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Internet addiction disorder and mental health: Implications and management in family practice

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Abstract
The internet has become central to modern life, yet excessive use can lead to Internet Addiction Disorder (IAD), a behavioural condition marked by compulsive online engagement that disrupts daily functioning and social life. Evidence indicates that IAD shares neurobiological mechanisms with substance use disorders, particularly involving dopaminergic reward pathways, and is associated with anxiety, depression, poor sleep, impulsivity, personality disturbances, and suicidal behaviour. Adolescents and young adults are most affected, with gender-specific patterns emerging according to internet use subtype, such as gaming or social networking. This article reviews literature on the mental health impact of IAD and emphasizes the critical role of family physicians in prevention, early identification, and management. Through holistic, continuous, and community-oriented care, family doctors can assess at-risk individuals, provide counselling and motivational interviewing, and coordinate multidisciplinary interventions. Applying principles of family medicine, including longitudinal and contextual diagnosis, allows differentiation between primary IAD and internet use secondary to underlying psychiatric conditions, enabling targeted interventions. Family practice involvement is essential to reduce the disorder's mental health and societal burden, particularly among younger populations.

Keywords: Internet addiction disorder, family practice, adolescents and young adults, mental health, prevention and management

Introduction

The internet is one of the most transformative innovations of modern technology, profoundly shaping daily life by enhancing communication, access to information, and efficiency. Global internet use has increased substantially over the past decade, rising from approximately 4.65 billion users, or 59.6 % of the world's population in 2020 [1] to an estimated 5.56 billion users in 2025, representing nearly 67.9 % of the global population [2] highlighting the growing dependence on digital technologies worldwide. Alongside these benefits, excessive and poorly regulated internet use has given rise to Internet Addiction Disorder (IAD), a behavioural condition characterized by pathological or compulsive engagement with online activities that interferes with social functioning and daily life. Neurobiological research suggests that IAD affects dopaminergic pathways in the brain in ways similar to substance use disorders, which may explain the observed psychological and behavioural consequences. Individuals with IAD often exhibit symptoms resembling those of substance-related disorders, including anxiety, depression, impaired behavioural regulation, and changes in personality, underscoring the significant mental health implications of this emerging condition.

Literature Review

Neurobiological research indicates that Internet Addiction Disorder (IAD) is linked to structural and functional changes in brain regions involved in executive attention, decision-making, emotional regulation, and cognitive control. Neuroimaging studies have identified abnormalities in the prefrontal cortex, anterior cingulate cortex, and limbic structures, supporting the classification of IAD as a behavioural addiction with neurobiological mechanisms comparable to substance use disorders [3]. These neural alterations help explain the frequent co-occurrence of IAD with psychiatric conditions such as anxiety, depression, sleep disturbances, suicidal ideation, impulsivity-related personality traits, and broader behavioural issues.

Epidemiological evidence reinforces these associations. In a large population-based study of 3,212 adults aged 18–64, Kim *et al*. (2006) reported a 6.35% prevalence of internet addiction, predominantly affecting younger, unmarried, and unemployed males [4]. Affected individuals exhibited significantly poorer sleep quality, which was strongly associated with lifetime risk of suicide attempts, anxiety disorders, and overall psychiatric morbidity, highlighting sleep disturbances as both a consequence and potential mediator of IAD-related mental health problems. More recent meta-analytic evidence indicates that the prevalence of internet addiction remains substantial among young people. Systematic reviews published in 2025 report pooled prevalence estimates ranging from approximately 15 % to 42 % among university student populations and around 15.2 % among students overall [5]. These findings demonstrate persistently elevated rates in contemporary cohorts and reveal robust associations with depressive and anxiety symptoms as well as poor sleep quality, underscoring the ongoing public health significance of Internet Addiction Disorder and its close psychiatric comorbidity.

Additional studies across diverse populations consistently link IAD with low self-esteem [6],) anxiety, stress, depressive disorders [7], mood disorders [8], impulsivity [9], attention deficit hyperactivity disorder, social phobia, hostility, and suicidal behaviour. A recent systematic review and meta-analysis confirmed strong associations between internet addiction, psychiatric symptom severity, and sleep disorders, suggesting that emotional dysregulation and poor sleep are central features of IAD rather than secondary outcomes [10].

Gender differences in IAD are complex. While earlier studies reported male predominance, recent research suggests more nuanced patterns. Saikia *et al*. (2019) found that 73.1% of adolescents in their sample were female, with 80.7% meeting criteria for internet addiction, alongside higher anxiety, stress, and depression. Studies published in BMC Psychology and BMC Public Health (2024) highlight the mediating roles of family environment, social support, and academic stress in adolescent IAD [11]. Gender differences appear to reflect types of internet use rather than overall exposure, with gaming more common in boys and excessive social networking in girls [12]. Overall, IAD is particularly prevalent among adolescents and young adults, with subtype-specific gender patterns and strong psychosocial determinants.

Discussion

The literature establishes Internet Addiction Disorder as a significant public health concern with substantial psychiatric and psychosocial consequences, especially in adolescents and young adults. Consistent associations with depression, anxiety, sleep disturbances, impulsivity, emotional dysregulation, and suicidal behaviour across epidemiological, clinical, and neurobiological studies support its classification as a behavioural addiction rather than a transient maladaptive habit [13]. Neuroimaging evidence of dysfunction in executive and emotional control networks aligns IAD with substance-related and other behavioural addictions, while frequent psychiatric comorbidities suggest shared vulnerability mechanisms rather than isolated conditions [14]. Contextual and relational factors are central to the development and maintenance of IAD. Family functioning, social support, school environment, and academic stress significantly influence addiction severity and mental health outcomes during adolescence, a period of heightened neuroplasticity and emotional sensitivity. These findings emphasize the need for early identification and interventions that address underlying psychosocial determinants, not just symptoms.

Family physicians are well-positioned to address IAD. Their focus on continuity of care, holistic assessment, and community context allows early recognition of maladaptive internet use and integration of preventive interventions, such as counselling and motivational interviewing, into routine practice [15]. Physicians' shared social and cultural context with patients supports understanding of familial, educational, and environmental contributors to excessive internet use, enabling individualized interventions. Effective management requires an integrated, multidisciplinary approach. Evidence from a network meta-analysis [16] indicates that combined psychosocial and behavioural interventions are more effective than single-modality treatments. Family physicians can coordinate care across mental health services, families, schools, and community organizations while ensuring continuity across home, school, workplace, and healthcare settings. Using McWhinney's three-stage diagnostic framework, which includes clinical, individual, and contextual stages, helps differentiate primary IAD from internet use secondary to psychiatric illness, a distinction critical for treatment planning and prevention of long-term consequences [17]. This positions family medicine as central to prevention, early intervention, and longitudinal management of IAD.

Conclusion

Internet Addiction Disorder has a clear and well-established relationship with mental illness, supported by neurobiological, clinical, and epidemiological evidence. Its rising prevalence among adolescents and young adults demands urgent attention. Family physicians play a central role in prevention, early detection, and management through holistic, longitudinal, and community-based care. Strengthening the role of family practice in addressing Internet Addiction Disorder can significantly reduce its mental health burden at both individual and community levels. By incorporating mental health education, digital literacy, and collaborative interventions with schools and community organizations, family physicians can empower patients and families to recognize and manage unhealthy internet use. Continued research and culturally sensitive strategies will further enhance their capacity to mitigate risks, promote balanced technology habits, and support long-term psychological well-being.

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