

A Systematic Review of Cyber Loneliness in Relation to Personality, Hardiness, Hopelessness, and Family Environment among Digitally Socialized Youth

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Abstract:

India provides a key context for studying cyber loneliness. The Kantar-IAMAI ICUBE (2024) report notes that India has over 886 million active internet users, with young adults making up the largest group. The Data Reported Digital India Report (2025) estimates that there are about 491 million active social media user identities, highlighting how digital technology is woven into daily life. Despite this widespread connectivity, many young people in India are facing emotional distress, loneliness, and psychological exhaustion. Loneliness is not classified as a separate mental disorder in the DSM-5-TR or ICD-11. This review examines existing research to understand how personality traits, psychological hardiness, hopelessness, and family environments contribute to cyber loneliness among youth raised in digital settings. The findings draw from over 40 empirical studies that met strict criteria and were analyzed to identify both personal and systemic factors behind digital isolation. The research shows that people with higher education levels often have better internet access, likely due to resources from educational institutions. Gender differences in internet use are also evident, with women and men exhibiting distinct patterns of engagement (Boneva and Frohlich, 2001). Studies have found that lonely individuals tend to have lower psychological competence (Leung, 2001; Spitzberg and Canary, 1985), and Monahan-Martin and Schumacher (2003) observed that lonely people are more likely to use the internet and email for emotional support. Many turn to online spaces to escape daily pressures and discomfort. The analysis highlights that high neuroticism, low extraversion, and high hopelessness are strongly linked to severe cyber loneliness. Overall, the review finds that cyber loneliness is a complex issue shaped by both individual psychological factors and current social environments.

Keywords: Cyber Loneliness, Personality Traits, Hardiness, Hopelessness, Family Environment, Digitally Socialized Youth – A systematic review.

1. INTRODUCTION

Social connection has undergone a fundamental change in the digital age. Among today's young people, especially those in Generation Z and the younger part of the Millennial generation, interaction with one another, the expression of emotions, and the formation of their identities are increasingly taking place on digital media. Social connection has changed dramatically in the digital age. For young people, especially

Generation Z and younger Millennials, much of their interaction, emotional expression, and identity formation now happens online. While digital technology has made communication easier, research shows that greater connectivity does not always lead to stronger emotional bonds or a greater sense of belonging. The World Health Organization (WHO) recently identified loneliness as a major public health concern, reporting that about one in six people worldwide feel lonely, with the highest rates among adolescents and young adults. Nearly 20 to 21 percent of people aged 13 to 29 say they often feel lonely, putting digitally active youth at particular risk. Loneliness is linked to higher rates of depression, anxiety, sleep problems, substance use, and lower quality of life. In digital spaces, loneliness often takes the form of cyber loneliness—a feeling of emotional isolation and emptiness despite frequent online interaction. Unlike traditional loneliness, which stems from limited social contact, cyber loneliness is tied to shallow digital engagement, constant social comparison, seeking validation through algorithms, and the belief that online relationships are not genuine. This gap between being online and feeling emotionally fulfilled creates unique vulnerabilities for young people. India is a key context for studying this issue, with over 886 million active internet users (Kantar–IAMAI ICUBE 2024) and around 491 million active social media identities (Data Reportal Digital India Report, 2025). Despite this, young people in India are experiencing more emotional distress, loneliness, and exhaustion. Although loneliness is not classified as a mental disorder in the DSM-5-TR or ICD-11, both recognize it as a significant risk factor for depression, anxiety, and stress-related disorders. The WHO also notes that chronic loneliness increases the risk of self-harm and suicide. In 2021, suicide caused about 727,000 deaths worldwide and is a leading cause of death for people aged 15 to 29. In India, the National Crime Records Bureau (NCRB, 2023) reported 171,418 suicides, with many involving students and young adults. In Haryana, 3,783 suicides were recorded in 2022, with family problems and the negative effects of social media and digital isolation cited as key factors. The Haryana SDG District Index uses suicide mortality as a key indicator, showing the need for local mental health research in places like Gurugram, where digital exposure and youth stress are high. Cyber loneliness, or digital loneliness, is the feeling of isolation and a lack of meaningful connection that can occur even with high levels of digital connectivity. It comes from the difference between the quality of social interaction people want and the often superficial nature of online relationships. Research shows that age, education, and gender affect internet use, network size, social support, and loneliness. People with more education often have better internet access, partly because of access to educational resources. Women and men use the internet differently (Boneva, Kraut, & Frohlich, 2001). Lonely people tend to feel less psychologically competent (Leung, 2001; Spitzberg & Canary, 1985). Monahan-Martin and Schumacher (2003) found that lonely people are more likely to use the internet and email for emotional support. Many use the internet to escape daily pressures. As internet use has grown, early observers like Reingold (1993) and Turkle (1984) noted links between loneliness and internet use. Later studies confirmed that more internet use is linked to more loneliness. The internet now allows people to form relationships online, even with those they have never met, through chat rooms and other tools. These online relationships, or "cyber-friends," have been debated in terms of quality (Cummings et al., 2002; McKenna and Bargh, 2000), but some studies show that having more cyber-friends can improve well-being and social skills (Ando et al., 2004; Sakamoto et al., 2002). However, Kraut et al. (1998) found that more internet use can also increase loneliness and depression, possibly because it leads to more time spent in weaker online relationships and less time with close family and friends. Today, people rely heavily on the internet. While it offers many benefits, excessive or compulsive use can cause problems like anxiety, sadness, and other psychological issues. Feeling empty

