



DIGITAL ADDICTION AND INCREASING PERCEIVED LONELINESS AMONG ADOLESCENTS: AN ANALYTICAL STUDY

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Abstract

The rapid digitalization of contemporary society has fundamentally transformed adolescent lifestyles, communication patterns, and psychosocial development. While digital technology provides unprecedented educational access and social connectivity, growing evidence indicates that excessive smartphone, gaming, and social media use has resulted in increasing digital addiction and perceived loneliness among adolescents. Reports from the Government of India's Economic Survey (2026), UNICEF digital childhood studies, and clinical observations from the National Institute of Mental Health and Neurosciences (NIMHANS) highlight alarming trends linking compulsive digital engagement with mental distress, reduced interpersonal interaction, sleep disruption, and emotional isolation among youth. Approximately 27% of Indian teenagers exhibit symptoms of social media dependency, often associated with anxiety, depression, and declining academic performance. This analytical research paper examines major psychosocial, familial, and technological factors contributing to adolescent social alienation arising from digital addiction. Using comparative analysis of national and international reports over the past decade, the study explores behavioural consequences, emerging patterns of loneliness, peer withdrawal, cyber-social comparison, and declining real-world participation. Selected case illustrations from Indian urban and semiurban contexts further demonstrate the lived experiences of digitally dependent adolescents. The paper concludes with evidence-based preventive strategies emphasizing digital literacy, family regulation, school interventions, mental health services, and policy reforms necessary to balance technological advancement with adolescent psychosocial wellbeing.

Keywords: Digital Addiction; Adolescents; Social Alienation; Social Media Addiction; Mental Health

1. Introduction

The digital revolution has reshaped adolescent development worldwide by transforming communication, learning, and leisure activities. India currently hosts one of the largest youth populations globally alongside rapid smartphone penetration and affordable internet access. While digital technology facilitates education, creativity, and connectivity, excessive engagement has led to emerging behavioural addictions among adolescents. The Government of India's Economic Survey 2025–26 formally recognised digital addiction as an emerging mental health crisis among youth, linking compulsive smartphone use and social media dependence to anxiety, depression, cyberbullying stress, and declining wellbeing. Let us first try to understand

about addiction. Addiction is that force which make the brain to use compulsive substances despite its harmful consequences which ultimately affect our physiology in a way that makes abuse of them more likely. Individual become obsessive focus on using a certain substance or engaging a specific activity, such as alcohol, drugs, gambling etc. The person keeps going on doing and using and abusing things, even knowing that it will cause problem. A person who is addicted cannot stop himself doing the same thing that costs of the physical, mental and his social health. Digital addiction is often conceptualized within the broader framework of internet or technology addiction. It may be defined as “Internet addiction is a behavioural addiction characterized by excessive or poorly controlled preoccupations, urges, or behaviour regarding internet use that lead to impairment or distress”, by **Kimberly S. Young (1998)**. **Mark D. Griffiths (2005)** “Problematic internet use refers to excessive or poorly controlled preoccupations, urges or behaviours regarding internet use that lead to impairment or distress.” According to **Daria J. Kuss & Mark D. Griffiths (2017)** “Digital addiction can be described as a compulsive and uncontrolled use of digital technologies such as smartphones, social media, and online platforms that interferes with daily life and well-being.” Digital addiction shares some similarities with other behavioral addictions, including compulsive usage patterns and negative psychological outcomes (**Kimberly Young,1998,**). Researchers have identified several forms of digital addiction among adolescents:

- Internet addiction
- Social media addiction
- Smartphone addiction
- Online gaming addiction

Studies suggest that adolescents are particularly vulnerable due to developmental factors such as impulsivity, peer influence, and emotional instability (**Andreassen et al., 2017**). When it comes to perceived loneliness it may be refers to the subjective feeling of social isolation rather than the objective absence of social contacts. **Letitia Anne Peplau & Daniel Perlman (1982)** defined perceived loneliness as “Loneliness is the unpleasant experience that occurs when a person’s network of social relations is deficient in some important way, either quantitatively or qualitatively.” **John T. Cacioppo & William Patrick (2008)** “Loneliness is the subjective feeling of social isolation or the discrepancy between desired and actual social relationships.” According to **Robert S. Weiss (1973)** “Loneliness is the distressing experience that arises when a person perceives deficiencies in his or her social relationships”. The concept of loneliness was extensively explored by **Robert S. Weiss**, who distinguished between emotional loneliness and social loneliness. Adolescents may experience loneliness due to:

- Lack of meaningful peer relationships
- Social rejection or bullying
- Family conflicts
- Excessive reliance on digital communication

Research suggests that prolonged loneliness can contribute to depression, anxiety, and reduced life satisfaction. The dimensions of perceived loneliness are generally derived from psychological research, especially the work of **Peplau & Perlman (1982)**, **Weiss (1973)** and **John T. Cacioppo & colleagues (2008)**. These dimensions help explain ‘*why*’ and ‘*how*’ individuals feel lonely. **Weiss (1973)** has defined following types of loneliness:

