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# Prevalence and Impact of Internet Addiction Disorder Among Adolescents and Young Adults

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**Abstract:**

The rapid expansion of the Internet has heightened concerns about Internet Addiction Disorder (IAD) among adolescents and young adults.

This narrative review aims to analyze extensively the current research on the prevalence rates of Internet Addiction Disorder among adolescents and young adults and explores the psychological, social, and physical effects linked to this disorder within these age groups.

A comprehensive literature search was conducted across multiple databases, including PubMed, Medline, Scopus, Web of Science, Embase, and Cochrane Library. Studies published in English from 2000 to 2024 were included. Key search terms included “Internet Addiction Disorder,” “prevalence,” “adolescents,” “young adults,” “impact,” and “well-being.” The selected studies were reviewed and analyzed to identify common themes and findings.

The review finds that IAD prevalence rates vary significantly amongst cultures and geographical areas. Internet addiction rates are often linked to factors like parental monitoring, socioeconomic status, and psychological traits like depression and anxiety. IAD has a wide range of consequences, including negative effects on social interactions, physical health, and academic performance. The highlighted concerns are the risk of mental health disorders, decreased physical activity, and disrupted sleep patterns.

The illness has a major impact on many facets of life, such as general health, social interactions, and academic success. Further research is needed to develop standardized diagnostic criteria and effective intervention strategies. Awareness and preventive measures should be prioritized to mitigate the impact of IAD in these vulnerable age groups.

**Keywords:** Internet addiction disorder, Adolescents, Young adults, Prevalence, Psychological impact, Social impact, Physical health.



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## 1. BACKGROUND

Internet Addiction Disorder (IAD) is the term for problematic, compulsive internet use, especially on social media, that affects an individual's ability to function over an extended period of time. It is also referred to as pathological or problematic internet use. Concerns about the overuse of the Internet have arisen as a result of the release of reasonably priced personal computers, the expansion of Internet access, and its growing popularity [1, 2]. Addiction to the Internet is a growing public health concern. The International Classification of Diseases (ICD-11), the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), and the World Health Organization do not consider excessive Internet use to be a disorder. However, the ICD-11 lists gaming disorder. Whether the disorder is a distinct clinical entity or a symptom of underlying psychiatric disorders is one of the diagnosis's points of contention. The lack of consensus or standardization in definitions makes it more difficult to develop evidence-based recommendations. Internet Addiction (IA) is a disorder in which there are detrimental effects on functioning as a result of excessive Internet use, including physical, psychological, and cognitive harm. This is a maladaptive use of the internet that shows up as an obsessive use of social networks, online shopping, sex, video games, *etc* [3, 4]. Internet Addiction (IA) is characterized by using the Internet for longer periods of time than intended, lying about one's usage, and gradually worsening social, familial, and academic circumstances, as well as withdrawal symptoms like anxiety, depression, or restlessness when cut off from the Internet [5]. It has been proposed that IAD is more of a problematic behavior than a mental illness or addiction. The symptoms of Internet addiction include fixation, uncontrollable impulses, excessive use, withdrawal, impairment of control, devoting excessive time and effort despite negative consequences, and impaired decision-making. However, the instruments used to diagnose the condition have varied widely. There are various forms of internet addiction, including information overload, game addiction, cyber-sexual addiction, cyber-relational addiction, and net compulsions. The growing prevalence of smartphone use is one of the primary contributing factors to the rise in internet-related addictions. With the help of smartphones, people can now easily and portably access a wide variety of content, some of which may be addictive to a small percentage of users such as social media, gaming, gambling, and shopping [6, 7].

### 1.1. Classification of Internet Addiction

Young (1998) has divided the phenomenon of Internet addiction into the following five subtypes according to the specific application that serves as a catalyst for excessive Internet use [8].

#### *1.1.1. Cyber-sexual Addiction*

Addicts with a cyber-sexual addiction watch, download, and trade pornographic content online.