can reduce emotional support in families, and people may avoid family responsibilities. Among students, compulsive internet use can hurt academic performance, with some missing classes to spend more time online. Widyanto and Griffiths (2006) describe the internet as an exciting and essential part of life, used for information, study, entertainment, communication, and business (Widyanto and Griffiths, 2006; Douglas et al., 2009). While the positive sides of the internet are well known, research is increasingly focusing on the negative effects of excessive and improper use (Beard, 2005; Frangos and Frangos, 2009). The Discrepancy Model of Loneliness (Perlman & Peplau, 1981) and the Social Displacement Hypothesis (Kraut et al., 1998) state that Perlman and Peplau (1981) saw loneliness as a combination of emotional and cognitive reactions to a situation where there is a gap—either in quantity or quality—between the social relationships one wants and those one actually has. Kraut and others (1998) applied this idea to internet environments by proposing the Social Displacement Hypothesis, which claims that substituting rich, face-to-face social relationships with shallow digital interactions results in a fundamental lack of true emotional support. In young people, this discrepancy takes the form of cyber loneliness, which is experiencing a sense of isolation even though they are constantly connected virtually. Kobasa (1979) described psychological hardiness as a group of personality traits—commitment, control, and challenge—that help protect against stress. In the diathesis-stress model, personality weaknesses like high neuroticism and low hardiness make people more vulnerable. Young people with low hardiness who face digital stressors, such as being excluded online or having shallow interactions, often struggle to cope and are more likely to experience cyber loneliness.

The Cognitive Theory of Depression and the Hopelessness Framework (Beck et al., 1974) describe hopelessness as having negative beliefs about the future. In the digital world, young people with high hopelessness often see unclear, unsociable messages—like slow replies with little engagement—as signs of rejection. This way of thinking can lead them to use the internet passively, which starts a cycle of social and greater digital isolation.

Bowen (1978) viewed the family as an emotionally connected unit, in which each person's stability depends on the family's closeness and its ability to support differences. When families have a lot of conflict, little warmth, or weak bonds, young people lack a secure emotional base. They may turn to the online world to find belonging, but without strong offline relationships, these online connections often feel empty and can increase cyber loneliness.

2. Review of Related Literature

2.1 Digital Media, Smartphone Usage, and Loneliness

The use of the internet and smartphones in an uncontrolled and compulsive manner is consistently linked to higher levels of loneliness (Ravindran, 2020; Tewari, 2024). When problematic use occurs, it tends to replace genuine, high-quality social interactions, worsening feelings of isolation. Functional Nuances (The Nowland Model): The effect of technology is highly dependent on how it is used (MacDonald & Schermer, 2021; Li et al., 2024). There is a correlation between screen time and social media apps and increased loneliness. On the other hand, active communication apps and frequent short check-ins (pickups) are associated with lower levels of loneliness because they promote intimacy and help to maintain social connections. For older adults, using the internet to stay in touch with family, to read the news, or to manage their assets leads to reduced loneliness, while using it mainly for online payments results in higher reported levels of loneliness (Li et al., 2024).

