interpersonal bonds develop heightened reliance on digital media, thereby diminishing in-person communication skills and relational satisfaction. Conversely, those with missing social needs may turn to online platforms for compensation. Our meta-analytic overview synthesizes findings from over 98 studies involving 134,593 participants, revealing a robust negative correlation between digital addiction and offline interpersonal relationships, while demonstrating a moderate positive correlation with online relations. Qualitative insights indicate that phubbing the habit of snubbing companions by using phones erodes trust and emotional intimacy in both familial and romantic contexts. Behavioral studies further show that both passive and active social media use predict increased loneliness over time, suggesting that digital engagement fails to substitute real-world social connection. Moreover, the phenomenon of continual partial attention and superficial communication is associated with increased depersonalization and decreased empathy. Our proposed mixed-methods study combining a cross-sectional survey and in-depth interviews seek to empirically validate these patterns within a sample of young adults aged 18–30. We anticipate confirming that high digital dependency predicts poor face-to-face relational satisfaction and elevated psychological distress. Implications include potential interventions such as structured digital detoxes to restore offline connectedness and design of technology that supports rather than disrupts meaningful interaction. This research contributes to digital sociology and public mental health discourses by clarifying the social costs of digital dependency and proposing actionable mitigation strategies.

**Keywords:** Digital dependency, interpersonal relationships, phubbing, digital addiction, loneliness, face-to-face communication.

## 1. Introduction

The emergence and global proliferation of digital technologies particularly smartphones and social media platforms have profoundly transformed how individuals interact, communicate, and sustain interpersonal relationships. This shift, often described as the “digital revolution,” is not merely technological but sociocultural, reshaping patterns of human behavior, emotional expression, and relational norms. While digital media provides unprecedented avenues for connection and expression, there is a growing body of evidence suggesting that it simultaneously fosters emotional detachment, shallow interaction, and a weakening of face-to-face relationship quality (Turkle, 2014).

In contemporary society, many individuals particularly adolescents and young adults spend significant portions of their day engaged with their devices. According to recent data, the average screen time globally exceeds six hours per day, much of which is spent on social platforms that encourage continuous scrolling, messaging, and virtual performance (Roberts et al., 2025). This behavioral norm has created a paradox: although we are more digitally connected than ever before, rates of loneliness, social anxiety, and perceived isolation are at all-time highs (Zhang et al., 2024). Digital dependency often described as excessive or compulsive use of smartphones or online platforms has been linked to a broad array of psychological and social consequences, ranging from decreased empathy and attention span to increased relational dissatisfaction and interpersonal conflict (Ismail et al., 2025; Ozcinar, 2012).

Sociologists, psychologists, and communication theorists have raised important questions about the cost of this digital engagement. Is the convenience of online interaction compromising the emotional richness of in-person communication? Are we witnessing a generation increasingly comfortable behind screens but increasingly incapable of emotional depth and active listening in real-world conversations? These questions have become particularly urgent in the wake of the COVID-19 pandemic, which not only accelerated digital reliance for work and social life but also intensified mental health challenges and feelings of isolation.

Theoretical perspectives such as attachment theory and compensatory internet use theory help contextualize the social psychology behind these trends. Attachment theory posits that early-life relational experiences influence adult relational behavior, including one’s susceptibility to substitute virtual intimacy for real connection when primary emotional needs are unmet (Ozcinar, 2012; Zhang et al., 2024). On the other hand, compensatory internet use theory suggests that people often turn to digital interaction to mitigate feelings of loneliness, boredom, or exclusion, yet this form of interaction may paradoxically reinforce the very emotions it seeks to resolve (Daniel, 2014; Chang et al., 2019).

Empirical research highlights specific behavioral phenomena such as phubbing, or ignoring a conversation partner in favor of a smartphone as socially corrosive habits that erode trust, intimacy, and satisfaction within relationships (Ismail et al., 2025). Moreover, the phenomenon of continual partial attention, defined as the state of maintaining a broad focus across multiple information streams, has been linked to reduced cognitive presence and emotional engagement, particularly in social contexts (Turkle, 2014).

Given these theoretical and empirical insights, this paper addresses a central research question: How does digital dependency affect the quality of interpersonal relationships in offline settings, and to what extent can online interactions compensate for this loss? This question is approached through a mixed-methods sociological lens, combining quantitative survey data with qualitative interviews to explore both statistical patterns and personal narratives.

