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INTEGRATED STUDY MASTER'S THESIS

Internet Addiction: Clinical Signs and Treatment Possibilities

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Abbreviations:

IA: Internet Addiction

CBT: Cognitive behavioral therapy

IUD: Internet Use Disorder

SmUD: Smartphone Use Disorder

IGD: Internet Gaming Disorder

DSM-5-TR: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision

ADHD: Attention-Deficit/Hyperactivity Disorder

OCD: Obsessive-Compulsive Disorder

IC-IUD : impulsive-compulsive Internet usage disorder

OSA: online shopping addiction

ACEs: adverse childhood experiences

PIMU: problematic interactive media use

Summary:

Background: Internet Addiction (IA), also referred to as Internet Use Disorder (IUD), is increasingly recognized as a significant behavioral health issue affecting individuals worldwide. While internet technology greatly facilitates daily life, education, and entertainment, its excessive use has been linked to various mental health problems and behavioral disorders. Rapid advancements in digital technologies such as artificial intelligence, virtual and augmented reality, streaming services, and smartphones have intensified these risks. Although Internet Addiction has been studied since the late 1990s, gaps in clear diagnostic criteria and standardized assessment tools continue to complicate clinical diagnosis and treatment.

Aims: This review aims to evaluate and summarize the existing empirical evidence on clinical signs, subtypes, and treatment possibilities for Internet Addiction. Specifically, it seeks to identify psychological symptoms, categorize behavioral subtypes, assess current treatment modalities, and highlight limitations within current diagnostic frameworks to guide future research directions.

Methods: An extensive review of scientific literature was conducted through databases including PubMed, Elsevier, and Google Scholar. Both full texts and abstracts published predominantly between 1995 and 2025 were analyzed, utilizing specific keywords such as "Internet addiction," "Internet Use Disorder," "clinical signs of Internet addiction," and "CBT for Internet addiction." The search strategy was based on Medical Subject Headings (MeSH) and a Boolean Search Query, that initially resulted in 145 articles, Studies exclusively related to children or adolescents and those limited to specific geographical areas were mostly excluded.

Results: The research demonstrated that Internet Addiction involves diverse psychological symptoms such as anxiety, depression, irritability, and low self-esteem. Additionally, physical symptoms like fatigue, disrupted sleep, migraines, and musculoskeletal discomfort were identified. Behavioral indicators include neglect of occupational or academic duties and social withdrawal. IA was found to be heterogeneous, consisting of several subtypes including Internet Gaming Disorder, problematic social media use, online shopping, and online gambling disorders. Treatment approaches evaluated revealed that Cognitive Behavioral Therapy (CBT) is currently the most effective psychological intervention. Pharmacological treatments such as SSRIs may be useful for managing coexisting conditions such as depression or anxiety, though their efficacy specifically for IA remains uncertain due to limited rigorous studies. Existing diagnostic tools, such as the Internet Addiction Test (IAT), lack

universal validation, standardization, and cross-cultural reliability, posing significant challenges for consistent clinical assessment and treatment.

Conclusion: Internet Addiction represents a complex and multifaceted behavioral disorder with significant mental health implications. Clear patterns of psychological, behavioral, and physical symptoms highlight the disorder's clinical significance. Although treatment options like CBT show promising outcomes, ongoing challenges related to diagnostic inconsistency and subtype differentiation remain. There is an essential need for culturally sensitive, clinically validated assessment tools. Future research should focus on standardized diagnostic frameworks, targeted and personalized therapeutic approaches, and longitudinal studies to confirm the effectiveness of interventions. Enhancing understanding and management of IA through interdisciplinary research and informed clinical practice will ultimately support affected individuals' health, quality of life, and digital well-being.

Keywords: "Internet addiction," "Internet Use Disorder", "Problematic internet use", "clinical signs of internet addiction," "internet addiction treatment," "CBT for internet addiction."

Introduction.

Internet use has become present in the majority of people's life. It can be very beneficial and helpful in many ways, through studies, work and entertainment. However, the overuse of this tool can have several impacts in well being and mental health. With the advance of new technology, for example, Artificial Intelligence, streamings, augmented reality (AR) and virtual reality (VR), headsets. The internet has become the environment of several addictions and behavioral disorders. There are a lot of research to still unravel in this topic. This paper focus on understanding the main clinical signs related to the overuse of the internet and the possibility of clinical treatments.

Young and Griffiths were among the first scholars to conceptualize Internet Addiction and have conducted extensive empirical research that has significantly contributed to the development of this field. Internet addiction, also named as Internet use disorder (IUD) is a growing public health issue. Is consists of excessive or poorly controlled preoccupations, urges, or behaviors regarding Internet use that lead to impairment or distress. (Young 1998) . According to (Griffiths, 1996a), the internet provides a medium for the addiction to flow to its object of unhealthy attachment.

(Brenner 1997) carried out one of the first survey studies to explore whether heavy Internet use could lead to addictive-like problems. The study found that 80% of users reported at least five negative effects, such as missing sleep, skipping meals, and having trouble managing their time. Some users also faced more serious issues, including conflict with employers and social isolation, showing similarities with other forms of addiction. These patterns suggest that such problems may be common among frequent Internet users. While the study did not make clinical diagnoses, it found early signs of tolerance, craving, and withdrawal, which are key features of addiction.

(Widyanto and Griffiths 2006) offers a comprehensive examination of the concept of Internet addiction and evaluates its empirical basis. the authors discuss Young's (1996) pioneering work, which adapted DSM-IV criteria for pathological gambling to identify Internet addiction, but also highlight lack of validated diagnostic tools. The authors then explain how these studies collectively suggest that, while problematic Internet use shares features with behavioral addictions, such as tolerance, withdrawal, and relapses, its classification as a distinct disorder remains problematic due to inconsistent methodologies and unclear causal mechanisms. Furthermore, the article repeats this analysis by critiquing case studies and theoretical models, arguing that in most instances, excessive Internet use acts as a medium for other addictive behaviors rather than being an addiction itself.

(Block 2008) contends that Internet addiction constitutes a serious psychiatric condition that merits formal inclusion in the DSM-V. Block explains that Internet addiction is characterized by four core components: excessive use, withdrawal symptoms, tolerance, and adverse consequences, which align with diagnostic models used in other forms of addiction. These findings suggest that Internet addiction not only presents identifiable and recurrent clinical features, but also interacts with other mental health conditions in ways that complicate treatment. In sum, Block's article demonstrates that Internet addiction is a globally relevant disorder marked by common symptoms, significant comorbidity, and substantial public health implications.

The aim of this thesis is to evaluate the clinical signs and treatment possibilities of Internet Addiction in light of existing empirical evidence, with a specific focus on identifying its psychological symptoms, categorizing behavioral subtypes, assessing current treatment modalities, and highlighting limitations in diagnostic tools to inform future research directions.

Methods.

This study employed a literature review to examine the academic discourse surrounding Internet Use Disorder (IUD). The review encompassed publications between 1998 and 2025 and was conducted using three major databases: PubMed, Elsevier, and Google Scholar. Both abstracts and full-text articles were screened for relevance.