#### *1.1.2. Cyber-relational Addiction*

Rather than marital discord and family instability, these people are excessively involved in online relationships (chat rooms, social networks) and value them more than real relationships.

#### *1.1.3. Net Compulsions*

These individuals engage in online trading, gambling, and shopping.

#### *1.1.4. Information Overload*

This includes excessive information-seeking and database searching on the internet.

#### *1.1.5. Computer Addiction*

People are spending too much time playing computer games that have been pre-programmed.

## 2. PREVALENCE OF INTERNET ADDICTION DISORDER AMONG ADOLESCENTS AND YOUNG ADULTS IN ASIAN COUNTRIES

It is estimated that more than 40% of people on the planet today have access to the Internet, and more people are using mobile devices—particularly smartphones—to do this [9, 10]. Adolescents and young adults who are internet addicted may experience severe negative impacts in their lives, including deteriorations in their emotional and physical well-being, social interactions, and academic achievement [11, 12]. Studies have consistently demonstrated that a small percentage of people, especially teenagers and young adults, may find some online activities, like social media use and online gaming, to be potentially addictive [13, 14]. According to certain studies, young adults are the most frequent Internet users, logging on for about three hours a day, which increases the likelihood of addiction [15]. When it comes to the prevalence of addiction by nation or region, several studies show that Asian nations have high rates. Asian countries have the highest prevalence of Internet addiction (7.1%), according to a recent meta-analysis that looked at the prevalence of the disorder across 31 countries [13]. Many countries have different rates of youth Internet addiction; in Asia, the prevalence is estimated to be between 8% and 26% [15-17]. These rates, which are always related to the population of young adults, vary from 51% in the Philippines to 48% in Japan [18]. Furthermore, it defies logic that Bangladesh, a developing nation, has a prevalence of 27.1% [19]. Furthermore, a growing number of individuals possess smartphones due to the advancement of Wi-Fi and the diverse range of applications available to them; in both developed and developing nations, between 60% and 95% of young adults are estimated to own a smartphone [20]. There are national differences in the prevalence of Internet addiction: In Taiwan, it was discovered that 2.4% of high school students and 19.8% of teenagers suffered from Internet addiction [21, 22]. According to a study conducted in Korea by Ha *et al.* (2006), 14% of 455 children and 20% of 836 adolescents tested positive for

excessive Internet use [23]. This finding is fairly similar to one made in Singapore by Mythily *et al.* (2008), which found that 17.1% of 2735 adolescents (mean age of 13.9 years) used the Internet for more than five hours a day [24]. In Southeast Asia, the prevalence of IAD ranges from 20-30% among young people [25]. In a Taiwanese sample, prevalence rates varied from 14.7% to 67.5%, while in a Saudi Arabian sample [26, 27]. According to ElSalhy *et al*. (2019), the prevalence was 25.6%, 37.3%, 52.7%, and 60% among students in elementary, junior high, senior high, and university settings, respectively, among 3,224 Japanese students (61.6% female) aged 9–25 [28].

Growing research indicates that sociocultural variables, including age, gender, and socioeconomic status, may have a significant impact on the development of IAD in addition to geographic location. In general, IA is more common in nations with higher levels of traffic, pollution, and general life dissatisfaction. Teenagers from wealthy families use the Internet more often than those from lower socioeconomic backgrounds [29]. According to Li, Yang, and Jiang (2015), people with IAD are more likely to live in urban areas than in rural ones. University students who use the Internet frequently have been dubbed “digital natives” [30]. For instance, Zhang, Lim, Lee, and Ho (2017) found that 30.1% of a cohort of medical students had IAD, which is roughly five times higher than statistics from the general population. About 20% of all students globally were enrolled in universities in 2015, with 20% of those students being in China. A quarter of China's 688 million Internet users were students, according to the Chinese Internet Network Information Centre. Between 1.9% and 49.4% of Chinese university students have IAD [31-37].