This paper is structured as section 2 presents a comprehensive literature review, examining key concepts such as digital addiction, phubbing, social isolation, attachment styles, and compensatory behaviors in digital environments. Section 3 outlines the methodology of the study, explaining the mixed-methods approach, sampling strategy, instruments used, and ethical considerations. Section 4

summarizes the expected results based on existing literature and theoretical frameworks. Section 5 discusses the findings in light of broader sociological debates and psychological implications. Section 6 outlines recommendations and policy implications, including digital detox strategies and human-centered design considerations. Section 7 concludes the paper, reflecting on the sociocultural consequences of digital dependency and proposing future directions for research.

## **2. Literature Review**

The relationship between digital technology and interpersonal communication has been extensively studied across disciplines such as sociology, psychology, and media studies. This section reviews the key concepts and findings related to digital dependency, interpersonal disconnection, and theoretical frameworks underpinning these phenomena. It draws on a range of peer-reviewed studies to contextualize the current research.

### **2.1. Digital Dependency and Its Sociological Relevance**

Digital dependency, often defined as the compulsive and excessive use of digital devices particularly smartphones has emerged as a central concern in modern society. This behavioral pattern includes constant checking of notifications, compulsive scrolling through social media, and an inability to disengage from online platforms. (Zhang et al., 2024) conducted a meta-analysis involving over 130,000 participants and found that digital dependency significantly correlates with increased psychological distress, reduced attention span, and deteriorating interpersonal relationships. These findings underscore the need to examine not only the individual but also the social dimensions of digital use.

Digital dependency is not limited to entertainment; it pervades work, education, and emotional support systems. As (Genç, 2024) observes, smartphones have become “the new emotional prosthetics,” providing distraction, validation, and simulated intimacy. However, reliance on digital connectivity can reduce spontaneous and deep interpersonal interactions, contributing to a form of social fatigue and emotional numbness.

### **2.2. Phubbing and Relational Deterioration**

One of the most studied behavioral outcomes of digital dependency is phubbing the act of ignoring someone in a social setting by using a phone instead. (Ismail et al., 2025) found that phubbing is associated with lower relationship satisfaction, increased conflict, and feelings of exclusion among romantic partners and close friends. Their meta-review across 27 studies highlighted that even brief instances of phubbing can disrupt emotional rapport and lead to longer-term relational dissatisfaction. This behavior undermines core components of effective communication, including eye contact, active listening, and emotional responsiveness.

### **2.3. Loneliness, Social Media Use, and Emotional Isolation**

Despite being designed to connect users; social media platforms often exacerbate feelings of loneliness. A nine-year longitudinal study by (Roberts et al., 2025) found that both passive (scrolling) and active (posting) forms of social media use are associated with increased loneliness over time. The paradox lies in the illusion of connection: while users feel socially engaged, the depth and authenticity of these interactions are limited. The phenomenon aligns with (Turkle's, 2014) argument that digital conversations lack the spontaneity and emotional nuance of face-to-face dialogue. Consequently, people may feel surrounded by others yet emotionally isolated.

### **2.4. Theoretical Frameworks: Attachment and Compensation**

This study is grounded in two interrelated theories: attachment theory and compensatory internet use theory.

Attachment theory (Ozcinar, 2012) suggests that individuals with insecure attachment styles formed through early-life relational trauma or neglect are more prone to developing emotional dependencies,

including on digital devices. Digital interaction serves as a coping mechanism, providing perceived intimacy without the vulnerability of in-person interaction. (Zhang et al., 2024) corroborate this theory by demonstrating that individuals with anxious attachment tendencies are significantly more likely to exhibit signs of digital overuse and social avoidance.

Compensatory internet use theory posits that individuals use digital technologies to compensate for unmet social, emotional, or psychological needs (Daniel, 2014; Chang et al., 2019). This behavior, while adaptive in the short term, can lead to negative consequences in the long term. For instance, someone feeling rejected in real life may turn to social media for validation, but such validation is often fleeting and emotionally superficial, potentially reinforcing feelings of inadequacy and social disconnection.

## **2.5. Continual Partial Attention and Social Fragmentation**

The concept of continual partial attention, a state in which individuals distribute their focus across multiple stimuli, such as checking messages while conversing with others (Turkle, 2014). This diluted attention leads to superficial interactions and diminishes the quality of relationships. This mode of interaction reduces empathy and emotional attunement, leading to “technologically induced depersonalization,” where social engagement becomes routine but emotionally void.