The search strategy was based on Medical Subject Headings (MeSH) and a Boolean Search Query. Specifically, the following Boolean query was used:

("Internet Addiction Disorder"[MeSH] OR "Problematic Internet Use"[Title/Abstract] OR "Internet Use Disorder"[Title/Abstract])

AND

("Symptoms"[Title/Abstract] OR "Clinical Signs"[Title/Abstract] OR "Psychiatric Comorbidities"[Title/Abstract])

AND

("Treatment"[Title/Abstract] OR "Therapy"[Title/Abstract] OR "Intervention"[Title/Abstract] OR "Cognitive Behavioral Therapy"[Title/Abstract])

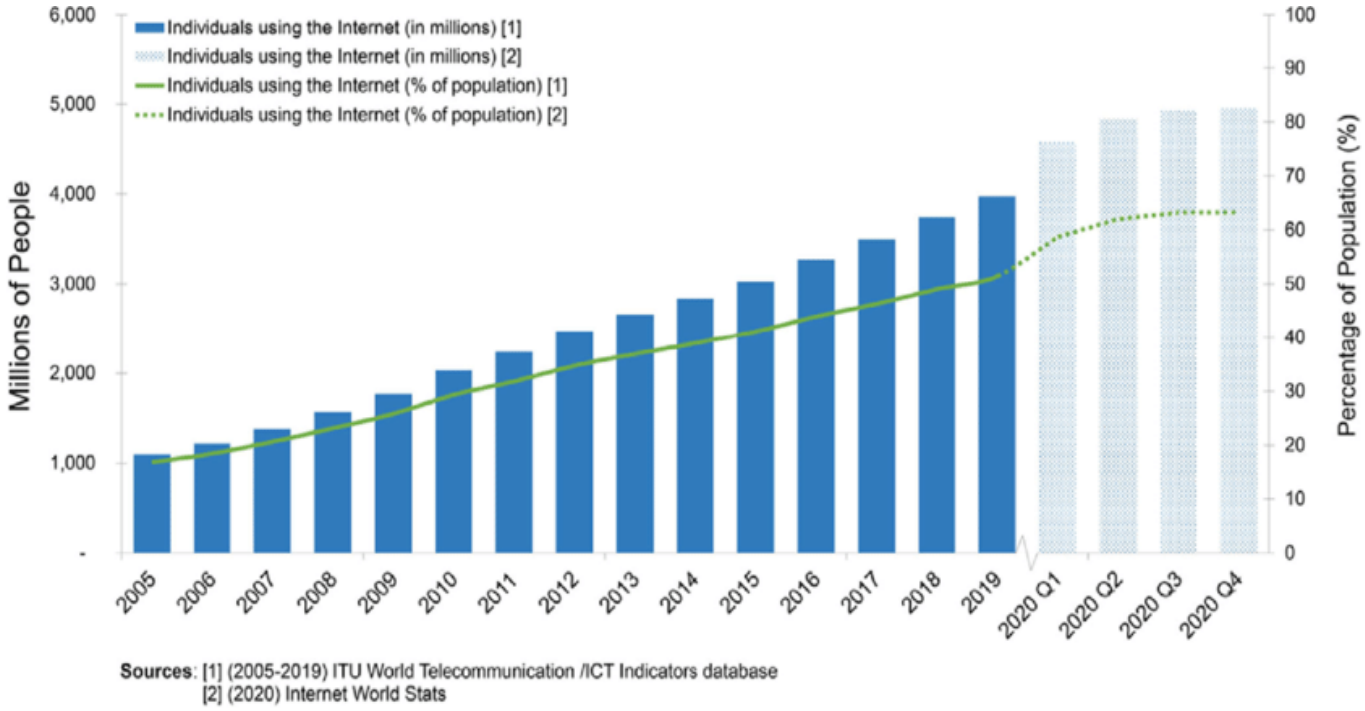
An initial search using this Boolean query yielded 145 results. These records were subsequently screened in a multi-stage process guided by predefined inclusion and exclusion criteria. Studies were included if they examined the prevalence, diagnostic criteria, psychological or behavioral correlates, or therapeutic interventions for internet addiction within the general population. Articles were excluded if they focused exclusively on a specific geographic region or centered predominantly on children and adolescents, given the study's focus on adult populations.

The final pool of studies was selected based on methodological rigor, thematic relevance, and the degree to which findings could be generalized beyond the original context. The final results, 42 articles were included in this literature review.

Research results and discussion.

The concept of Internet Addiction (IA) remains without a clear accepted definition, which poses challenges for diagnosis, research, and treatment. The article (Griffiths 2020) mentions about Montag et al.,2019 suggestion that individuals experiencing Internet and smartphone addiction exhibit similar patterns of dependency and compulsive behavior as those with alcohol addiction. It also mentions the continue use of the terms "Internet addiction" (and "smartphone addiction") or "problematic Internet use" (and "problematic smartphone use"), while the term "Internet Use Disorder" remains used by only a minority of researchers. It also proposes the following definition: Internet Use Disorder (IUD) and Smartphone Use Disorder (SmUD) can be classified into two main categories. Generalized IUD/SmUD refers to problematic engagement in multiple online or smartphone-based activities, leading to significant functional impairments. In contrast, specific IUD/SmUD excessive or dysfunctional engagement in a singular internet or smartphone-related activity, such as gaming, social media use, or online shopping.

From the chart, it can be seen the general use of internet between 20005 and 2020. We can observe the rising of internet use.



(Fig.1). Graph of Internet usage from 2005 to 2020. The global number of individuals using the Internet, total (left) and percentage (right).

Pathophysiology of addiction

Kim et al. (2017) conducted a narrative review to examine the neurobiological basis of Internet addiction (IA), focusing on four cognitive domains: reward processing, impulsivity, cue reactivity, and decision-making. Drawing from over 40 studies using neurocognitive, neuroimaging, and neurophysiological methods, the authors found that individuals with IA showed patterns similar to those observed in substance use disorders. For instance, IA subjects demonstrated increased sensitivity to Internet-related rewards, weaker responses to negative outcomes, poor impulse control, and difficulty making decisions under risk. Brain imaging revealed altered activity in the prefrontal cortex, anterior cingulate cortex, and reward circuits, which are known to be involved in behavior regulation and emotion processing.

Despite these findings, the review noted some inconsistencies, particularly in decision-making results across behavioral tasks, suggesting the need for more standardized methods. The authors also pointed out that it remains unclear whether the brain changes seen in IA are a cause or a consequence of excessive Internet use. Nevertheless, the evidence strongly supports the notion that IA is linked to cognitive-emotional dysregulation and can be viewed as a form of behavioral addiction. In summary, this review highlights that Internet addiction is associated with abnormal brain functioning in reward and control systems, which may explain impulsive behaviors and poor decision-making in affected individuals.

Internet Addiction in childhood, adolescence, and adults: similarities and differences.

Childhood

(Liu and Kuo 2007) conducted a quantitative study using structural equation modeling (SEM) to explore the relationship between Internet addiction, interpersonal relationships, parent–child relationships, and social anxiety. They surveyed 555 university students in Taiwan and found that poor parent–child relationships and low-quality peer relationships were significantly associated with higher levels of Internet addiction. For example, participants who reported weaker interpersonal bonds and more social anxiety were more likely to fall into the “warring” or “dangerous” levels of Internet addiction, which together accounted for nearly half the sample. The results also indicated that social

anxiety increased as interpersonal relationships declined, supporting the model's prediction that relational dissatisfaction contributes to excessive Internet use.

The authors explained that the Internet may serve as a coping mechanism for socially anxious individuals or those who lack supportive family and peer connections. Although the study confirmed the model's predictions, it acknowledged limitations such as the reliance on self-report data and cultural specificity. The findings align with prior research showing that interpersonal distress often leads to compensatory online behavior. These results suggest that low-quality interpersonal and parent–child relationships, combined with social anxiety, significantly predict Internet addiction, emphasizing the importance of relational factors in understanding this behavior.

A meta-analysis was conducted by (Tang et al. 2024) to examine the association between childhood trauma and Internet addiction in adolescents. The authors reviewed 19 studies with a combined sample of over 21,000 adolescents, and found a moderate positive correlation between childhood trauma and Internet addiction. For example, adolescents with a history of abuse or neglect were significantly more likely to report problematic Internet use, especially when trauma was assessed with the Childhood Trauma Questionnaire and Internet use with the Mobile Social Media Use Assessment. Subgroup analyses indicated that measurement tools, region, and sample size influenced the strength of the association, while factors such as age, sex, and sample source did not significantly moderate the relationship. Although the included studies were mainly cross-sectional and varied in quality, the findings align with previous evidence suggesting that traumatic experiences in early life contribute to maladaptive online behaviors as a form of emotional regulation. In summary, this study found that childhood trauma significantly predicts Internet addiction in adolescents, and emphasized the importance of early intervention and standardized assessment tools.