1. **Emotional Loneliness:** it refer to the absence of a close or intimate relationship if there are no friends or trusted persons etc.. it develops a feeling of emptiness, sadness and insecurity.
2. **Social Loneliness:** it refers to the lack of a broader social network or group. It leads to feelings of exclusion, isolation and lack of sense of belongingness.
3. **Existential Loneliness:** It is a kind of loneliness which is related to a deeper sense of being getting alone in life or feeling of disconnected from one's existence. It leads to meaninglessness, emptiness and sometimes also involved identity confusion.
4. **Situational Loneliness:** This kind of loneliness is specific to specific life situations like moving to a new place or Loss of ones's loved one.
5. **Chronic Loneliness:** it is long term and persistent loneliness. This kind of loneliness cannot be easily reduced and social opportunities exist. It mostly found to be associated with depression, anxiety and low self-esteem (John T. Cacioppo & colleagues,2008).
6. **Transient (Temporary) Loneliness:** It remained only for short term like feeling lonely for a few hours or a day/days (John T. Cacioppo & colleagues,2008).

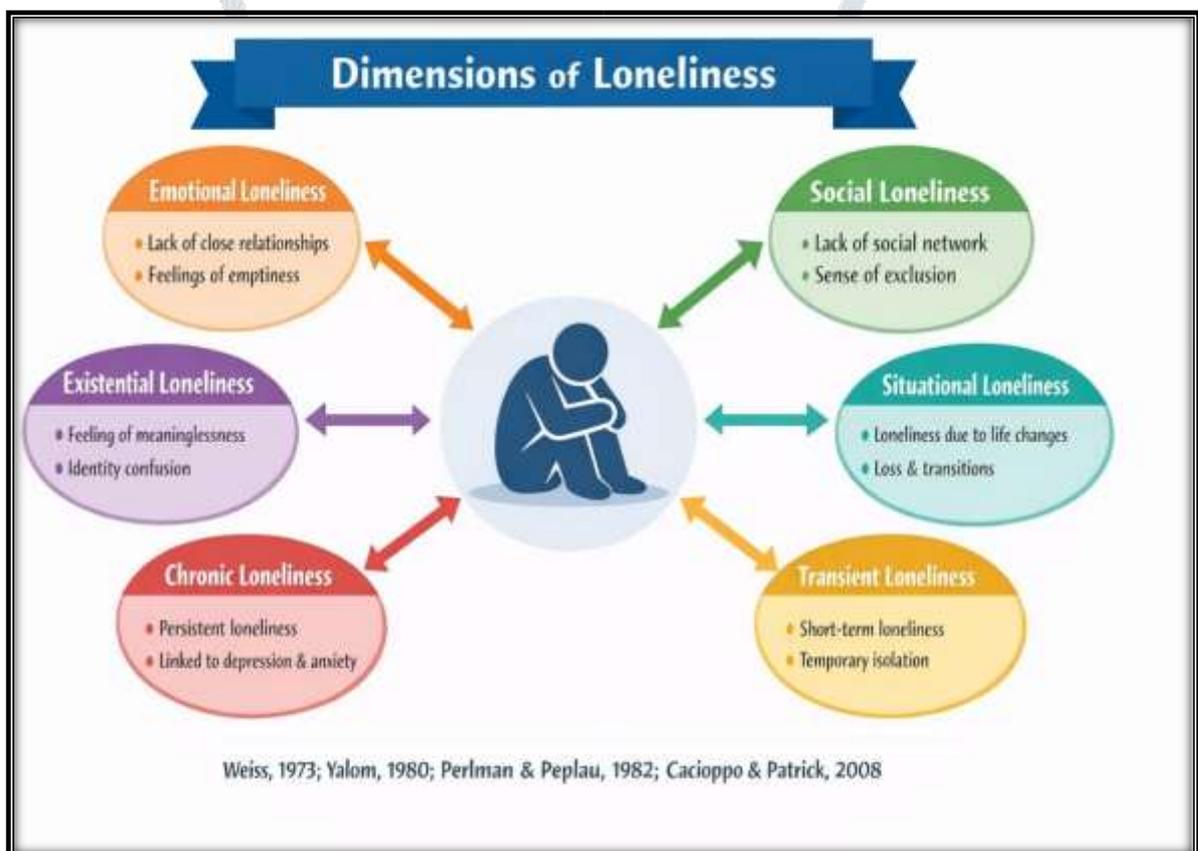


Fig. No. 1 Showing Different Dimensions of Perceived Loneliness

Besides these following dimensions also have been identified by different researchers. Which are given as below:

1. **Emotional Loneliness:** it Is mostly indicates absence of intimacy and show lack of close emotional attachment like best friend, partner of any trusted confidant.

2. **Social Loneliness:** Lack of **peer group or social network**. It is related to weak social integration
3. Cognitive loneliness (Perceived Discrepancy). Cognitive loneliness indicate gap between **desired vs actual relationships (Daniel Perlman & Letitia Anne Peplau)**
4. **Affective (emotional Distress) Dimension:** (According to John T. Cacioppo) Emotional responses caused by loneliness. This aspect includes sadness, anxiety and depression etc.
5. **Behavioural Dimensions:** It is related to observable actions due to loneliness. This dimensions mostly involve Social withdrawal, Avoidance of interaction and Excessive digital use (important for your topic)
6. **Existential Loneliness:** This is related to deep sense of meaninglessness and inner emptiness and feeling disconnected from life itself, not just people.