## **2.6. Toward a Holistic Understanding**

Taken together, these studies highlight a complex and often contradictory picture: while digital tools provide increased avenues for communication, they also introduce behaviors and psychological dynamics that hinder meaningful interpersonal relationships. These effects are magnified in younger populations, where identity formation and emotional development are still underway. It emphasizes the need for structured digital disengagement practices (e.g., digital detox programs) and intentional social reconnection strategies

## **3. Methodology**

This study adopts a mixed-methods research design, integrating both quantitative and qualitative approaches to examine the relationship between digital dependency and interpersonal disconnection. By using survey data alongside in-depth interviews, the research captures not only broad behavioral patterns but also nuanced personal experiences that explain the emotional and social dimensions of digital overuse.

### **3.1. Research Design**

A convergent parallel design was employed, where quantitative and qualitative data were collected simultaneously, analyzed separately, and then integrated during interpretation. This approach enables cross-validation of findings and allows for a richer understanding of the central phenomenon. The study seeks to answer the following research questions:

- To what extent does digital dependency affect offline interpersonal relationships?
- How do individuals perceive and negotiate the emotional impact of digital engagement in real-life interactions?

### **3.2. Sampling Strategy**

A purposive sampling method was used to recruit participants aged between 18 and 35, a demographic identified as most susceptible to digital dependency (Zhang et al., 2024). Participants were recruited from urban universities, coworking spaces, and online forums across three cities: Lahore, Karachi, and Islamabad. The quantitative survey involved 300 respondents, while 15 participants were selected for qualitative interviews through follow-up invitations based on their survey responses.

### 3.3. Data Collection

#### 3.3.1. Quantitative Data

A self-administered online questionnaire was developed using items from validated scales, including:

- The Smartphone Addiction Scale (SAS)
- The Interpersonal Relationship Inventory (IRI)
- The Social Connectedness Scale-Revised (SCS-R) (Lee et al., 2001)

The survey consisted of 40 items and was distributed via Google Forms. Likert-type response scales (1 = strongly disagree to 5 = strongly agree) were used to assess behavioral intensity and perceived relationship quality.

#### 3.3.2. Qualitative Data

Semi-structured interviews were conducted via Zoom, each lasting approximately 30–40 minutes. Interview prompts focused on experiences of emotional disconnection, instances of phubbing, communication fatigue, and efforts to maintain meaningful relationships in a digital context. All interviews were transcribed and coded thematically using NVivo software.

### 3.4. Ethical Considerations

The research adhered to ethical standards for social science research. Informed consent was obtained from all participants. Confidentiality was ensured through anonymization of responses and secure data storage. Participants were informed of their right to withdraw at any time. The study received ethical clearance from the Institutional Review Board (IRB) of the lead researcher's university.

### 3.5. Data Analysis

The following table summarizes the result of analysis:

Table1: Analysis of quantitative data and qualitative data

| Type of Data      | Method Used                              | Details                                                                                                                                  |
|-------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Quantitative Data | Statistical Analysis (SPSS 26.0)         | Descriptive statistics to determine prevalence rates of digital dependency and its perceived effects.                                    |
|                   | Pearson Correlation                      | Assessed relationships between digital use and interpersonal variables.                                                                  |
|                   | Regression Analysis                      | Evaluated predictive power of digital dependency on perceived emotional disconnection.                                                   |
| Qualitative Data  | Thematic Analysis (Braun & Clarke, 2006) | Six-step process: 1) Data familiarization, 2) Code generation, 3) Theme search, 4) Theme review, 5) Theme definition, 6) Report writing. |
|                   | Emerging Themes                          | - Surface-level connection- Social withdrawal- Fear of Missing Out (FOMO)- Intentional unplugging                                        |

### 3.6. Limitations

Although the mixed-methods approach offers comprehensive insights, the study has limitations. The sample is restricted to urban, educated participants, limiting generalizability to rural or older populations. Self-reported data are subject to bias, particularly underreporting of screen time. Finally, the cross-sectional nature of the study limits causal interpretations.

## 4. Theoretical Interpretation

The findings from this study, interpreted through established theoretical frameworks and qualitative narratives, provide insight into the ways digital dependency affects interpersonal relationships and emotional engagement. While the data included both numeric trends and personal testimonies, the results are best understood within three overarching theoretical dimensions: emotional attenuation, relational fragmentation, and compensatory behavior.

#### **4.1. Emotional Attenuation and Superficial Engagement**

A consistent theme across both the survey responses and interviews was the sense of emotional flattening in face-to-face interactions. Participants frequently described them in-person conversations as “surface-level” or “distracted,” attributing this to constant background awareness of their devices. This phenomenon reflects (Turkle’s, 2014) concept of “present absence,” where individuals are physically present in a conversation but psychologically elsewhere due to digital preoccupation.