(Hao et al. 2024) conducted a meta-analysis to investigate the association between adverse childhood experiences (ACEs) and internet addiction (IA). The authors systematically reviewed 37 cross-sectional and longitudinal studies from 12 countries, involving over 45,000 participants aged 8 to 67. They found a moderate positive correlation between ACEs and IA, with emotional abuse and physical neglect showing the strongest associations. For example, emotional neglect was particularly predictive of IA in Asian samples. The authors explained that childhood trauma may lead individuals to use the internet as a coping mechanism to manage negative emotions, consistent with the compensatory internet use model. Although age moderated the effect, showing stronger associations in younger individuals,

gender and publication year did not. The authors also acknowledged inconsistencies in effect sizes across studies, likely due to differences in measurement tools and cultural contexts. They concluded that early-life stress plays a significant role in the development of IA and highlighted the need for targeted prevention and trauma-informed interventions. Taken together, the study provides robust evidence that ACEs are moderately associated with IA, especially among younger individuals and in specific cultural contexts.

Adolescence

(Cerniglia et al. 2017) explored how Internet addiction (IA) develops in adolescents by reviewing clinical and research studies. They focused on understanding the biological and psychological factors behind this behaviour. The authors identified three main patterns in adolescents with IA: poor impulse control, emotional withdrawal, and strong dependence on others to shape their identity. For example, they noted that some teenagers with IA show symptoms similar to borderline or avoidant personality traits. This was a narrative review, meaning the authors combined findings from different types of research instead of conducting new experiments. However, they pointed out that many existing studies lack strong data, such as long-term research, which makes it hard to draw firm conclusions. In the end, the authors suggested that IA is a complex condition that cannot be fully understood by simply calling it an "addiction." Instead, it should be seen in light of young people's social and developmental needs. Overall, the article shows that IA in adolescents has many forms and requires more thoughtful, age-appropriate treatment approaches.

(Kuss et al. 2013) investigated the prevalence and psychological predictors of Internet addiction (IA) among adolescents by surveying a large sample of 3,105 Dutch students using validated self-report questionnaires. The study found that 3.7% of participants met the threshold for potential IA based on the Compulsive Internet Use Scale (CIUS). For instance, adolescents who frequently used online games and social media platforms such as Twitter and social networking sites (SNS) were significantly more likely to exhibit symptoms of IA. The authors employed a cross-sectional survey design and conducted logistic regression analyses to explore both main and interaction effects of personality traits, such as agreeableness, emotional stability, and conscientiousness, and specific online activities. The study revealed that low levels of agreeableness and emotional stability increased IA risk, while traits like extraversion and conscientiousness acted as protective factors in high-frequency users. However,

the authors acknowledged limitations, including the inability to infer causality and the reliance on self-reported data. In conclusion, the study emphasized that IA in adolescents is influenced by both personality characteristics and patterns of online behaviour, warranting targeted preventive strategies. In summary, Kuss et al. (2013) identified a small but clinically relevant proportion of adolescents at risk for IA, shaped by an interaction of online activity and individual traits.

(Lesinskienė et al. 2024) conducted a cross-sectional survey to investigate how problematic internet use (PIU) relates to wellness, happiness, and mental health among 1,412 Lithuanian adolescents aged 12–16. The researchers administered validated tools, including the Internet Addiction Test (IAT) and the Strengths and Difficulties Questionnaire (SDQ), to evaluate levels of internet use and emotional/behavioural symptoms. They found that over 75% of adolescents showed signs of mild to moderate internet addiction, with girls scoring significantly higher than boys on both the IAT and internalizing difficulties. For example, adolescents who reported frequent sleep problems, abdominal pain, or headaches had significantly higher IAT scores. The authors also reported a positive correlation between IAT scores and both internalizing and externalizing SDQ scores, suggesting that emotional distress and behavioural issues are linked to higher internet use.

This quantitative, observational study revealed key gender differences: girls reported poorer health and happiness than boys and showed stronger associations between externalizing difficulties and internet addiction. Contradicting some prior findings, the study found that boys did not dominate internet addiction rates, highlighting the role of psychosocial stress and subjective wellness in shaping these patterns. The authors concluded that internet addiction is strongly associated with emotional and somatic complaints in adolescents, particularly among girls, and emphasized the need for preventive interventions in schools and families. Overall, Lesinskienė et al. (2024) demonstrated that problematic internet use among adolescents is significantly linked to poor well-being, emotional distress, and gender-specific psychosocial factors, reinforcing the urgency of targeted mental health strategies.

(Vigna-Taglianti et al. 2017) investigated the prevalence and risk factors of Problematic Internet Use (PIU) among Italian high school students, with special attention to gender differences. They administered anonymous self-report questionnaires to 2,022 students across 25 schools, measuring Internet behaviours and psychological variables such as loneliness. The study found that 12.1% of students met the criteria for PIU (14.2% of males and 10.1% of females), with the highest prevalence occurring among 14- to 15-year-olds. For example, logistic regression showed that students who used the Internet for more than five hours per day had nearly six times the risk of PIU compared to those

online for less than two hours. This cross-sectional quantitative study revealed that excessive time online, younger age (especially among females), vocational school attendance, and feelings of loneliness were significant predictors of PIU, whereas information searching was protective, particularly for females. Contradicting prior research, parental control did not significantly reduce PIU risk, possibly due to low rates of supervision across all age groups. In conclusion, the authors emphasized that PIU is a growing public health concern and recommended further longitudinal studies to clarify causal pathways. In sum, the study demonstrated that PIU among adolescents is shaped by a complex mix of behavioural, emotional, and educational factors, with notable gender-based differences.

(Soh et al. 2018) investigated whether parents or peers have a stronger influence on teenagers' Internet addiction and risky online behaviour, such as chatting with strangers or visiting inappropriate websites. The study involved over 1,400 Malaysian students aged 13 to 15, who answered questionnaires about their relationships with parents and friends, how often they go online, and what they do on the Internet. The researchers found that teenagers who felt closer to their friends were more likely to show signs of Internet addiction and take part in risky online activities. For example, stronger peer relationships were linked to higher chances of Internet addiction. In contrast, teenagers who had strong relationships with their parents were less likely to develop Internet addiction, though this did not significantly reduce risky behaviour online. To explain the key terms: parental attachment means how emotionally close, trusting, and supportive a teenager feels toward their parents. Peer attachment refers to the same kind of connection, but with friends. The study showed that peer influence could lead teens into risky online behaviours, while parental influence helped protect them, especially when parents were actively involved in monitoring or discussing online activities.

The researchers used a method called Partial Least Squares Structural Equation Modelling (PLS-SEM) to analyse the data. This technique helps examine complex relationships between many factors at once, like how emotional ties and monitoring behaviours together affect Internet use. It is especially useful when working with real-world data that may not follow perfect patterns. In conclusion, the study showed that while friends can strongly influence teens to engage in problematic Internet use, parents still play a more powerful protective role, particularly when they stay involved and supportive.

(Bickham 2021) conducted a comprehensive review of recent research on Internet addiction among adolescents, aiming to clarify its definition, causes, co-occurring disorders, and treatment options. Drawing from studies published between 2015 and 2020, the author highlighted that inconsistent terminology, such as "Internet addiction," "problematic gaming," and "problematic interactive media

use" (PIMU), has contributed to confusion in both clinical and academic settings. For example, while the inclusion of Internet Gaming Disorder (IGD) in the DSM-5 and Gaming Disorder (GD) in the ICD-11 has helped create diagnostic criteria, many researchers argue these frameworks are too narrow and may pathologize normal behaviours. The review synthesised findings from multiple empirical studies and meta-analyses, revealing that approximately 5% of adolescents worldwide may experience significant problems due to digital media use. Notably, impulsivity, aggression, and neuroticism were among the most frequently cited personality traits linked to PIMU. In addition, depression, ADHD, and autism were identified as common comorbidities. In conclusion, the author called for more longitudinal studies, to better understand PIMU's causes and inform effective interventions. This review emphasized the urgent need for clear definitions, reliable diagnostic tools, and targeted treatments for adolescent media-related disorders.