A study indicates that there is a real addiction issue in India, with at least 24.6% of teenagers suffering from Internet Addiction Disorder (IAD) or problematic internet use. In a study, 2,755 Bengaluru residents between the ages of 18 and 65 were surveyed by the Indian Council of Medical Research (ICMR). The results showed that 1.3% of respondents were dependent on the Internet, 4.1% on cell phones, 3.5% on social media, 4% on online shopping, 2% on online pornography, and 1% on gambling. A number of smaller research limited to the cities of Jaipur, Mumbai, and Jabalpur discovered that subjects had mild levels of internet addiction (24–34%) and moderate levels (between 7–24%) [38-41].

## 3. IMPACT OF INTERNET ADDICTION DISORDER

### 3.1. Impact on Psychological Dimension

Studies have discovered a connection between Internet addiction and psychological conditions like Attention Deficit Hyperactivity Disorder (ADHD), autism, anxiety, and depression. The most prevalent mental illness among teenagers with Internet addiction who have been referred for mental treatment is Attention-Deficit/Hyperactivity Disorder (ADHD) [42]. The two psychological symptoms that are most common in individuals with Internet addiction, aside from ADHD, are anxiety and depression [43]. It has been suggested that teenage gamers on the Internet have positive self-esteem in the virtual world and can engage in activities that make them feel confident [44, 45]. It has been suggested that because the Internet offers a private, virtual environment, teenagers who have a high harm avoidance quotient may perceive less harm and responsibility there than they do in the real world, making them more susceptible to Internet addiction. An extensive study of adolescents in a community found a significant correlation between social anxiety and Internet addiction [46, 47]. Adolescents with social anxiety may benefit socially from using the Internet and be able to avoid the stress that comes with interacting with people in person. Prior research that viewed depression as a one-dimensional symptom discovered a strong correlation between adolescent depression and Internet addiction. Teenage morbidity and mortality rates have increased as a result of the introduction of new technologies like the Internet and related social media sites, which have exposed teenagers to online risks like exposure to pornography, cyberbullying, and Internet addiction, as well as health risks like depression and suicide [48, 49]. Research has linked internet addiction to a rise in teenage cyberbullying issues, which can have negative social, psychological, and physical effects [50-52].

Research has linked internet addiction to online behaviours like social networking site usage and online gaming, online chat, online pornography viewing, and online gambling [53-55]. Teens who are addicted to the internet may have shorter sleep cycles and lower-quality sleep [56]. Furthermore, research has linked Internet addiction to psychological co-morbidities like alcoholism, smoking; aggression; low self-esteem, and depression [57-61]. Research by Kim *et al.* (2019) and Na *et al*. (2017) demonstrated a strong correlation between the amount of alcohol consumed and the amount of time spent playing online games [62-65].

According to the most recent study, students who scored higher on Internet addiction were also more likely to report having trouble controlling their emotions [66]. Despite the widespread and growing use of the Internet, literature has regularly documented the psychological issues associated with detrimental Internet use, particularly among young people [67]. Researchers Berardelli *et al.* (2018) and Gansner *et al.* (2019) discovered a correlation between a higher risk of suicidal behavior and an individual's degree of internet dependence [68, 69]. According to H.C. Liu *et al*. (2017), a sample of senior high school students in Taiwan had a 9.1% self-harm behavior rate and a 30.8% GIA prevalence in the self-harm group compared to a 15.6% prevalence in the rest of the sample [70].

### 3.2. Impact on Physical Dimension

As a result of spending so much time staring at a computer screen, excessive internet use has been linked to obesity and visual impairment as major health effects [71,9]. Growth and development can also be impacted by excessive internet use, particularly in teens and young adults [72]. The psychological strain and isolation caused

by not having enough time to interact with people can have a physical impact on internet addicts and result in various health problems [73].

Compared to internet users at no risk, those who were classified as high-risk reported more episodes of sleep disturbance and irregular sleep patterns [74]. Prolonged sedentary computer use results in inadequate exercise and raises the risk of various lifestyle-related conditions, including obesity, weak eyesight, and back strain [75].