Theoretical Basis: several theories have been proposed regarding the theoretical basis of leading to digital addiction. Some of them are given as below: **I. Uses & Gratification Theory:**

The Uses and Gratification Theory focus on how individuals use media to satisfy specific psychological and social needs such as information, personal identity, integration, social interaction, and entertainment. (Katz and et,1974). According to Elihu Katz, Jay G. Blumler, and Michael Gurevitch (1973), users are **active participants** who select media based on their motivations and expected gratifications. Some core components of this theory are:

- ✦ Audience is active
- ✦ Media choice is goal-oriented
- ✦ People are aware of their media needs
- ✦ Media competes with other sources of satisfaction

Types of Gratifications: following types of different needs indicates the gratifications:

- ✦ Cognitive Needs – Information, knowledge
- ✦ Affective Needs – Emotional pleasure
- ✦ Personal Integrative Needs – Credibility, status
- ✦ Social Integrative Needs – Interaction with others
- ✦ Tension Release Needs – Escape, entertainment

Needs → Motives → Media Use → Gratifications → Outcomes

1. Needs (Psychological & Social):

- Loneliness
- Need for belonging
- Emotional support

2. Motives:

- Social interaction
- Escapism
- Entertainment

- Information seeking

3. Media Use

- Social media use
- Smartphone usage
- Online gaming

4. Gratifications Obtained:

- Temporary relief from loneliness
- Social connection (virtual)
- Pleasure and distraction

5. Outcomes:

- Repeated use → Habit formation
- Excessive use → **Digital Addiction**
- Reduced real-life interaction → **Increased Loneliness**

II. Social Comparison Theory: Social Comparison Theory is a psychological theory proposed by **Leon Festinger in 1954**. It explains how and why people compare themselves to others to evaluate their own abilities, opinions, and worth. Social Comparison: Adolescents frequently compare themselves with idealized online portrayals of peers, leading to feelings of inadequacy and loneliness. Social Comparisons can be of two types: **1.Upward Comparison**

- ✦ Comparing yourself with someone better than you.
- ✦ Can motivate you
- ✦ Can lower self-esteem if you feel inferior

2.Downward Comparison

- ✦ Comparing yourself with someone worse off than you.
- ✦ Increases self-confidence
- ✦ Can create overconfidence

III. Fear of Missing Out (FOMO): Continuous exposure to social media updates may create anxiety about missing social experiences, increasing emotional distress and compulsive digital use

IV. Behavioural Addiction Model:

A. Griffiths' Components Model of Addiction: According to Griffiths, addiction has 6 core components:

- 1) Salience – The activity becomes the most important thing in life.
- 2) Mood Modification – It changes mood (escape, excitement, relief).
- 3) Tolerance – Need to do more of it for the same effect.
- 4) Withdrawal – Feel restless or irritable when unable to do it.
- 5) Conflict – Problems in relationships, school, or work.
- 6) Relapse – Returning to behaviour after attempts to stop.

If all six are present → behaviour may be considered addictive.

B. Erikson's Identity vs Role Confusion stage: Identity vs Role Confusion is the fifth stage of psychosocial development proposed by Erik Erikson. It occurs during adolescence (12–18 years). In this stage, individuals explore different roles, values, and beliefs to develop a personal identity. Successful resolution leads to a strong sense of self and fidelity, while failure results in role confusion and weak identity formation.

RELATIONSHIP BETWEEN DIGITAL ADDICTION AND PERCEIVED LONELINESS:

Several researches are there that indicate a strong association between digital addiction and perceived loneliness among adolescents. However, this relationship is often bidirectional. This cyclical pattern (**Bian & Leung, 2015**). The relationship can be understood as a cycle:

- **Loneliness → Digital Addiction:** Lonely adolescents use digital platforms to escape isolation
 - **Digital Addiction → Loneliness:** Excessive use reduces face-to-face interaction and increases isolation
- Many adolescents use digital platforms as a coping mechanism for loneliness. Social media and online games provide opportunities for virtual interaction and emotional escape. A study by **Daria J. Kuss (2016)** found that adolescents who experience loneliness are more likely to develop problematic internet use as they attempt to compensate for unmet social needs. At the same time, excessive digital use can reduce real-life interaction and deepen feelings of loneliness (**Caplan, 2007; Kuss & Lopez-Fernandez, 2016**). Besides this lonely adolescents may spend more time on digital platforms seeking validation, attention, or belonging. It has been found that digital addiction leads to the feeling of loneliness. While digital platforms initially appear to reduce loneliness, excessive usage may produce the opposite effect. Excessive digital engagement has been found out to reduce face-to-face interaction, limit real-life social skills development and increase social comparison and dissatisfaction. Studies indicate that heavy social media users often report higher levels of loneliness and emotional distress (**Twenge et al., 2018**). Adolescents who experience loneliness tend to engage more in digital activities (e.g., social media, gaming) to compensate for unmet social needs. Also it has been found that loneliness motivates adolescents to seek connection in online environments, where communication is easier and less threatening. However, such interactions are often superficial and lack emotional depth, leading to dissatisfaction and reinforcing loneliness (**Andreassen et al., 2017**). Research conducted by **Jean M. Twenge** reported that adolescents who spend more than three hours daily on digital media are significantly more likely to report loneliness and depressive symptoms. Similarly, a study by **Cecilie Schou Andreassen** found that social media addiction is positively associated with loneliness, low self-esteem, and emotional instability among adolescents. Recent cross-national studies also suggest that adolescents in technologically advanced societies report higher digital dependency and social isolation. Excessive screen time replaces real-life social interaction, weakening interpersonal relationships and reducing emotional bonding (**Kuss & LopezFernandez, 2016**) which usually create social displacement. communication often lacks depth and emotional connection, leading to dissatisfaction and a sense of emptiness (**Caplan, 2007**). Adolescents compare themselves with idealized online images, resulting in feelings of inadequacy and loneliness (**Twenge et al., 2018**), Fear of Missing Out (FOMO) Constant exposure to others' activities increases anxiety and the feeling of being left out, intensifying loneliness (**Przybylski et al., 2013**), Overdependence on digital

communication limits development of real-life social skills, making adolescents more socially withdrawn (Andreassen et al., 2017). Thus, digital addiction becomes both a coping mechanism and a risk factor.

REVIEW OF LITERATURE:

A plethora of literature is there regarding the social media addiction among youth. Several reports and surveys are timely published by government, non-government agencies at national and international levels. **Chen, X., Li, Y., Zhang, H., & Liu, Q. (2025)** carried out a study " Social isolation and social media addiction: The serial mediation roles of social anxiety and FoMO" University students in China were the Sample for the study. Tools Used for the study are Bergen Social Media Addiction Scale (BSMAS), Social Anxiety Scale, Fear of Missing Out (FoMO) scale and Social isolation measures. It was concluded from the study that Social anxiety and FoMO acted as mediators between loneliness and addiction behaviors. Also Around 43% of participants showed elevated social media addiction scores. A research conducted by **Kaur Gurmeet and Mehndroo Meghna (2024)** Revealed from their study Excessive use of digital platforms has been associated with many psychological issues. The results revealed significant correlations among digital addiction, depression and stress among both males and females. The population of the study included 150 male and female adolescents from class XI/XII from the Hoshiarpur district of Punjab. Internet Addiction Test (**Kimberly Young (1996)**), The Centre for Epidemiologic Studies-

Depression Scale (CES-D, The Perceived Stress Scale (PSS) Kaur Gurmeet and Mehndroo Meghna (2024). Digital addiction and its impact on the mental wellbeing of adolescents.

Sengupta, R. (2025) carried out a research on Smartphone Addiction and Perceived Loneliness:

Differences in Gender and Academic Year among College Students. 120 college students aged 18-25 were used as the sample for study. Tools used for the study are Smartphone Addiction Scale (SAS-SV), UCLA Loneliness Scale and Demographic information sheet. It was found out that Higher smartphone addiction scores were associated with greater loneliness levels among students and also Gender differences were observed in addiction levels. **Raju, M. K., et al. (2024)** carried out a research on Problematic Internet Use among Higher Secondary Students in India. Class XI– XII students in Coimbatore, Tamil Nadu were used as the sample for the study. Tools used for the study are Problematic Internet Use Questionnaire (PIUQ) and behavioral and demographic survey. It was concluded from the study that Excessive internet use was associated with poor mental wellbeing and social difficulties, indicating risk of loneliness and reduced face-to-face interactions.

Raju, M. K., et al. (2024) Found Problematic Internet use among higher secondary school students. Indian Pediatrics. **Chatterjee & Kar (2025)** carried out a research on Smartphone addiction among undergraduate medical students. A sample of 224 medical students from Indian medical colleges were used for the study. Tools Used for the study are Smartphone Addiction Scale (SAS) and Psychological behaviour questionnaire. Findings of the study are that About 40% of students showed smartphone addiction symptoms. Also, High smartphone use was associated with stress, anxiety, sleep problems, and reduced social interaction, which may increase loneliness. **Wang Yang and Youlai Zeng in (2024)** systematically analyzed a relationship between loneliness and internet addiction to obtain a more comprehensive effect of size by incorporating data from 32 studies involving a total of 35623 subjects. The findings of the research confirmed a positive correlation between loneliness and internet addiction (with r value 0.029 at 0.01 level of significance). It was concluded