Adults

(Devine et al. 2022) examined how Internet addiction (IA) relates to emotional, personality, and cognitive traits across a broad age range in U.S. adults. The study used data from 898 participants aged 18 to 76, collected through an online survey, and categorized them into three groups based on IA severity: non-addicted, mildly addicted, and moderately addicted. For example, participants with higher IA levels showed more depressive symptoms, higher impulsivity, and lower self-control. They also performed worse on cognitive tasks like mental rotation and reflection tests, and reported more daily cognitive failures. This was a cross-sectional, quantitative study using multiple regression and ANCOVA analyses to identify patterns among IA levels and outcomes. While younger participants were more likely to show higher IA levels, the effects of IA on mood, thinking, and behavior were consistent across ages. Notably, moderate IA was also linked to greater creative achievement, challenging the assumption that all outcomes of IA are negative. In conclusion, the authors suggested that IA is associated with a complex mix of cognitive, emotional, and dispositional factors, and called for more longitudinal research to explore these links further. To summarise, this study showed that IA is not only linked to psychological difficulties but also to certain strengths, making it a multidimensional issue requiring nuanced understanding.

(Dieris-Hirche et al. 2017) conducted a case-control study to examine the relationship between Internet addiction (IA) and depression in adults, comparing 25 clinically diagnosed depressive patients with 25 healthy controls. The researchers used standardised psychometric tools to assess levels of depression,

impulsivity, psychological stress, and IA. They found that 36% of the depressive patients met the criteria for Internet addiction, a notably higher rate than the general German population, which averages around 1%. For instance, depressive patients with IA scored significantly higher on impulsivity and psychological stress scales than both non-addicted depressed individuals and healthy controls. This study, using quantitative methods and validated scales, demonstrated that younger age and male sex were strong predictors of IA within the depressed group. Interestingly, while depressive patients with IA exhibited more severe symptoms, the differences were not statistically significant, likely due to the small sample size. The authors concluded that IA may not only co-occur with depression but also amplify its severity, advocating for screening and integrating IA-specific strategies into depression treatment plans. This research revealed a high prevalence of IA among depressive adults, particularly young males, suggesting a complex and clinically important relationship between the two conditions.

(Zhang et al. 2016) conducted a longitudinal study to examine how psychosocial factors across the life course relate to symptoms of Internet addiction (IA) in early midlife. Using a community sample of 548 U.S. adults followed over 30 years, the authors applied structural equation modeling (SEM) to test whether early family conflict predicted later IA through a chain of psychological and behavioural outcomes. SEM is a statistical technique that allows researchers to examine complex relationships between multiple variables, including both direct and indirect (mediated) effects, over time. This method is particularly suited to testing theoretical models involving multiple pathways, as it estimates both the strength and direction of associations among latent and observed variables simultaneously.

For example, Zhang et al. found that a conflictual parent-child relationship at age 16 predicted internalizing problems, such as depression and anxiety, at age 21, which in turn increased the likelihood of substance use by age 32 and affective disorders by age 37. These disorders were both directly and indirectly associated with symptoms of IA by age 43. This quantitative, prospective cohort design provided strong temporal evidence, though the authors acknowledged that their sample lacked ethnic diversity and relied on self-report measures. Notably, substance use problems had the strongest total effect on IA symptoms, suggesting shared risk pathways with other addictions. In conclusion, the study highlighted the long-term impact of early relational and emotional difficulties on adult media-related behavioural health issues. In summary, Zhang et al. demonstrated that IA in adulthood is shaped by a complex developmental pathway involving early family conflict, internalizing symptoms, substance use, and later affective disorders.

Gaming disorder.

Internet Gaming Disorder is the only subtype of Internet Addiction currently recognized in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision . However, some scholars (Kuss et al. 2017) have criticized the terminology, arguing that the condition might be more accurately labeled "Gaming Disorder". This is based on the argument that many games can be played without an internet connection, indicating that gaming addiction may occur independently of internet use. According to the DSM-5-TR, IGD looks more prevalent in adolescent and young adult men. It also mentions a study that correlates Internet Gaming Disorder shares similar symptoms with pathological Internet use, including elevated risks of emotional symptoms, conduct disorder, hyperactivity/inattention, self-injurious behaviors, and suicidal thoughts and behaviors. The DSM-5-TR does not provide detailed criteria or a comprehensive definition for pathological Internet use, even though it acknowledges the mental health effects of problematic Internet use. Moreover, IGD has been found to be associated with other psychiatric conditions, including Major Depressive Disorder, Attention-Deficit/Hyperactivity Disorder (ADHD), and Obsessive-Compulsive Disorder (OCD). These observations underscore the need for clearer diagnostic criteria and more comprehensive conceptual frameworks to distinguish Internet Gaming Disorder from broader forms such as problematic internet use, as well as to improve the accuracy and clinical utility of its classification.

Social media use

Moreover, another common related disorder is the overuse of social media. The following study (Ergün et al. 2025) suggests there is a significant interconnection between how often social media is being used and the correlation between three intruments: smartphones, Social Media and applications. These key elements contribute to the overuse of Social Media. The study's findings indicate that there is no direct association between Social Media Addiction and poor mental health outcomes; rather, this relationship is mediated by Internet Addiction and phubbing. Specifically, the associations between Social Media Addiction and both stress and anxiety were accounted for by the combined effects of Internet Addiction and phubbing, whereas the link between Social Media Addiction and depression was mediated solely by Internet Addiction.

Another study (Rajesh and Rangaiah 2020) , correlates personality traits to one specific Social Media: Facebook. Traits such as extraversion, openness to experience, neuroticism, agreeableness,

conscientiousness, and narcissism were not found to be significantly associated with Facebook addiction or Facebook usage intensity. In contrast, loneliness was positively associated with Facebook addiction and emerged as a significant predictor, accounting for 14% of the variance in Facebook addiction. These findings suggest that while individual personality traits may not directly influence Facebook addiction, psychosocial factors such as loneliness play a more critical role in predicting problematic use of the platform.

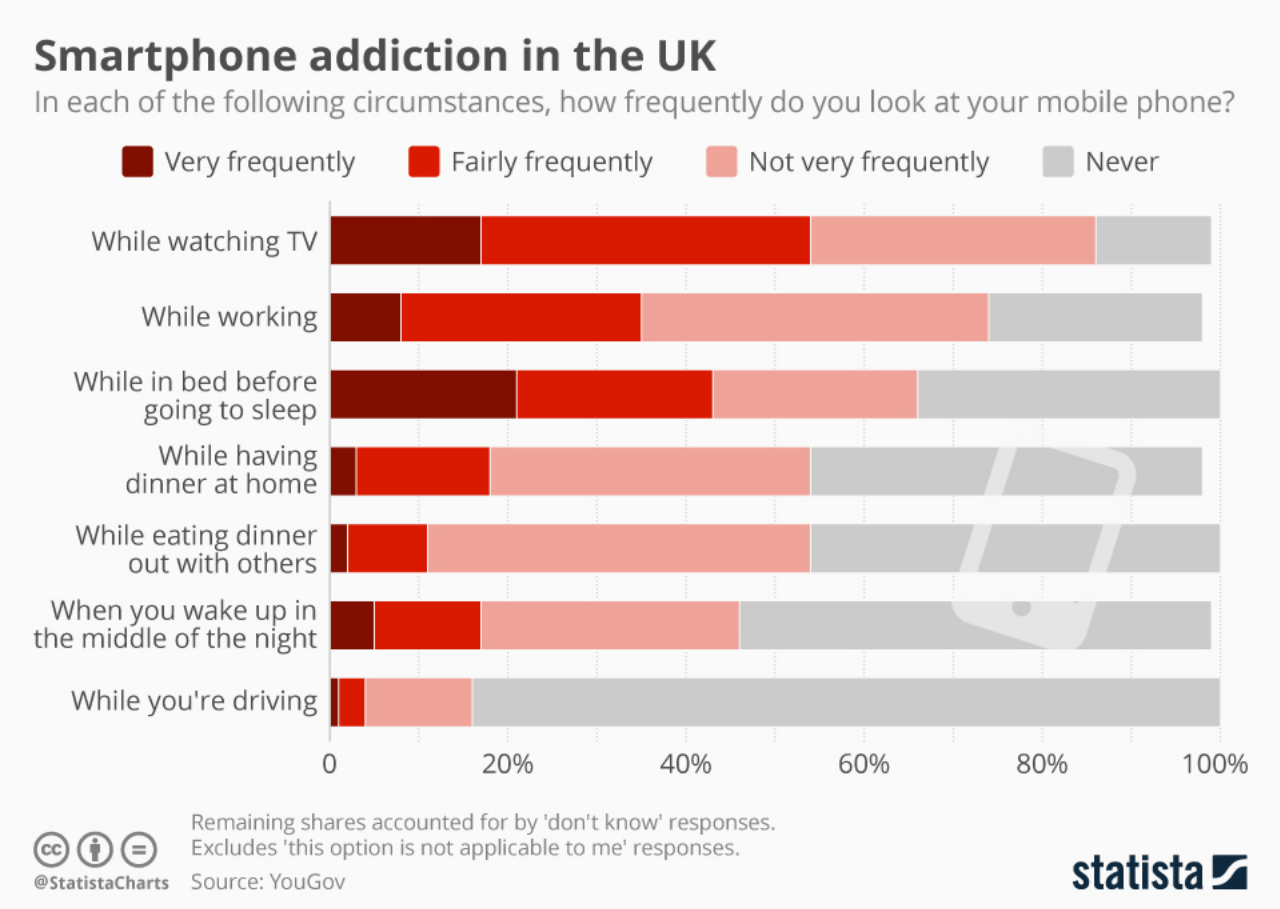
Additionally, (Henzel and Håkansson 2021) presents the problematic use of social media demonstrated a relationship with younger age, time using instant messaging services, and mental distress, but not with education level, occupational status, or with treatment needs for alcohol or drug problems. The authors further suggest that restricting access to certain features on platforms such as Facebook and Instagram could serve as a potential intervention strategy, either through platform providers or third-party tools. Indeed, some devices have already incorporated usage regulation features, including app timers, screen time monitoring, and proposals to eliminate functions like infinite scrolling or to limit engagement mechanisms such as like button. A limitation of this study is that, participants self-reported all data using validated scales to assess several of the constructs examined. However, relying on self-reports may introduce bias, as perceptions of the individual of their own behavior can influence how they respond. These findings highlight important ways to develop targeted interventions that reduce mental distress linked to problematic social media use among younger users.