### 3.3. Impact on Personality Dimension

Researchers have linked Internet addiction to many characteristics, including low emotional openness, high levels of loneliness and social isolation, fascination with computers and the opportunities present as well as introversion n (Beard and Wolf, 2001; Koch and Pratarelli, 2004), low levels of agreeableness and conscientiousness (Landers and Lounsbury, 2006), high levels of other-directedness (Hamburger and Ben-Artzi, 2000), low levels of openness to experience, and low levels of positive orientation (Blachnio and Przepiorka, 2016) [76-81]. Regardless of cultural background, a cross-cultural study found that lower levels of emotional stability, extraversion, and conscientiousness were significant predictors of Internet addiction [82].

An additional systematic review conducted by Anderson *et al*. (2017) focused on individual, contextual, and Internet activity-related factors when analyzing longitudinal research on problematic Internet use among adolescents and emerging adults. The majority of the studies that were reviewed, according to the authors, concentrated on the unique traits of Internet users. They discovered personality traits that were linked to problematic behaviors on the Internet; the most predictive ones were high impulsivity, low self-control, and high levels of neuroticism and extroversion.

Adolescents and young adults who exhibit certain personality and temperament traits, such as high levels of impulsivity, anger expression, novelty seeking, and neuroticism combined with low levels of agreeableness and self-esteem, may be more likely to become Internet addicts [83-85].

### 3.4. Impact on Social Dimension

Previous studies have discovered a connection between Internet addiction and social factors such as inadequate adult supervision and family support, parental unemployment, strained interpersonal relationships, and social isolation. Furthermore, studies have linked adolescent Internet addiction to elements like low parental supervision, poor parent-adolescent relationships, low family functioning, and family dissatisfaction. Asian societies are known to have higher rates of Internet addiction among teenagers than Western nations [86-88]. Adolescent IA is linked to numerous psycho-social variables. Among the variables under investigation are parental attitudes, relationships with peers and family, the degree of perceived social support, and emotion control. These studies have found a correlation between IA in adolescents and deficiencies in parenting abilities, including absentee, rejecting, protective, demanding, and authoritarian parenting; failing to supervise, control, and engage in children's Internet; poor parent-adolescent relationships; low perceived social support; alexithymia and difficulties in regulating emotions [89-101]. When adolescents' parents, friends, or teachers aren't there to support them, those adolescents turn to the Internet to connect with others and find social support [102]. Additionally, studies showed that youngsters use the Internet more frequently than older generations do and are in greater need of peer support and social inclusion [103, 104]. According to a study conducted by the Korean National Youth Commission on the negative effects of excessive Internet use in school-age children, up to 27.6% of children and 28.1% of adolescents saw a decline in their academic performance. Of them, up to 23.7% reported disruptions in their lives, 10.6% reported social isolation, and 13.4% of teenagers reported refusing to attend school. 7.1% of teenagers who used the Internet excessively experienced violence at home [105]. Patients typically have behavioural issues like hyperactivity, conduct disorder, and poorer overall psychosocial adjustments than their peers. It typically affects more boys than girls [106]. Fan (2018) discovered that negative life events significantly positively predicted college students' IAD; in other words, the more negative events in their lives experienced, the higher their likelihood of developing IAD [107]. Furthermore, Li *et al.* (2015) found that IAD was significantly correlated with interpersonal relationships, learning pressure, punishment, and health adaptation among various subtypes of negative life events [29]. According to Kardefelt-Winther *et al.* (2014), IAD might be a compensatory behaviour used to manage stress and problems in daily life [108].

## 4. NOVEL AND RECENT FINDINGS REGARDING INTERNET ADDICTION DISORDER

Internet Addiction Disorder (IAD) is becoming more and more of a mental health issue, especially for teenagers, according to recent research. Recent advances in neuroscience demonstrate important alterations in brain morphology and function linked to internet addiction. The modification of the brain's Functional Connectivity (FC), particularly in the reward and cognitive control networks, is one important finding. For instance, the Anterior Cingulate Cortex (ACC) and Dorsolateral Prefrontal Cortex (DLPFC), which are essential for emotion regulation and inhibitory control, show reduced activity in adolescents with IAD. These modifications could account for the impetuous actions frequently displayed by those who are battling internet addiction [109].