from the analysis that moderately positive correlation between loneliness and internet addiction was found and also Demographic factors such as age, gender, and region influenced the strength of the relationship. **Kaur Gurmeet and Mehndroo Meghna (2024)** Revealed from their study Excessive use of digital platforms has been associated with many psychological issues. The results revealed significant correlations among digital addiction, depression and stress among both males and females. The population of the study included 150 male and female adolescents from class XI/XII from the Hoshiarpur district of Punjab. Internet Addiction Test (**Kimberly Young (1996)**), The Centre for Epidemiologic Studies-Depression Scale (CES-D), The Perceived Stress Scale (PSS). **Singh Amarjit, Singh Pawan (2019)**, which explore a problematic usage of digital media, device, and platforms by being obsessive and excessive. **Alitin and Uzgu** carried out a study on Examination of Nomophobia, Internet Addiction and Loneliness Levels of University Students. The study was done on 966 university students. Tools used for the study are Young Internet Addiction Scale, UCLA Loneliness Scale, Nomophobia Scale, Personal Information Form. It was concluded from the study that Students who used the internet more than 5 hours daily had higher internet addiction and loneliness scores. Male students reported higher internet addiction and nomophobia levels than females. A positive relationship between internet addiction and loneliness. As review several evidences at national and international levels are available. In Indian context some are as given below:

Indian Evidence

- Economic Survey 2025–26 reported high social media addiction among youth aged 15–24 associated with anxiety, low self-esteem and cyber stress.

Press Information Bureau

- NIMHANS National Mental Health Survey revealed increasing emotional disorders among adolescents and stressed early intervention strategies.

- Indian MHS

Indian Psychiatric Society findings indicate nearly 40% teenagers report anxiety and stress linked partly to online pressures.

- MHFA India

Research studies show smartphone addiction prevalence up to 64% among users in certain adolescent populations.

- **Government and Institutional Reports Analysis:** - Several reports and survey analysis are available in the context of digital addiction. Some of them are as follows

i) **Government of India (Economic Survey):** According to this survey:

- Compulsive scrolling increasing.
- Gaming disorder emerging.
- Productivity loss among youth.
- Digital addiction contributes directly to mental health deterioration.
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Table-1 (Economic Survey India 2026; Narayanappa et al., 2024)

Indicator	India (%)	Global (%)	Major Observations	Sources
High Loneliness among digitally dependent adolescents	64.46% reported high loneliness (student sample study)	30–50% adolescents report loneliness trends globally	Smartphone addiction significantly correlated with loneliness	Yadav et al., 2025 (PMC)
Correlation between smartphone addiction and loneliness	Significant positive correlation (r=0.269)	Similar positive association globally	Social comparison and cyberbullying mediators	Noronha et al., 2022 (Lippincott Journals)
Passive Social Media Use → Alienation	Increasing dissatisfaction and envy reported	Globally linked with reduced life satisfaction	Online comparison produces emotional isolation	UNICEF Evidence Review (UNICEF)
Late adolescent loneliness due to sleep deprivation/social media	Nearly 1 in 5 Indian students emotionally distressed	Increasing loneliness trends postpandemic globally	Sleep loss + digital validation seeking	Student Wellbeing Pulse Report (India) (The Times of India)

ii) NIMHANS Evidence

NIMHANS guidelines recommend adolescents limit screen exposure to 2–3 hours daily. It reported that several key issues are associated with adolescents due to excessive use of digital platforms. Some of the key concerns are:

- Sleep disturbance.
- Attention problems.
- Emotional dependency.
- Parents and schools must intervene early.

International Evidence: Evidence related to addiction with digital platforms/digital tools are given below:

- UNICEF reports digital gaming addiction isolates adolescents from family relationships and disrupts psychosocial balance.
- UNICEF: Global systematic reviews link excessive screen exposure with depression and behavioural problems.

iii) **UNICEF Reports**

UNICEF India highlights:

- Online gaming isolating children from loved ones.
- Cyber social comparison affecting self-esteem.
- Peer support systems recommended as protective factors.

FACTORS CAUSING SOCIAL ALIENATION DUE TO DIGITAL ADDICTION:

Following are factors which contribute significantly towards social alienation due to digital addiction.

1 Psychological Factors

- Dopamine reward loops.
- Fear of Missing Out (FOMO).
- Identity formation through online validation.
- Adolescents seek virtual approval rather than real interaction.

2 Family Factors

- Working parents.
- Reduced supervision.
- Technology used as emotional substitute.

3 Educational Factors

- Online learning during pandemic normalized extended screen exposure.

4 Socio-Cultural Factors

- Urban loneliness.
- Competitive academic culture.
- Late-night screen use reduces sleep satisfaction and wellbeing among students.

5 Technological Factors

- Algorithms promote engagement through:
- Infinite scrolling.
- Notification rewards.

CASE STUDIES (INDIAN CONTEXT): Some of the case studies have been mentioned here in Indian context to understand the critical situation produced due to excessive use of digital media.

Case Study 1 — Urban Adolescent (Delhi)

- 15-year-old male developed gaming dependency.
- Symptoms:

1. Social withdrawal.
2. Aggression.
3. Academic decline.
4. Clinical counselling restored partial functioning.

Case Study 2 — Semi-Urban Girl (Haryana)

• Instagram comparison behaviour led to:

1. Body dissatisfaction.
2. Anxiety.
3. Reduced peer participation.
4. School peer-support intervention improved outcomes.