Smartphone Addiction

Panova and Carbonell (2018) conducted a narrative review to critically examine whether smartphone addiction qualifies as a clinical disorder. They reviewed a range of quantitative and qualitative studies and assessed the extent to which smartphone use meets established addiction criteria, including tolerance, withdrawal, salience, and functional impairment. For example, while many studies report symptoms such as loss of control and high daily use, the authors found little evidence of severe psychological or physical harm, which is typically required for an addiction diagnosis. They argued that behaviors labeled as "smartphone addiction" often lack clinical severity and are better understood as problematic or maladaptive use, especially when viewed in their sociocultural context.

The authors also noted that most existing research relies on self-report measures in healthy samples, with no consistent diagnostic criteria, which increases the likelihood of false positives. Moreover, the smartphone itself may not be the object of addiction, but rather a platform for engaging in potentially

problematic activities, such as gaming or social networking. They concluded that calling these behaviors an "addiction" may overpathologize common habits and distract from more precise interventions. This review suggests that although excessive smartphone use can lead to negative consequences, it does not meet the criteria for clinical addiction and should instead be framed as problematic use shaped by context and motivation



(Infographic 2018): This chart shows how frequently people in the UK use their smartphones during certain situations in 2018.

Online shopping

Rose and Dhandayudham (2014) developed a conceptual model to explain online shopping addiction (OSA) by reviewing literature from clinical psychology and consumer behavior. They identified seven key predictors of OSA: low self-esteem, low self-regulation, negative emotional states, enjoyment, female gender, social anonymity, and cognitive overload. For example, individuals who struggle to

regulate their behavior and often experience negative emotions may be more likely to engage in compulsive online shopping. The authors explained that the features of online retail environments, such as fast purchasing options and constant promotions, may increase impulsive behavior and reduce self-control. Although the study did not collect new data, it proposed that online settings can amplify underlying psychological vulnerabilities, making it more difficult for some individuals to resist excessive shopping. The authors also noted that it remains unclear whether the Internet causes these behaviors or simply enables them. They emphasized the importance of future empirical research to test and refine the model.In conclusion, this study proposed that a combination of personal traits and online shopping features contributes to the development of online shopping addiction.

Online Gambling

A comprehensive literature review to examine the relationship between Internet gambling and disordered gambling was performed by (Gainsbury 2015), focusing on how online gambling may increase the risk of gambling-related harm. The author reviewed studies showing that Internet gamblers tend to report higher rates of gambling problems, with one study in Australia finding that about 2.7% of online gamblers met criteria for problem gambling, compared to 0.9% among non-Internet gamblers. For example, online gambling offers features such as constant availability, anonymity, and digital payments, which may lower users' sense of control and increase financial losses. However, the review also found that Internet gambling alone does not necessarily cause gambling problems, as individuals with high involvement in both online and land-based gambling are most at risk. Furthermore, once other variables such as gambling frequency and number of gambling activities are controlled for, Internet gambling is not a strong independent predictor of disordered gambling.

The author emphasized that Internet problem gamblers often experience disrupted sleep, financial stress, and comorbid mental health issues, including depression and substance use. However, these harms often reflect broader patterns of high gambling involvement rather than being specific to Internet access. Gainsbury called for longitudinal studies to better understand causality and highlighted the need for improved responsible gambling tools online, such as self-exclusion programs and spending limits. Overall, this review concluded that Internet gambling may contribute to gambling-related harm for some users, especially those already vulnerable, but its impact depends largely on individual and behavioral factors beyond the mode of access.

The data in this table consists of different age groups, generations use the internet differently with different purposes, therefore they can have different addictions related to different use of the internet.

Activity	Teens Ages 12-17	Millennials Ages 18-33	Gen X Ages 34-45	Younger Boomers Ages 46-55	Older Boomers Ages 56-64	Silent Gen Ages 65-73	G.I. Gen Age 74+	All adults Age 18+
Go online	**93%**	**95%**	**86%**	**81%**	**76%**	**58%**	**30%**	**79%**
Teens and/or Millennials are more likely to engage in the following activities compared with older users:								
Watch a video	57	80	66	62	55	44	20	66
Use social network sites	73	83	62	50	43	34	16	61
Send instant messages	67	66	52	35	30	29	4	47
Play online games	78	50^	38^	26^	28^	25^	18^	35^
Read blogs	49^	43	34	27	25	23	15	32
Visit a virtual world	8	4	4	4	3	3	1	4

Note: ^ indicates data from 2006.
Source: Pew Research Center's Internet & American Life Project surveys , 2008-2010. All teens data are from different surveys than adult data, and may have slight differences in question wording. Findings for individual activities are based on internet users. For survey dates of all activities cited, please see the Methodology section at the end of this report.

Fig. 2: Activities that are most popular with teens and/or Millennials (Zickuhr 2010)

Scales

(Laconi et al. 2014) conducted a critical review to examine the validity and reliability of existing Internet addiction assessment tools, aiming to help researchers and clinicians select appropriate measures. They reviewed 45 scales developed in different countries and languages, and found that only

17 had been tested more than once for their psychometric properties, while just 10 had three or more validation studies. For example, the Internet Addiction Test (IAT), the most widely used tool, showed good internal consistency and test–retest reliability, but revealed inconsistent factor structures across studies and lacked clearly validated cut-off points. Similarly, the Compulsive Internet Use Scale (CIUS) demonstrated strong reliability but requires more research to define clinical thresholds.

The review highlighted the lack of a unified definition of Internet addiction and called for a shift from creating new tools to improving and validating existing ones. The authors emphasized the need for culturally sensitive instruments tested in large and diverse samples, as well as for clinically validated tools that can distinguish between normal and problematic use. They also pointed out that most tools were developed in specific cultural contexts and had not been widely validated across diverse populations. Although some newer tools, such as the Generalized Problematic Internet Use Scale-2 (GPIUS-2), showed promising psychometric results, no gold-standard measure currently exists. This study revealed that while several tools exist to measure Internet addiction, most lack robust psychometric validation, and the field still needs a reliable and standardized assessment method.