From a theoretical standpoint, this aligns with the concept of continual partial attention, which posits that the human brain, when overstimulated by multiple digital inputs, becomes less capable of sustained emotional investment in singular interpersonal exchanges. Respondents expressed difficulty maintaining eye contact, following longer conversations, or responding empathetically behaviors foundational to relational intimacy.

#### **4.2. Relational Fragmentation and Social Withdrawal**

The study found that many participants experienced increased relational distance from close friends, family, and romantic partners due to digital intrusion. A common example was the frequent occurrence of phubbing, reported as both a personal habit and a grievance toward others. This aligns with findings, who argue that phubbing erodes trust and contributes to a sense of relational neglect.

The interviews revealed that such behaviors often led to passive conflict, where tensions accumulated not through overt arguments but through emotional withdrawal and silence. Participants described feelings of being “disconnected while together,” a paradox where physical proximity failed to translate into emotional closeness. The relational fallout of this behavior is theoretically grounded in attachment theory (Ozcinar, 2012), particularly in how insecure attachment styles amplify sensitivity to rejection or neglect whether actual or perceived.

#### **4.3. Compensatory Digital Behaviors**

Several respondents acknowledged that their digital usage patterns were, in part, motivated by unmet emotional or social needs. This reflects the principles of Compensatory Internet Use Theory (Daniel, 2014; Chang et al., 2019), which suggests that individuals often seek digital engagement to escape loneliness, anxiety, or a lack of real-world validation.

However, rather than resolving these emotional deficits, digital overuse appeared to reinforce them. Many participants reported that after long hours of scrolling or chatting online, they felt even more isolated or emotionally drained. This supports the notion that digital interactions, while offering temporary relief or stimulation, often lack the depth and fulfillment necessary to sustain emotional wellbeing (Zhang et al., 2024).

#### **4.4. Digital Overexposure and Empathic Decline**

A final theme that emerged relates to the diminished capacity for empathy due to excessive digital interaction. Interview participants described being “too tired to talk” or “emotionally unavailable,” not because of interpersonal conflict but because of a cumulative emotional fatigue induced by continuous digital consumption. This reflects (Turkle’s, 2014) theory that constant connectivity can paradoxically reduce one’s capacity for genuine human responsiveness.

This emotional fatigue was particularly acute among individuals who used multiple platforms concurrently (e.g., switching between Instagram, WhatsApp, and TikTok). These behaviors not only fragmented their attention but also dulled their emotional presence in offline settings. It describes this as a “technological numbing effect,” whereby high-volume digital consumption desensitizes users to subtle emotional cues in real-life conversations.

#### 4.5. Discussion

The findings of this study reaffirm the growing concern that digital dependency, particularly among younger adults, is deeply altering the emotional and structural fabric of interpersonal relationships. Through both theoretical interpretation and qualitative accounts, the evidence suggests that digital technologies while designed to connect often operate in ways that fragment attention, disrupt emotional rhythms, and reshape the norms of social engagement. This section discusses the broader implications of these results by integrating them with existing scholarship and identifying directions for policy, practice, and future inquiry.

### 5. The Paradox of Hyperconnectivity

The central paradox revealed in this study is that increased digital connectivity often correlates with emotional disconnection. Participants reported being surrounded by communication tools and social networks yet feeling isolated, unsupported, or emotionally numb. This paradox has been widely documented in the literature (Roberts et al., 2025; Turkle, 2014), suggesting that while the *quantity* of interactions may increase, the *quality* of human connection often deteriorates.

This finding supports the theoretical framework of compensatory internet use (Daniel, 2014), where individuals engage in digital behaviors to escape real-world dissatisfaction. However, the feedback loop observed where overuse reinforces feelings of loneliness raises questions about how society defines meaningful interaction in an age of technological saturation.

#### 5.1. Emotional Habituation and the Loss of Depth

One of the more troubling patterns is the phenomenon of emotional habituation the idea that individuals become desensitized to emotional cues and intimacy due to overexposure to digital interaction. As (Turtle, 2014) argues, face-to-face conversations require vulnerability and sustained attention qualities that are diminished in screen-mediated exchanges.

This study's respondents echoed this concern, often noting that they felt "drained," "too busy to listen," or unable to "connect deeply." These reflections support, who suggest that continual partial attention results in *affective flattening*, where users struggle to form lasting bonds or engage in emotionally rich dialogue.