Robust Longitudinal Relationship: A comprehensive meta-analysis of 26 longitudinal studies (involving $N = 24,798$ people) has shown that there is a bidirectional relationship between loneliness and problematic media use. Although the relationship is significant, complex statistical models (such as the estimated beta coefficients, r approximately 0.10) indicate that the actual longitudinal effect size is smaller than the figures suggested by traditional cross-sectional correlations (r approximately 0.28-0.29) (Fam & Männikkö, 2025).

Behavioral Correlates: There is a significant co-occurrence between high levels of loneliness and problematic internet use and health-risk behaviours such as the use of alcohol and tobacco among young adults (Ravindran, 2020).

2.2 Personality dynamics and trait adaptability

In a typical group of students, Conscientiousness tends to be the most prominent of the Big Five traits, whereas Neuroticism is the least common (Jordan, 2017; Karmakar et al., 2024). Females usually obtain higher scores in Agreeableness, Extraversion, and in overall academic achievement (Jordan, 2017; Karmakar et al., 2024).

With regard to academic and decision-making outcomes, extraversion and agreeableness are associated with higher academic achievement. This association is influenced by and strengthened through emotional intelligence (EI) and virtual learning (Dong et al., 2023). Agreeableness and conscientiousness promote rational decision-making and reduce spontaneous or intuitive errors, whereas neuroticism leads to more irrational and avoidant behaviours (El Othman et al., 2020). There are also differences in academic discipline (for example, between science and commerce students) in relation to the Big Five personality traits (Tarlika et al., 2019).

2.3 Contextual variability and plasticity:

Across-Situation Variability (ASV): Individual personality traits show dynamic flexibility depending on the situation (such as in the family, at work, or within peer groups), except Openness to Experience, which stays extremely stable (Nasello et al., 2023). Greater personality plasticity allows for a better match between strategies and situations in the context of proactive emotion regulation (Wenzel & Rowland, 2025).

Relational Growth: Autonomous support given by close others over time leads to positive increases in Agreeableness, Conscientiousness, Openness, and subjective well-being (Audet et al., 2026).

The "Dark Core" (D): People who show high levels of the Dark Core of personality have widespread pessimistic fundamental beliefs about the world—believing it to be less safe, less stable, less enjoyable, and essentially devoid of meaning (Schrödter et al., 2026).

3. Psychological hardiness (commitment, control, challenge)

The idea of hardiness, which includes commitment, control, and challenge, has over the course of four decades changed from being simply an individual attitude to becoming a set of comprehensive behavioural skills (such as coping, social interaction, and self-care) as well as organizational frameworks (Lambert et al., 1999; Maddi et al., 2002; Mishra, 2025). Systematic assessments have shown that scales tailored to particular groups, such as the Family Caregivers' Hardiness Scale or the Children's Hardiness Scale, are psychometrically superior when it comes to specific demographic groups (Sharif Nia et al., 2022).

Stress Buffer and Mental Health: Hardiness serves as a much stronger buffer against environmental stressors than either optimism or general social support (Pasrija & Gupta, 2024); it decreases the level of

perceived stress and enhances expectations about the future by means of positive emotional coping strategies (for example, music-assisted emotion regulation) and higher levels of life satisfaction (Park & Suh, 2023).

The effectiveness of intervention: meta-analytic evidence shows that structured psychological interventions, especially those based on cognitive techniques ($g = 2.015$), result in large and statistically significant improvements in student hardiness (Gao et al., 2022).

4. Hopelessness and Clinical Vulnerabilities

1. High scores on hopelessness (as measured by the Beck Hopelessness Scale) are significantly associated with major affective disorders, older age, female gender, unipolar depression, and a history of childhood trauma (Aguglia et al., 2020). Most important of all, problems in identifying and expressing emotions (alexithymia) are key risk factors for severe hopelessness.

2. Digital and coping mediators: Hopelessness not only predicts but also acts as a key mediator in the relationship between digital dependencies (such as social media addiction and mobile phone dependence) and extreme loneliness as well as maladaptive, emotion-focused coping strategies (Zhou & Liu, 2024; Durmuş et al., 2025).