The key aspects of the Internet addiction clinical signs can be categorized in Physical Symptoms, Psychological (Mental) Symptoms, Behavioral Symptoms (Cerruti et al. 2017), can include:

The Psychological symptoms

Anxiety

Existing research recognizes anxiety associated to Internet addiction (Cai et al. 2021). Recent studies (Weinstein et al. 2015) have documented whether individuals who report higher levels of social anxiety also demonstrate greater tendencies toward Internet addiction. It was conducted two cross-sectional studies to investigate the association between Internet addiction and social anxiety among young adults. Each study included 120 participants, and both aimed to determine whether socially anxious individuals are more likely to report problematic Internet use. The researchers hypothesized that higher social anxiety would correlate with greater Internet addiction, that sex differences might be present, and that those with social anxiety would show a preference for online social platforms. In contrast to expectations, the authors found no significant sex differences in Internet addiction or social anxiety

levels, although men were slightly more represented among those with high anxiety. Moreover, the third hypothesis was not supported. These findings partially challenge the social compensation hypothesis, which assumes that socially anxious individuals prefer the Internet for interpersonal interaction. The findings revealed moderate positive correlations between Internet addiction and social anxiety in both samples. The authors conclude by advocating for further longitudinal and clinical research to untangle the directionality of this relationship and to better understand the psychological mechanisms involved in Internet behavioral disorders.

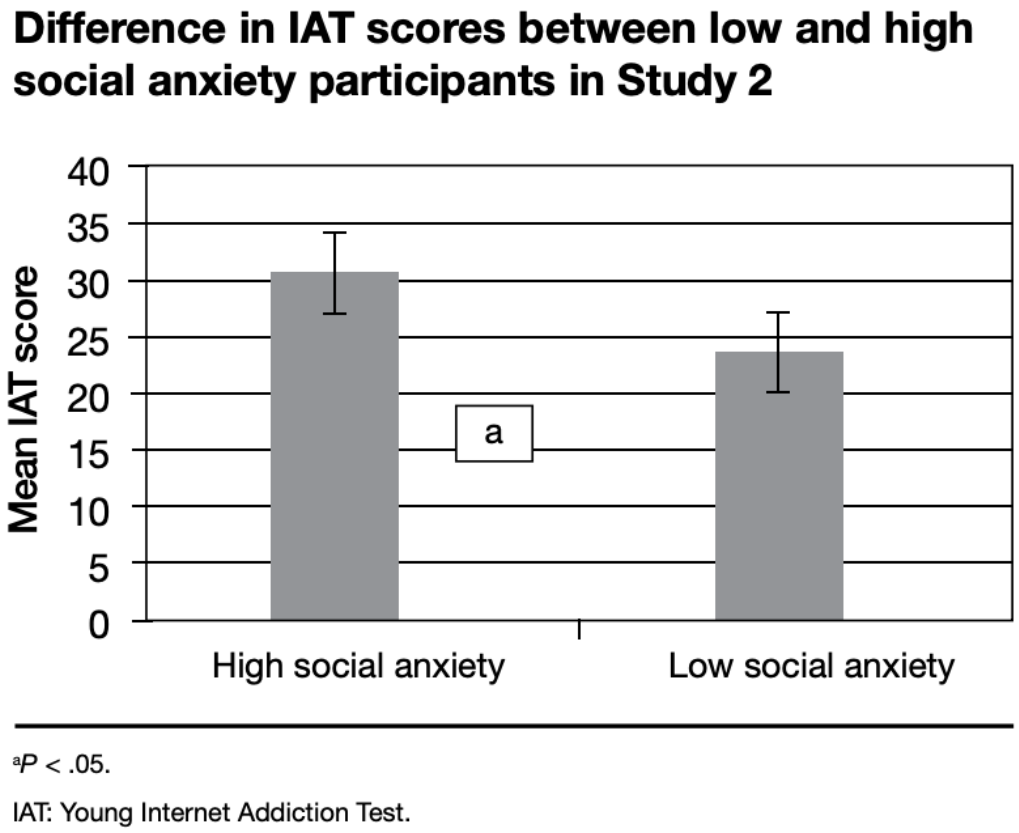


Fig 4. Graph from Weinstein et al. 2015

Depression

Young and Rogers (1998) conducted a cross-sectional online survey to examine the relationship between depression and Internet addiction. Using the Beck Depression Inventory (BDI) with 259 self-identified addicted users, The results indicated mild to moderate depressive symptoms, consistent with earlier findings using the Zung Depression Inventory. The study proposed that individuals with depression may be drawn to the Internet for its anonymity and social control, helping them manage

real-life interpersonal challenges. Though, the authors acknowledged uncertainty about causality. At the same time no opposing results were directly cited, the authors stressed the need for longitudinal research to clarify directionality. Overall, the study highlights depression as a relevant comorbidity in pathological Internet use and suggests that treating underlying psychiatric conditions may reduce addictive online behaviors.

Irritability

(Perlis et al. 2025) conducted a cross-sectional survey of 42,597 U.S. adults to investigate the association between social media use and irritability. Using regression models, the authors found that more frequent use was associated with higher irritability scores, even after adjusting for depression and anxiety. For example, using social media "most of the day" was linked to a 1.55-point increase on the Brief Irritability Test. Posting frequently, especially on TikTok and Facebook, showed the strongest associations. These findings suggest that irritability is a distinct affective correlate of social media use, not merely a byproduct of depressive or anxious symptoms. Although political engagement was considered, it did not account for the observed effects. As the authors conclude, "frequent users of social media experienced increased levels of irritability, above and beyond that explained by depression or anxiety." This study highlights the need for longitudinal research to clarify causality and inform digital well-being interventions.

Low self-esteem

(Aydm and San 2011) Aydın and Sarı (2011) conducted a quantitative correlational study to examine the role of self-esteem in predicting Internet addiction among adolescents. The sample included 324 high school students in Turkey, with detailed analysis based on the 96 students who showed signs of addiction. Using validated self-report scales, the authors found that lower levels of general, social, and family self-esteem were significantly associated with higher levels of Internet addiction. For example, students with lower social and family self-esteem were more likely to report problematic Internet use, and these two dimensions were significant predictors in regression analysis. School-related self-esteem, however, was not associated with addiction symptoms.

These findings are consistent with previous literature suggesting that adolescents may turn to the Internet to compensate for low self-worth or unmet emotional needs. The study highlighted how family

support and peer acceptance are crucial for building self-esteem, which in turn may protect against excessive online behavior. While the direction of the relationship between self-esteem and Internet addiction remains debated, this study treated self-esteem as a contributing factor. Finally, the authors concluded that low self-esteem, particularly in social and family contexts, plays a significant role in adolescent Internet addiction, suggesting the need for interventions that promote healthy self-concept and social support.

Behavioral Symptoms

Neglecting work and school

(Griffiths 2010) conducted a theoretical review to explore the distinction between Internet abuse and Internet addiction in the workplace, drawing on psychological literature and existing models of behavioral addiction. The paper highlighted that many employees engage in non-work-related Internet use, including online shopping, gaming, or socializing, during working hours. For example, a survey cited in the article reported that up to 40% of workplace Internet use is for personal activities, and that over 90% of employees believe Internet use can be addictive. Griffiths argued that while some people show signs of addiction, such as tolerance, withdrawal, and loss of control, many others may simply use the Internet excessively to cope with boredom or workplace stress. He introduced a typology of Internet abuse in the workplace, which includes categories such as cybersexual behavior, relationship abuse, and information overload.

The author emphasized that the context and function of Internet use matter when evaluating its impact, suggesting that most people are not addicted to the Internet itself but to specific activities available online. He also noted that research has often failed to apply strict addiction criteria, and that many studies rely on self-selected samples, which can overestimate the problem. Although Internet abuse may not be a clinical issue for most users, Griffiths warned that even low levels of abuse across a large workforce can harm productivity and increase security risks. In conclusion, Griffiths (2010) argued that Internet abuse in the workplace is widespread and varied, and while true addiction is rare, excessive use can still pose serious challenges for organizations.