Case Study 3 — NIMHANS Parent Intervention Program • Parents attending digital addiction counselling reported:

1. Sleep recovery.
2. Improved family communication.

CONSEQUENCES OF HIGH DIGITAL ADDICTION:

High levels of digital addiction among adolescents have multidimensional consequences affecting psychological, social, academic, and physical well-being. Psychologically, excessive use of smartphones and social media is strongly associated with increased anxiety, depression, and attention deficits due to constant stimulation and reduced emotional regulation (Kuss & Griffiths, 2017; Twenge et al., 2018). Reports indicate that nearly 23% of adolescents in India experience mental health challenges, which are often exacerbated by excessive screen exposure (UNICEF, 2021). Socially, digital addiction reduces real-life interpersonal interactions, leading to diminished empathy and family disengagement. Adolescents may display irritability, anger, and isolation behaviors as online interactions replace meaningful social bonding (Andreassen et al., 2017). Academically, late-night screen exposure disrupts sleep patterns, causing sleep deprivation, poor concentration, and reduced academic motivation, ultimately affecting performance (Levenson et al., 2017). From a physical health perspective, prolonged screen use promotes a sedentary lifestyle and contributes to eye strain, commonly known as digital eye fatigue. The World Health Organization highlights that increased sedentary behavior among adolescents is a major risk factor for long-term health issues (WHO, 2020). Thus, digital addiction presents a serious challenge requiring balanced usage and preventive interventions. Following are the consequences from getting highly digitally addicted.

• **Psychological Impact (Kuss & Griffiths, 2017; Twenge et al., 2018).** In India, **about 23%** adolescents experience mental health problems (WHO, 2021; UNICEF India Report):

- a. Anxiety.
- b. Depression.
- c. Attention deficit.
- d. Mental health problems affect about 23% adolescents in India.

• Social Impact (Andreassen et al., 2017):

- a. Reduced empathy.
- b. Family disengagement.
- c. Internet addiction causes anger and isolation behaviours.

• Academic Impact (Levenson et al., 2017)

- a. Sleep deprivation.
- b. Poor concentration.
- c. Late-night screen exposure linked to reduced motivation among students.

• Physical Health: Prolonged screen time contributes to sedentary lifestyle and eye strain (digital eye fatigue) (World Health Organization, 2020).

- a. Sedentary lifestyle.
- b. Eye strain.

DIGITAL ADDICTION IN SPECIAL CONTEXT OF MENTAL HEALTH:

Digital addiction affects mental health in several ways: (Fig No:2)

1. Anxiety and Stress

- ✦ Constant notifications increase stress levels.
- ✦ Fear of Missing Out (FOMO).
- ✦ Pressure to respond immediately.

2. Depression

- ✦ Social comparison on platforms like Instagram and Facebook.
- ✦ Feeling of loneliness despite being “connected”.
- ✦ Reduced real-life interaction.

3. Sleep Disorders

- ✦ Blue light exposure affects melatonin.
- ✦ Late-night scrolling disturbs sleep cycle.

4. Low Self-Esteem

- ✦ Unrealistic beauty and lifestyle standards.
- ✦ Validation-seeking through likes and comments.