Expanded Summary Matrix Table-1

Study	Population & N	Core Methodology	Key Findings
Jordan (2017)	304 University students	Big Five Scale, correlation	Conscientiousness was highest, Neuroticism lowest. Future anxiety correlated negatively with Extraversion, Openness, Agreeableness, and Conscientiousness.
Dr. Tarlika et al. (2019)	60 Science & Commerce female students	Big Five Inventory, t-test	Significant difference in personality traits between science and commerce female students ($t = 3.80$).
El Othman et al. (2020)	296 Medical students	Cross-sectional, Mediation Analysis	EI mediated personality traits and decision-making styles. Conscientiousness/Agreeableness drove rational decision-making.
Ravindran (2020)	212 Students (18–25 yrs)	UCLA Loneliness Scale, PIUQ-SF-6	Significant link between loneliness and problematic internet use; high loneliness co-occurred with alcohol/tobacco use.
MacDonald & Schermer (2021)	302 Emerging adults	Self-report & objectively tracked, smartphone data	Screen time & social media correlated with higher loneliness; communication apps & frequent pickups correlated with lower loneliness.
Gao et al. (2022)	640 Participants across 12 studies	Meta-analysis (SMD, g)	Interventions significantly boost student hardiness ($g = 0.998$), with cognitive interventions showing the largest effect ($g = 2.015$).

Sharif Nia et al. (2022)	33 Studies (Systematic Review)	COSMIN Checklist/ Terwee criteria	Identified domain-specific hardiness tools (Caregivers, Athletes, Employees, Children) as having superior psychometric validity.
Nasello et al. (2023)	80 Participants	5-Situation BFI, Network Analysis	Traits changed across situations except Openness (stable). High variability in Conscientiousness linked to psychopathology markers.
Dong et al. (2023)	234 College/University students	Survey, Moderated Mediation	Extraversion and Agreeableness strongly predicted academic performance, enhanced by virtual experience and emotional intelligence.
Li et al. (2024)	550 Older adults (45+ yrs)	Chi-square, Binary Logistic Regression	Moderate internet use (1-5 hour/day) and using it to contact relatives reduced loneliness
Tewari (2024)	300 College students	Compulsive Internet Use & Differential Loneliness Scales	Internet dependency had a direct, statistically significant positive effect on student loneliness levels.
Fam & Männikkö (2025)	24,798 Individuals (26 studies)	Random-effects Longitudinal Meta-Analysis	Confirmed a bidirectional link between loneliness and problematic media use. Effect sizes are smaller in longitudinal beta models (r approx 0.10).
Wenzel & Rowland (2025)	179 Participants (29,956 observations)	Ambulatory Assessment	Situation selection was used dynamically during high affective well-being. Personality plasticity predicted better strategy-situation fit.
Mishra (2025)	690 Publications (2002–2023)	Bibliometric Network Analysis (VOSviewer)	Mapped the historical trajectory of hardiness research, identifying 3 foundational and 10 thematic clusters across literature.
Audet et al. (2026)	1,403 University students	6-Wave Longitudinal Study	Autonomy support from close others over time directly increased Agreeableness, Conscientiousness, Openness, and subjective well-being.
Schrödter et al. (2026)	2,245 Participants across 4 studies	Latent Regression /Structural Equation Modeling	The Dark Core of personality (D) was systematically associated with negative primal world beliefs, especially perceiving life as meaningless.

To examine Cyber Loneliness (also referred to as digital isolation or online social loneliness) in relation to Personality, Hardiness, Hopelessness, and Family Environment among young people who are digitally socialized, the existing literature can be grouped into five main psychological areas.

Detailed Matrix Detailing Key Variables Table -2

Domain Variable	Theoretical & Operational Focus	Key Findings & Empirical Relationships	Impact on Cyber Loneliness	Risk / Protective Role
Personality Traits (Big Five / Eysenck Models)	Neuroticism: High emotional instability and threat sensitivity. Extraversion / Introversion: Social orientation and drive. Agreeableness & Conscientiousness: Prosocial orientation & self-regulation.	High Neuroticism strongly predicts reliance on online interaction to manage anxiety, leading to compulsive usage and heightened cyber loneliness. Introversion creates a social compensation dynamic: youth seek online interaction but lack offline emotional buffer.	Increases vulnerability when high in Neuroticism and low in Extraversion.	Risk: High Neuroticism, Low Self-Regulation. Protective: High Agreeableness, High Conscientiousness.
psychological Hardiness (Control, Commitment, Challenge)	• Hardiness: Dispositional resilience buffering against environmental stressors. Ability to appraise digital interactions as manageable rather than overwhelming.	Youth low in hardiness experience greater helplessness when online social dynamics fail (e.g., ghosting, cyber victimization). High hardiness acts as a psychological shield, reducing compulsive screen time as a coping mechanism.	Decreases cyber loneliness by promoting active coping over passive scrolling.	Protective Factor: Hardiness acts as a buffer between digital stress and emotional isolation.
Hopelessness & Despair (Beck's Hopelessness / Cognitive Triad)	• Pessimistic Expectancies: Negative outlook regarding future social integration. • Perceived lack of agency in offline vs. online realms.	• Strong bidirectional link: youth who feel hopeless offline retreat into digital environments, where superficial interactions exacerbate feelings of emptiness. • Persistent cyber loneliness correlates with elevated depressive symptoms and cognitive	Significantly Exacerbates cyber loneliness, leading to cyclic withdrawal.	Risk Factor: High hopelessness acts as a core driver of compulsive digital escape.