Social withdrawal

(Kato et al. 2020) conducted a narrative review to explore the relationship between internet addiction and hikikomori, a form of pathological social withdrawal. The authors examined international surveys, clinical case studies, and self-report data to understand how these two conditions might influence each other. For example, in a survey of 478 university students in Japan, individuals with higher levels of social withdrawal (as measured by the HQ-25) also reported higher internet and smartphone addiction scores. The findings indicated that gaming and excessive online engagement may increase the risk of both internet addiction and hikikomori traits. Conversely, people who already struggle with social withdrawal may turn to the internet for connection and escape, which can lead to problematic use.

The authors proposed two possible pathways: either hikikomori leads to internet addiction as a coping mechanism, or internet addiction contributes to social isolation and withdrawal. While the direction of this relationship remains unclear, the evidence supports a strong link between the two. They also highlighted that shared psychological factors, such as loneliness and stress avoidance, likely play a central role in both conditions. To recapitulate, this review emphasized that internet addiction and hikikomori are closely linked, with each condition potentially reinforcing the other, and called for longitudinal studies to clarify causality and inform future interventions.

Physical Symptoms

Fatigue

Bachleda and Darhiri (2018) conducted a quantitative survey study to investigate whether Internet addiction is associated with mental and physical fatigue among university students. Using a sample of 553 students in Morocco, the researchers compared levels of fatigue between students identified as Internet-addicted and those without addiction. The results revealed that students with Internet addiction experienced significantly higher levels of bothh mental and physical fatigue, with physical fatigue showing a slightly stronger effect. For instance, addicted students reported more tiredness, poor concentration, and bodily exhaustion, even after controlling for age and health. The authors proposed that excessive Internet use likely increases cognitive load and disrupts sleep, which could explain the fatigue symptoms. While earlier studies have linked Internet addiction to issues like depression and low

academic performance, this study filled a gap by focusing specifically on fatigue. However, the authors acknowledged that self-reported data and the non-random sample may limit the generalizability of the findings. To recapitulate, this study provides evidence that Internet addiction is linked to increased mental and physical fatigue in students, suggesting that fatigue may be one of the key consequences of excessive online behavior.

Migraines

Ishii et al. (2020) conducted a cross-sectional questionnaire study to examine the relationship between Internet addiction (IA) and migraine in a sample of 442 pharmacy students in Japan. Participants completed the Internet Addiction Test (IAT) and a migraine screening tool based on international diagnostic criteria. The results showed that students with migraines had significantly higher Internet addiction scores than those with other types of headaches or no headaches. Specifically, about 61% of students in the migraine group were classified as having either possible IA or full IA, compared to less than 50% in the other groups. Furthermore, sleep deprivation, known as migraine trigger, was reported by 62% of students with migraines, suggesting a possible link between excessive Internet use and migraine onset.

The authors suggested that IA may contribute to migraine symptoms through its impact on sleep quality and mental health, such as depression or anxiety, both of which are common in individuals with either condition. However, the study also acknowledged that no differences in total daily Internet usage time were found between groups, raising questions about how IA is defined and measured. In summary, this study suggests that students with migraines are more likely to show signs of Internet addiction, possibly due to overlapping triggers such as poor sleep and psychological distress.

Disrupted sleep

(Alimoradi et al. 2019) conducted a systematic review and meta-analysis to examine the link between internet addiction (IA) and sleep problems, analyzing data from 23 studies with over 35,000 participants. The authors found that individuals with IA were more than twice as likely to experience sleep problems compared to non-addicted users. They also found that people with IA slept less on average, with a small but consistent reduction in sleep time. This study offers strong evidence that IA is

associated with both poorer sleep quality and shorter sleeep duration. The findings were stronger in studies using standardized measures of sleep, which suggests that the tools used to assess sleep may influence the strength of the association. Although most of the included studies were cross-sectional and cannot confirm causation, the results emphasize IA as a potential risk factor for sleep disruption.

Back or neck pain

(Guloglu and Yalcin 2021) conducted a cross-sectional study to examine the link between smartphone addiction and neck pain and disability in university students. They surveyed 501 participants using standardized tools to measure smartphone use, neck pain, and the impact on daily activities. The authors found that students who had higher smartphone addiction scores also reported more neck pain and greater levels of disability. For example, students with moderate to severe disability reported significantly more pain and phone use than those with little or no disability. There were no significant differences between male and female students in terms of addiction or pain levels. While previous studies have shown similar patterns, some have also suggested posture and screen habits as additional factors, which this study did not explore in detail. In conclusion, the study shows that excessive smartphone use is associated with neck pain and functional limitations in young adults. The authors suggest reducing screen time and improving posture, and they call for future research to better understand the direction of this relationship.

Treatment

Cognitive Behavioral Therapy (CBT)

Cognitive Behavioral Therapy (CBT) has been identified as an significant treatment of IA. The conducted meta-analysis (Reangsing et al. 2025) concluded there are moderate effects of the use of CBT in patients with IGD, as a result of the focus on cognitive reconstruction. Patients with IGD master to solve their own problems by learning and practicing new skills for improving the addiction. This patients learn coping mechanisms, techniques to recognize and manage their addictive thoughts, and ways to prevent relapse. Additionally, it mentions the decrease in the automatic tendencies to gaming cues, and the approach bias retraining reduced subjective urges and intentions to play and

game-seeking behaviors. This therapy focus more on the side of the compulsion behavioral of the the IA.

Self control

(Akın et al. 2015) conducted a quantitative survey study to examine the relationship between self-control/self-management and Internet addiction among university students. The researchers collected data from 309 undergraduate students using the Self-Control and Self-Management Scale and the Online Cognition Scale. The results revealed a significant negative relationship between Internet addiction and all three dimensions of self-control: self-monitoring, self-evaluating, and self-reinforcing. For instance, students with lower self-monitoring skills reported higher levels of Internet addiction, and regression analysis showed that these three self-regulation skills together explained about 35% of the variance in Internet addiction scores.

The authors suggested that individuals with low self-control may be more likely to use the Internet compulsively as a form of avoidance or immediate gratification. This aligns with prior research indicating that poor self-regulation is linked to impulsivity, low mood, and addictive behaviors. Although the study relied on self-report data and had limited generalizability beyond university populations, it offers valuable insights into the psychological mechanisms behind problematic Internet use.To conclude, this study found that stronger self-control and self-management skills are associated with lower levels of Internet addiction, highlighting the importance of self-regulation in digital behavior.

Medications (e.g. SSRIs for anxiety/depression)

(Łukawski et al. 2019) explored whether pharmacotherapy can support the treatment of Internet Addiction Disorder (IAD), reviewing clinical findings on the use of medications with various mechanisms of action. The authors discussed antidepressants like bupropion and escitalopram, which were shown to reduce internet use and improve mood, particularly in individuals with comorbid depression. For example, bupropion was associated with less time spent online and fewer cravings, and appeared more effective than escitalopram in reducing impulsivity. Other promising agents included methylphenidate, which reduced both ADHD symptoms and internet use in adolescents, and

naltrexone, which was effective in treating compulsive cybersexual behavior when used alongside other treatments. Despite these findings, the authors emphasized that most studies were small and lacked rigorous design, such as randomization or control groups. They also noted that it remains unclear whether the drugs treat the addiction itself or the underlying psychiatric conditions. Therefore, while early evidence suggests pharmacotherapy may help reduce IAD symptoms, it should ideally be combined with psychotherapy, especially cognitive-behavioral therapy (CBT), which currently has a stronger evidence base. In sum, this review suggests that some medications may help manage internet addiction, particularly when tailored to individual needs and combined with psychological treatment.

(Dell'Osso et al. 2008) performed a 19-week clinical trial to evaluate the effectiveness of escitalopram in treating impulsive-compulsive Internet usage disorder (IC-IUD). The study began with a 10-week open-label phase where participants received escitalopram, followed by a 9-week double-blind phase where they were randomly assigned to continue the drug or switch to placebo. During the open-label phase, participants significantly reduced their weekly internet use from about 37 to 16 hours, and nearly 65% were rated as clinically improved. However, in the double-blind phase, both the escitalopram and placebo groups maintained these gains, and no significant differences were found between them.