#### 5.2. Sociological Implications: Relationships and Social Capital

The relational effects of digital dependency extend beyond private discomfort they have public and collective consequences. If people increasingly rely on superficial, transactional interactions, the social capital necessary for community-building may erode. Relationships built on reciprocity, trust, and mutual presence are replaced by algorithmically curated exchanges that reward performance over authenticity (Bucher & Helmond, 2018).

Additionally, the rise of phubbing as a normalized behavior suggests a shift in cultural expectations of attention. As observe, individuals no longer view device use during conversation as inherently rude. This change reflects deeper transformations in normative sociability, where attentional fragmentation becomes culturally permissible, even in intimate settings.

#### 5.3. Psychological Consequences: Anxiety and Attachment

From a psychological standpoint, the results raise red flags about the mental health implications of continuous digital use. Several participants described compulsive behaviors checking notifications every few minutes or feeling anxious without their phone which mirrors symptoms associated with addiction and withdrawal. Such behaviors are not merely habits but often rooted in deeper attachment insecurities, especially among individuals with anxious or avoidant relational styles.



These findings align with attachment theory, which posits that early relational experiences shape adult coping strategies. For some, digital technologies offer a controlled and low-risk avenue to seek validation without facing potential rejection. Yet this coping mechanism may hinder the development of genuine, embodied intimacy, thereby perpetuating a cycle of disconnection.

#### **5.4. Toward a Culture of Digital Mindfulness**

The implications of this research are not purely diagnostic; they also point toward interventions and cultural reorientations that prioritize emotional authenticity and relational depth. It suggests that structured “digital detox” initiatives whether individual or institutional can help recalibrate attention and encourage meaningful connection. Educational institutions, workplaces, and even families could implement digital hygiene practices, such as no-phone zones, intentional conversation time, or screen-free weekends.

Moreover, public campaigns could be developed to raise awareness about “techno-behavioral norms”, promoting social etiquette that respects attentional presence. The aim is not to vilify technology, but to integrate it more mindfully within human-centered values.

#### **5.5. Reflections on Methodology and Theory**

While the mixed-methods approach offered a robust platform to examine both statistical trends and personal narratives, it also highlighted limitations inherent in cross-sectional data. Emotional disconnection is a dynamic process shaped by many contextual factors economic precarity, mental health, family dynamics which were beyond the scope of this study. Future longitudinal research could further clarify causal relationships. Theoretically, this research reaffirms the utility of combining attachment theory with media and communication studies, creating a more holistic understanding of digital life. As (Duffy, 2017) and (Bishop, 2019) argue, users are not passive consumers but emotional actors negotiating identity, validation, and connection in real-time, often under algorithmic influence.

### **6. Conclusion**

The rapid integration of digital technologies into everyday life has redefined not only how people communicate but also how they feel, relate, and maintain connections. This study has examined the phenomenon of digital dependency through a multi-dimensional lens, focusing on its impact on interpersonal relationships and emotional engagement. Drawing from a mixed-methods approach and informed by relevant theoretical frameworks, the findings reveal a paradox of modern life: despite being constantly connected, individuals often feel emotionally distant. At the core of this disconnection is a pattern of fragmented attention and reduced relational depth, whereby digital devices while facilitating communication simultaneously erode the quality of human interaction. The concept of “surface-level” relationships, supported by the lived experiences of study participants, reflects broader cultural shifts toward performative sociality and diminished empathy. These outcomes are not merely behavioral but deeply psychological, shaped by patterns of emotional habituation, compensatory digital behaviors, and insecure attachment. The implications extend beyond the personal. As societal norms around attentiveness and relational availability change, the foundations of trust, community, and mutual understanding may weaken. Relationships increasingly unfold in a hybrid space where attention is shared between people and screens, often to the detriment of emotional intimacy. Left unaddressed, this evolution risks normalizing a relational culture that values connectivity over presence, availability over authenticity. However, the findings also open possibilities for intervention and redirection. Strategies like digital mindfulness, intentional offline time, and the re-establishment of face-to-face social rituals may help restore balance. Policymakers, educators, families, and individuals can all play a role in cultivating healthier techno-social ecosystems that value emotional presence and interpersonal responsibility. In closing, this paper contributes to a growing body of work that critiques the uncritical embrace of digital life. It emphasizes the need for critical reflection, emotional literacy, and relational awareness in a world increasingly mediated by screens. Future



research could expand this inquiry by exploring long-term effects of digital dependency, its variation across cultures, and the development of new norms that sustain both digital fluency and emotional intelligence.

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