		despair.		
Family Environment (Parenting Styles, Communication, Support)	- Parental Control vs. Emotional Warmth. - Family Functioning: Cohesion, open communication, vs. conflict/neglect.	- Poor family cohesion and high parental psychological control force youth to seek compensatory connection online, heightening risk of digital addiction and cyber loneliness. - High family warmth and open communication buffer against digital social anxiety.	Decreases when family support is strong; Increases during family conflict/neglect.	Protective: Emotional warmth, active family communication. Risk: Hostile parenting, neglect.

5. Comprehensive Discussion: This review brings together research to show how digital socialization affects the social and emotional well-being of young people. Rather than seeing technology as the only cause, the evidence suggests that cyber loneliness is a complex issue shaped by media habits, personality traits, resilience, and mental health factors.

5.1 The phenomenon of compulsive

displacement as opposed to active social connection shows a consistent correlation between excessive and compulsive use of the internet or smartphones and higher levels of loneliness (Ravindran, 2020; Tewari, 2024). This is in line with the Displacement Hypothesis, which holds that problematic use actively replaces meaningful, real-time, high-quality social interactions and thus intensifies feelings of both physical and emotional isolation. Yet, when the Nowland Model is applied, important functional details emerge (MacDonald & Schermer, 2021; Li et al., 2024):

1. Instead of passively browsing through social media apps, which involve a great deal of screen time, people end up experiencing cyber loneliness. On the other hand, using communication tools that encourage active interaction and conducting frequent, brief digital checks help build interpersonal intimacy and keep important social relationships strong, thus reducing loneliness.
2. Contextual Nuances: As shown by the wider findings in the field of digital demographics, the purpose of a platform has a bearing on the socio-emotional outcomes it produces, since it is used either to manage social networks or to access information as a means of coping with isolation, while transactional or isolated digital activities (for example, making online payments) are associated with higher levels of loneliness (Li et al., 2024).

In typical student groups, Conscientiousness is the baseline trait, while Neuroticism is the least common (Jordan, 2017; Karmakar et al., 2024). Regarding gender, young women consistently report higher levels of baseline Agreeableness, Extraversion, and academic achievement (Jordan, 2017; Karmakar et al., 2024).

5.2 When examining functional outcomes:

1. Extraversion and Agreeableness are directly linked to greater academic achievement, a connection that is significantly strengthened when Emotional Intelligence and positive virtual learning experiences act as moderators (Dong et al., 2023).
2. In terms of decision-making, high levels of agreeableness and conscientiousness lead to rational decisions and help avoid intuitive or spontaneous mistakes. On the other hand, neuroticism results in more irrational and avoidant ways of making decisions (El Othman et al., 2020), making people more susceptible to compulsive digital coping mechanisms. Furthermore, there are notable differences in these traits at baseline across various academic disciplines, for example, between the science and commerce streams (Tarlika et al., 2019).

5.3 Contextual plasticity and the dark core (D): Instead of relying on static trait models, more recent research has emphasized the dynamic aspect of personality:

1. Across-Situation Variability (ASV): Individual personality traits show structural flexibility in different social situations (such as in the family, among peers, and at school), except for Openness to Experience, which stays very stable (Nasello et al., 2023). Youth with higher levels of trait plasticity achieve a better "strategy-situation fit" in proactive emotion regulation (Wenzel & Rowland, 2025).
2. Relational Growth: Providing long-term autonomy support through close interpersonal relationships leads to positive growth in the traits of Agreeableness, Conscientiousness, Openness, and in overall subjective well-being (Audet et al., 2026).
3. The Dark Core (D): At the extreme end of maladaptiveness, young people who score highly on the Dark Core of personality have widespread pessimistic basic beliefs about the world, perceiving their surroundings as unsafe, unstable, not enjoyable, and lacking any inherent meaning (Schrödter et al., 2026). When they use digital spaces, these individuals are especially prone to viewing social interactions through a cynical and hostile lens, which, in turn, increases their experience of cyber loneliness.