5. Attention Problems

- ✦ Reduced concentration
- ✦ Shortened attention span

□ Academic decline

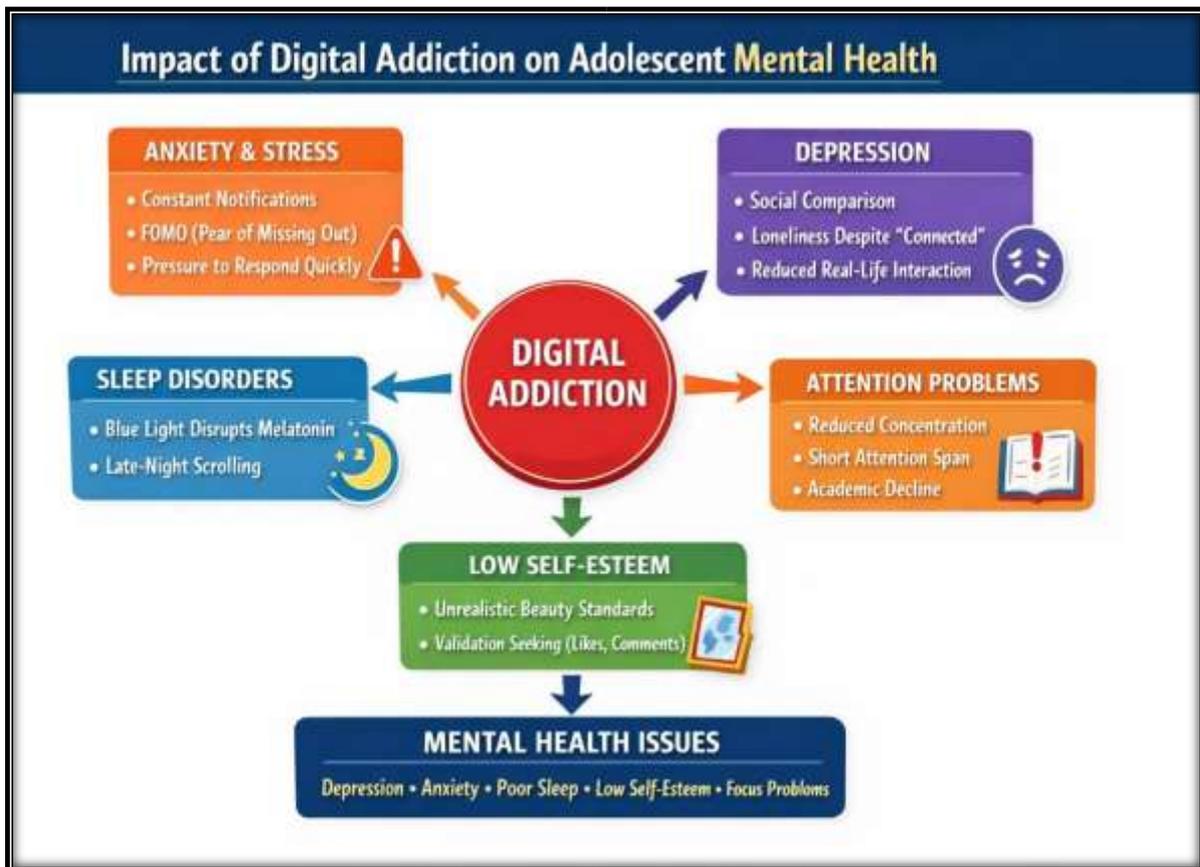


Fig. no. 2 impact of Digital Addiction on Mental Health of Adolescents

The above diagram shows the impact of digital addiction on adolescents. There is another fundamental fact is that there is an inter-relation between various psychological positive factors (like hope, efficacy, resilience and optimism), high use of internet addiction and mental health (including subjective, emotional and social well-being). This inter-relationship among adolescents is complex and multidirectional. Digital addiction (**Fig no. 3**), characterized by excessive and uncontrolled use of digital devices, has been associated with increased levels of anxiety, depression, and loneliness (**Kuss & Griffiths, 2017; Rosen et al., 2014**). Prolonged exposure to social media often leads to negative social comparison and reduced real-life interactions, thereby deteriorating mental health (**Vogel et al., 2014**). In contrast, psychological capital—comprising hope, resilience, optimism, and self-efficacy—acts as a protective factor. Adolescents with higher psychological capital are better able to regulate their digital usage and cope with online stressors, reducing the adverse psychological outcomes (**Luthans et al., 2007**). Moreover, strong psychological capital enhances emotional well-being and buffers the harmful effects of digital overuse. Thus, while digital addiction negatively impacts mental health, psychological capital plays a mediating and moderating role in promoting healthier adaptation and overall well-being among adolescents.