In addition, novel predictive models based on connectomes have been utilized to gain a deeper comprehension of the neurobiological foundations of IAD. These models provide insights that may enhance targeted treatments by connecting specific brain connectivity patterns to behaviors linked to internet addiction. Researchers have shown that large-scale brain networks,

including the fronto-parietal and default mode networks, which are essential for self-control and decision-making, can exhibit imbalances [110].IAD prevalence is still very different in different parts of the world. Research indicates that internet addiction rates can reach 47.4% in Asia, whereas rates in Europe vary from 1.6% to 5.5%, contingent upon the nation and the diagnostic standards applied. Variations in internet access, cultural influences, and evaluation techniques are probably the causes of the variability [111].

In 2024, new research on Internet Addiction Disorder (IAD) has produced several interesting discoveries. According to a study on adolescent brain imaging, IAD alters the functional connectivity of brain networks, particularly the default mode network, which is important for attention and introspection. People may find it more difficult to control their internet use and emotional reactions if there are disruptions in these brain regions, which may also have an impact on behavior and cognitive development. These results imply that internet addiction may have long-term consequences for mental health, particularly for growing brains [112].

Studying genetic effects, in addition to neurobiological effects, has advanced our understanding of IAD. An association between internet addiction and the serotonin receptor gene HTR2A polymorphism (rs6313) was found in a 2024 study. Sincethis genetic variation affects impulse control and emotional regulation, people who have it are more prone to IAD. These discoveries may pave the way for customized preventative measures, such as targeted Cognitive-Behavioral Therapy (CBT) and genetic screening [113].

The prefrontal cortex and Anterior Cingulate Cortex (ACC), which are important for decision-making and emotional regulation, are among the brain regions that are altered in development in adolescents with IAD. This suggests that early-onset internet addiction may have long-term effects on brain development [114].

## 5. IMPLICATIONS

It is anticipated that Internet Addiction Disorder (IAD) will have a substantial future impact on young adults and adolescents, both in terms of prevalence and severity. The prevalence of IAD is expected to increase as a result of technology advancements' rapid increase in internet use, especially among younger populations who are exposed to digital environments at a young age.

According to recent data, IAD is on the rise, especially in areas like East Asia, Europe, and North America, where internet access is widespread. Research indicates that internet addiction may affect 47.4% of teenagers in some Asian countries, whereas rates in Western countries can vary from 1.6% to 5.5%, contingent on diagnostic standards and cultural influences [115]. The likelihood of addiction is increased as more teenagers grow up using digital platforms for social interaction, education, and entertainment. This is especially true given the growing importance of social media and gaming in day-to-day life [113].

Impaired cognitive growth and emotional regulation are two long-term effects of IAD on teenagers and young adults. The prefrontal cortex and Anterior Cingulate Cortex (ACC), two brain regions linked to decision-making, exhibit altered development in people with IAD, as demonstrated by neuroimaging studies. These abnormalities in brain activity can cause poor impulse control, elevated anxiety, depression, and trouble forming social bonds [114].

IAD can also worsen social isolation and have an adverse effect on academic achievement because excessive internet use takes away from time spent on worthwhile endeavors. Teens with IAD may face a reduction in their physical and mental well-being as a result of sedentary lifestyles, a breakdown in their family dynamics, and worse mental health [114].

The increasing trend in IAD prevalence suggests a developing public health issue that will necessitate concerted efforts to treat and prevent it. Potential avenues for future intervention include incorporating mental health education into the curriculum, encouraging responsible internet use, and providing specialized therapies such as mindfulness-based approaches and cognitive-behavioral therapy (CBT). Genetic research advancements, like the identification of the serotonin receptor gene HTR2A polymorphism, may result in more specialized treatments for those who are at risk [113].