5.4 Conceptual Evolution and Targeted Assessment: Over the course of more than four decades of empirical refinement, the concept of hardiness has developed from that of a general attitude-based construct into an actionable framework consisting of behavioural skills, which includes adaptive coping strategies, proactive social interaction, and self-care (Lambert et al., 1999; Maddi et al., 2002; Mishra, 2025). Advances in psychometrics emphasize that using instruments tailored to demographic characteristics (for example, the Children's Hardiness Scale) yields better predictive validity when assessing young people (Sharif Nia et al., 2022).

1. Empirical comparisons have shown that hardiness functions as a significantly greater buffer against environmental stressors than either general optimism or social support by itself (Pasrija & Gupta, 2024). Through positive emotion regulation techniques (for example, music-assisted coping), hardiness reduces perceived stress. It promotes future-oriented expectations regarding one's life, thereby directly maintaining life satisfaction (Park & Suh, 2023). Importantly for use in clinical and educational settings, meta-analytic results show that hardiness is highly trainable: structured, cognitively based interventions yield very large and strong effect sizes ($g = 2.015$) in increasing student hardiness (Gao et al., 2022).
2. Elevated levels of hopelessness (as measured by the Beck Hopelessness Scale) are closely associated with major affective disorders, unipolar depression, female gender, older developmental stages, and a history of childhood trauma (Aguglia et al., 2020). Among all the factors, alexithymia stands out as a

key clinical indicator since it involves difficulties in identifying and describing emotions and thus serves as the main predictor of severe hopelessness.

5.5 The Mediating Role in Digital Dependencies: In today's context of digital socialization, hopelessness acts as a key link between reliance on digital platforms and clinical levels of distress; young people who already feel hopeless often turn to digital environments in an attempt to escape reality. Yet, because their tendency towards alexithymia and reliance on emotion-focused coping strategies prevent them from forming genuine online relationships, the increased time spent in digital spaces ultimately worsens their extreme loneliness (Zhou & Liu, 2024; Durmuş et al., 2025).

6. Summary and Integrative Theoretical Framework: The fact that Cyber Loneliness is an emergent state becomes clear when high digital dependency is combined with low internal buffering and high cognitive vulnerability.

1. When individuals score high on Neuroticism or the Dark Core, or are suffering from alexithymia and hopelessness (Aguglia et al., 2020; Schrödter et al., 2026), they tend to approach digital media with cognitive biases.
2. Behavioural phase: If the level of relational autonomy support is low (Audet et al., 2026), these people resort to compulsive and passive use of screens rather than engaging in active communication which helps build intimacy (Li et al., 2024; Tewari, 2024).
3. Outcome Phase: This undesirable pattern of usage replaces genuine real-time social interactions and sets up a bidirectional feedback cycle (approximately 0.10 over a longitudinal period) in which increased loneliness and health-risk behaviours occur (Ravindran, 2020; Fam & Männikkö, 2025).
4. Buffering and remediation: The trait of high psychological hardiness (Pasrija & Gupta, 2024) interrupts this cycle by promoting rational decision-making and active coping. Since hardiness responds to specific cognitive interventions ($g = 2.015$; Gao et al., 2022), it is the most feasible psychological factor for countering cyber loneliness among digitally socialized young people.

Variable Relationship Matrix Table-3

Construct	Direction of Effect on Cyber Loneliness	Key Mediating Mechanism	Primary Protective /Risk Role
Neuroticism	Positive	Hyper-vigilance to rejection	High Risk Factor
Extraversion	Inverse / Moderate	Social augmentation vs. compensation	Protective (if paired with offline ties)
Psychological Hardiness	Negative	Stress reappraisal & active coping	Strong Protective Factor
Hopelessness	Positive	Passive consumption & parasocial comparison	Severe Risk Amplifier
Positive Family Environment	Negative	Secure attachment & emotional regulation	Primary Micro-system Shield

7. The Limitations of the Existing Literature

7.1 Methodological and Design Limitations: Excessive dependence on cross-sectional studies and exaggerated effect sizes: A large amount of the current literature concerning digital media use and loneliness is based on cross-sectional correlational studies. As longitudinal meta-analytic evidence shows (Fam & Männikkö, 2025), the effect sizes obtained from cross-sectional designs (about 0.28 or 0.29) are larger than those from longitudinal models (about 0.10). Cross-sectional designs cannot show temporal precedence or determine whether digital dependency leads to cyber loneliness, or whether lonely young people retreat passively into digital spaces.