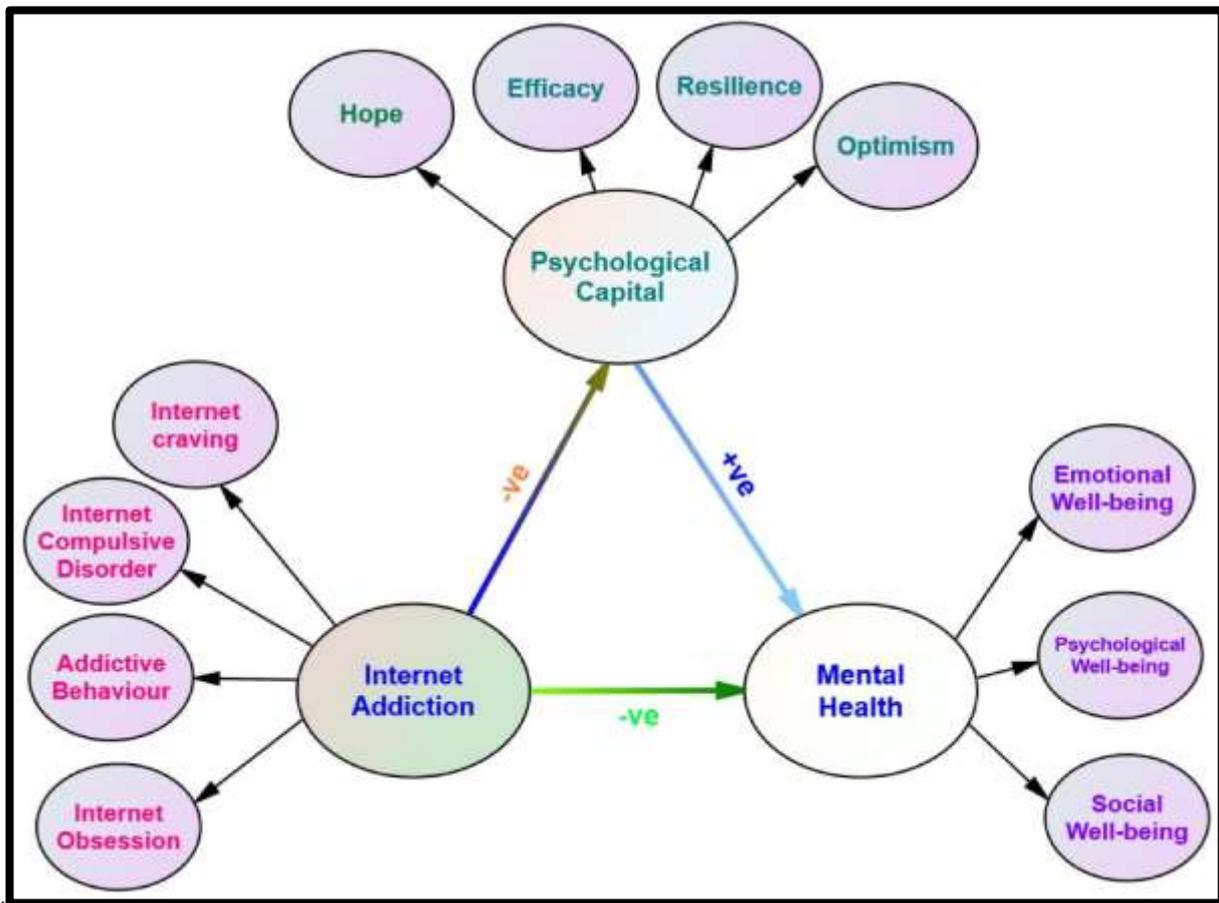


Fig. no. 3 Inter-relationship of Digital Addiction, Mental Health & Psychological Capital of Adolescents

COMPARATIVE ANALYSIS (INDIA VS GLOBAL):

• India:

- 1) Rapid digital adoption.
- 2) Limited counselling access.

India shows higher smartphone dependency due to rapid digital expansion and academic online usage. Pandemic accelerated device ownership among younger adolescents in India. India shows stronger loneliness association due to:

- Academic competition.
- Nuclear family systems.
- Late-night screen use.

Table:2 Showing a Comparative Analysis of addiction in context of Indian and at Global Level

Domain	India Trend	Global Trend
Digital Addiction	Rapid increase especially 14–19 yrs	High but regulated in many countries
Loneliness / Alienation	Higher due to social comparison + academic stress	Moderate but rising post pandemic
Mental Health Problems	Underreported but increasing sharply	More diagnosed but stabilizing in some regions

- Middle adolescents (14–16 yrs) in India show **maximum vulnerability to internet addiction (up to 65%)** compared with global averages.
- Smartphone addiction significantly predicts loneliness and alienation among adolescents across both contexts.
- Globally, nearly **1 in 7 adolescents suffer mental disorders**, while India reports lower diagnostic prevalence but rapid growth due to digital exposure.
- Compulsive screen behaviour increases risk of anxiety, depression and suicidal ideation by two to three times.

• Europe:

Better parental regulation.

• US:

Screen exposure ≥ 4 hours increase anxiety and depression risk significantly

Table: 3. Comparative Data

Table: Last 10 Years Trends

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	24-25
Smartphone access%	28	32	40	48	55	65	70	75	82	89
Avg screentime (in hr)	1.5	2	2.3	3	3.5	5	5.5	6	6.5	4-7
Addiction risk%	5	6	7	9	11	15	17	19	22	25-27
Reported loneliness%	12	13	15	18	20	27	30	32	35	40

SUGGESTIONS TO OVERCOME THE PROBLEM OF DIGITAL ADDICTION:

• Family Level

- Device-free meals improve bonding and reduce screen dependency (American Academy of Paediatrics, 2016).
- Emotional communication strengthens adolescent mental health (UNICEF, 2021).

• School Level

- Digital literacy curriculum is essential in modern education (UNESCO, 2018).
- Peer mental health programs are effective in schools (UNICEF, 2021).

• Clinical Level

- Behavioural therapy is effective in treating internet addiction (Young, 1998).
- Gaming disorder is recognized as a mental health condition (World Health Organization, 2018).
- Digital well-being clinics are emerging in India (National Institute of Mental Health and Neurosciences [NIMHANS], 2020).

• Government Level

- Screen-time awareness campaigns are recommended globally (World Health Organization, 2019).
- Tele-Mental Health services like Tele-MANAS support youth mental health (Ministry of Health and Family Welfare, 2022).
- Digital well-being initiatives align with education reforms (Government of India, 2020).
- Government collaborations with NIMHANS will promote responsible digital habits programs for students.

12. Conclusion

Digital addiction represents a paradox of modern adolescence. While technology connects youth globally, excessive dependence disrupts identity development and social bonding. Evidence from government surveys, NIMHANS research, UNICEF programmes, and clinical observations demonstrate growing psychosocial risks associated with compulsive digital engagement. Loneliness emerging from digital dependency threatens emotional resilience, academic functioning, and long-term productivity. Digital addiction (internet, smartphone, social media) is **positively correlated with perceived loneliness**. Digital addiction has been found to be associated with loneliness, depression, anxiety and social isolation. Many studies suggest a **two-way relationship** i.e Lonely adolescents spend more time online and Excessive digital use further **increases loneliness**. Including various Important mediators include like **self-esteem, family relationship, peer support** and **social-skills**. Multilevel interventions integrating families, schools, policymakers, and technology industries are essential to create digitally balanced ecosystems. The future challenge is not technological rejection but responsible digital citizenship.

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