Governments and healthcare systems will probably enact stronger regulations regarding internet use and digital literacy as IAD gains more recognition, particularly with regard to young people. Adolescents and young adults could benefit from early screening and intervention techniques to lessen the negative effects of IAD and maintain a positive relationship with the digital world [114].

## 6. DISCUSSION

The prevalence and impact of Internet Addiction Disorder (IAD) in teenagers and young adults were investigated in this narrative review. The review found that IAD is becoming more common, although there are notable differences in prevalence between nations and cultural contexts. Research has consistently demonstrated that IAD is linked to a number of detrimental consequences, such as mental health problems like anxiety and depression and social dysfunction.

The results emphasize how critical it is to acknowledge IAD as a serious public health issue. The high prevalence rates, especially in East Asian nations, imply that cultural variables could have an impact on how IAD develops and manifests. Since internet addiction and co-occurring psychological disorders are strongly correlated, there is a need for integrated treatment approaches that address both internet addiction and mental health issues. Additionally, the detrimental effect on scholastic achievement suggests that educational establishments ought to be proactive in identifying and assisting students who may be at risk of IAD.

This review offers a more thorough picture of the multifaceted impact of IAD and its prevalence in Asian countries. While earlier research mostly concentrated on European nations or areas, this review incorporates data from Asian countries to provide a more comprehensive understanding. Furthermore, this review takes into account the wider social and educational implications of IAD, whereas previous research frequently focused on its clinical aspects.

This inclusiveness makes it possible to comprehend IAD in more detail. The review process was primarily conducted on accessible databases and studies published in English, which may have resulted in selection bias. Furthermore, it is difficult to make direct comparisons and generalizations due to the variability of diagnostic criteria and assessment instruments among studies. Longitudinal studies are also lacking, which hinders our ability to comprehend the long-term effects and development of IAD.

## CONCLUSION

The narrative review emphasizes how Internet Addiction Disorder is becoming more common among teenagers and young adults and how serious an impact it has on them. In order to address this new public health concern, it emphasizes the necessity of greater awareness, early identification, and all-encompassing intervention strategies. This review advances knowledge about IAD and its complex impacts on the lives of young people by combining the results of several studies. Standardizing diagnostic criteria, examining long-term outcomes, and creating efficient interventions to lessen the detrimental effects of IAD should be the main areas of future research. To improve the well-being of adolescents and young adults worldwide and to encourage healthier internet use, it is imperative that these issues be addressed.

Internet addiction disorder, or IAD, has become a serious public health issue, especially affecting young adults and adolescents. Sincedigital technologies and the internet are so widely available, there has been a noticeable increase in the prevalence of IAD in this demographic. Numerous psychological, social, and academic issues, such as anxiety, depression, social isolation, and poor academic performance, have been linked to excessive internet use, according to studies. Furthermore, pre-existing mental health issues and specific personality traits may make developing IAD more likely.

Despite advances in knowledge about IAD, there is still disagreement over diagnostic standards, and more study is required to develop standardized testing methods and intervention techniques. To lessen the effects of IAD, public awareness, early detection, and specialized prevention programs are crucial. Policymakers, educators, and healthcare professionals can significantly lessen the disorder's long-term effects on adolescents' and young adults' well-being by tackling these issues.

## AUTHORS' CONTRIBUTIONS

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to its submission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

## LIST OF ABBREVIATIONS

| | | |
|---|---|---|
| IAD | = | Internet Addiction Disorder |
| IAD | = | Internet Addiction Disorder |
| ICD-11 | = | International Classification of Diseases |
| DSM-5 | = | Diagnostic and Statistical Manual of Mental Disorders |
| IA | = | Internet Addiction |
| ADHD | = | Attention Deficit Hyperactivity Disorder |
| FC | = | Functional Connectivity |
| ACC | = | Anterior Cingulate Cortex |
| DLPFC | = | Dorsolateral Prefrontal Cortex |

## CONSENT FOR PUBLICATION

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## CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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