7.2 Measurement Biases in Digital Engagement: The majority of studies make heavy use of retrospective self-report surveys (for example, when estimating daily screen time or using general addiction scales). The data obtained through self-report are affected by recall bias and social desirability bias. Moreover, the overall screen-time figures do not account for the different functions involved, such as distinguishing between active relational messaging and passive, algorithm-driven consumption (MacDonald & Schermer, 2021; Li et al., 2024).

7.3 Conceptual and Theoretical Gaps

1. Terms such as cyber loneliness, problematic internet use, and social media addiction are often used as if they were equivalent in various studies without there being clearly defined operational boundaries. Moreover, although the diagnostic manuals (DSM-5-TR and ICD-11) list loneliness as a psychosocial risk factor rather than as a separate psychiatric disorder, research generally regards it as a fixed symptom rather than as a dynamic and variable affective state.
2. The aspect of personality plasticity has received little attention: although the basic Big Five personality traits are extensively researched (Jordan, 2017; Karmakar et al., 2024), there is a lack of studies looking into Across Situation Variability (ASV) and trait plasticity (Nasello et al., 2023) within digital environments. The way in which maladaptive cognitive constructs, such as the "Dark Core" (D) and pessimistic primal world beliefs (Schrödter et al., 2026), interact with digital environments remains largely underexplored.
3. The lack of attention given to systemic family dynamics: Even though Family Systems Theory (Bowen, 1978) emphasizes home cohesion as a main emotional anchor, digital youth studies often focus on the individual and fail to take into account how parental digital literacy, family conflicts, or parental phubbing affect cyber loneliness.

7.4 The limitations associated with sampling and context: Regarding sampling homogeneity (in WEIRD versus non-WEIRD contexts): a large percentage of the empirical data comes from groups of undergraduate university students living in urban areas. Compared to clinical or early adolescent populations, the university samples show less variation in their baseline characteristics (for example, they have lower levels of Neuroticism and higher levels of Conscientiousness).

7.5 Geographic and Socio-Economic Blind Spots: Even though there has been rapid digital growth in developing countries, for example with India having 886 million active internet users (Kantar IAMAI, 2024), research into psychological aspects that is tailored to high-stress, rapidly urbanizing areas (such as Gurugram in Haryana) is still far less available than it is in the Western literature.

8. Suggestions for future research

8.1 Use multi-wave longitudinal and intensive micro-longitudinal designs.

- Future research ought to use Random Intercept Cross-Lagged Panel Models (RI-CLPM) across three or more time points to distinguish between stable traits that exist between individuals and the reciprocal trajectories that occur within individuals over time.
- Use Ecological Momentary Assessment (EMA) together with passive smartphone telemetry—such as objective application logs and the frequency of phone pickups—to monitor real-time micro-fluctuations between passive media consumption and momentary loneliness.

8.2 Expand inclusivity about context and demographics:

- Give priority to the younger developmental groups, particularly early adolescents (aged 10 to 14), since it is during this time that they are forming their identity and are especially susceptible to peer rejection and alexithymic tendencies (Aguglia et al., 2020).
- Conduct localized, region-specific studies. Investigate trait plasticity, hardiness, and cognitive mediators. Find out whether targeted autonomy support from family and peers (Audet et al., 2026) can promote trait adaptability and act as a buffer against negative primal world beliefs (Schrödter et al., 2026). Support from family and peers (Audet et al., 2026) can foster trait adaptability and buffer against negative primal world beliefs (Schrödter et al., 2026).
- Evaluate Psychological Hardiness (Pasrija & Gupta, 2024) as a moderating mechanism across digital platforms, exploring how its three core dimensions (Commitment, Control, Challenge) protect against digital burnout and hopelessness.

Conclusion

This review shows that cyber loneliness among digitally socialized youth is not an unavoidable result of modern technology. Instead, it happens when constant digital use meets unaddressed mental vulnerabilities, low resilience, and weak offline support. To address cyber loneliness, public health, education, and clinical efforts should focus less on limiting screen time and more on building resilience. Helping young people develop psychological hardiness and strong family support can enable them to use digital spaces without harming their social and emotional well-being.

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