These findings suggest that escitalopram may have initial benefits for reducing symptoms of IC-IUD, especially in reducing obsessive and compulsive Internet behaviors. Yet, the absence of continued improvements during the placebo-controlled phase raises questions about whether the effects were due to the medication or to non-specific factors, such as expectations or behavioral changes during treatment. The authors recommend longer trials to determine whether escitalopram leads to sustained improvements beyond placebo effects. In summary, while escitalopram showed short-term improvement in compulsive Internet use, its long-term effects remain unclear, emphasizing the need for larger, controlled studies to confirm its therapeutic role.

Digital detox / tech breaks

It has been shown in (Anandpara et al. 2024) a systematic review to examine the effectiveness of digital detox interventions in reducing smartphone and social media overuse and improving well-being. The authors reviewed over 20 studies, many of which reported positive changes in health, sleep quality, stress, and social connectedness following a digital detox. For instance, one study found that a 14-day reduction in social media use led to lower smartphone dependence and better sleep. However, other

trials produced mixed or neutral effects, and some individuals returned to pre-detox usage levels shortly after the intervention ended.

The review emphasized that individual factors and the structure of detox programs, such as duration, screen time restrictions, and support strategies, significantly influence outcomes. Despite initial concerns, most participants found the detox manageable and even enjoyable, though some reported boredom or temporary feelings of isolation. The authors noted that digital detoxes are more effective when customized and when users are guided toward mindful screen use rather than strict abstinence. Overall, while digital detox programs show promise for improving digital well-being, their success varies based on personal motivation and program design

Family therapy

Park et al. (2014) conducted a qualitative case study to evaluate the effectiveness of family therapy in addressing Internet addiction and interpersonal difficulties in a young adult. Using the Mental Research Institute (MRI) interactional model and Bowen's family systems theory, the authors treated a 23-year-old male experiencing excessive Internet use, social withdrawal, and family conflict. Through 15 therapy sessions, the intervention targeted dysfunctional communication and unresolved patterns inherited from the parents' family of origin. For example, both parents exhibited controlling behaviours and ineffective emotional expression, which contributed to the client's poor self-esteem, anger issues, and avoidance of communication.

Over the course of the intervention, improvements were observed in parent-child communication, emotional regulation, and the client's interpersonal functioning. The young adult became more self-aware, engaged in career planning, and significantly reduced his Internet use. However, the authors acknowledged that initial resistance to therapy posed a challenge and noted the possibility that some changes were influenced by nonspecific therapeutic factors. While the case demonstrated success, the authors cautioned that overall perspective is limited and called for more empirical studies on family-based interventions for Internet addiction. To conclude, this case study provides preliminary evidence that systemic family therapy can help reduce Internet addiction and improve interpersonal relationships by addressing multigenerational communication patterns and emotional dynamics.

Group therapy / support groups

Liu et al. (2015) conducted a quasi-experimental study to assess the effectiveness of multi-family group therapy (MFGT) in reducing Internet addiction among adolescents and to explore the mechanisms underlying this change. A total of 46 adolescents and their parents were assigned either to a six-session MFGT program or a waitlist control. The findings demonstrated a significant reduction in Internet addiction symptoms and time spent online in the intervention group, with addiction rates dropping from 100% at baseline to about 5% after treatment, and remaining below 12% three months later. Improvements in parent–adolescent communication and psychological need satisfaction were identified as key mediators of this outcome.

In contrast, adolescents in the control group showed no meaningful improvement, and their Internet addiction levels remained high. These results suggest that MFGT may be particularly effective because it enhances emotional closeness and models alternative strategies for fulfilling psychological needs. However, the authors acknowledged that the study design was non-randomized, and most participating parents were mothers, which may limit generalizability. Despite these limitations, the research highlights the importance of including family dynamics in behavioral interventions for Internet addiction. In summary, this study provides promising evidence that multi-family group therapy can significantly reduce adolescent Internet addiction by strengthening parent–child relationships and addressing unmet psychological needs

Time management training

Narouei et al. (2024) conducted a experimental study to evaluate the effectiveness of time management training on reducing problematic Internet use and improving quality of life among nursing students. A total of 105 participants were divided into an intervention group, which received three sessions of training over three weeks, and a control group. The findings indicated that students in the intervention group experienced a significant reduction in problematic Internet use scores, decreasing by roughly seven points from pre- to post-test, compared to minimal change in the control group. However, there was no statistically significant improvement in the quality of life scores between the groups following the intervention.

The authors suggest that time management skills may help students better regulate their online behavior, thereby limiting excessive or compulsive Internet use. Yet, the absence of a corresponding

improvement in quality of life indicates that Internet use may be only one of several factors influencing well-being. Additionally, while these results align with previous studies supporting time management as a tool to reduce digital overuse, they diverge from findings that link time management with broader life satisfaction outcomes.This study provides evidence that training in time management can effectively reduce problematic Internet use among students, though it may not be sufficient to enhance overall quality of life.

Mindfulness / stress reduction

Song and Park (2019) investigated the role of mindfulness in reducing Internet addiction, particularly as a mediator between stress and digital overuse. Using data from 400 adults, the authors found that higher mindfulness was associated with lower levels of both stress and Internet addiction. For example, mindfulness significantly reduced stress, which in turn lowered the likelihood of addictive Internet behaviors. Additionally, mindfulness enhanced self-control, further decreasing problematic use. The researchers concluded that mindfulness not only had a direct protective effect on Internet addiction but also contributed indirectly by strengthening self-regulation.

These findings support the view that mindfulness enables individuals to observe thoughts and emotions without reacting impulsively, thus helping them manage stress and resist compulsive Internet use. However, since mindfulness only partially mediated the relationship, the study acknowledged that additional factors may influence this dynamic. To conclude, the study shows that mindfulness plays a key role in buffering the impact of stress on Internet addiction, both by lowering stress levels and promoting better self-control

Inpatient rehabilitation programs

Chrismore et al. (2011) explored how Twelve-Step programs can be used in inpatient treatment for Internet addiction. They described the approach used at the Illinois Institute for Addiction Recovery , where patients with Internet addiction joined group therapy and followed Emotions Anonymous , a 12-step program focused on emotional struggles. For example, the authors reported that over 40% of these patients also had substance use issues, and almost 90% had depression or related disorders. The program helped patients understand their addiction, define what abstinence meant for them, and develop plans to avoid relapse.

The authors explained that Internet addiction shares key signs with other addictions, like loss of control, withdrawal symptoms, and negative impacts on daily life. Still, treatment can be harder because these patients often feel isolated and may not see their behavior as a problem. Although there was no control group, the authors observed that group support and 12-step structure helped many patients improve. In summary, this study suggests that inpatient treatment using 12-step programs can help people with Internet addiction, especially when combined with group therapy and support for mental health issues.

Conclusion.

This thesis explored the clinical signs and treatment options related to Internet Addiction (IA), shedding light on a complex and increasingly prevalent behavioral health concern. The findings highlight that IA is characterized by a diverse range of psychological symptoms, including anxiety, depression, irritability, and diminished self-esteem, often accompanied by behavioral signs such as withdrawal from social activities, neglect of responsibilities, and disruption of daily routines. These clinical signs demonstrate that IA is not just an isolated issue, but rather a multifaceted condition with broad psychological, behavioral, and physical impacts.

Furthermore, the research showed that Internet Addiction is not homogeneous, it consist of distinct behavioral patterns emerge depending on the type of online activity involved. Internet Gaming Disorder, for instance, frequently occurs among younger males and is closely linked to attention deficit disorders, while Social Media Addiction and Online Shopping Addiction often correlate with low self-esteem and social isolation, particularly affecting adolescents and young adults. These subtype distinctions emphasize the need for tailored interventions rather than a one-size-fits-all approach.

In terms of treatment, Cognitive Behavioral Therapy emerged as the most reliable and effective therapeutic method, consistently demonstrating positive outcomes such as reduced addictive behavior, improved emotional control, and prevention of relapse. Additionally, alternative treatments like mindfulness, family-based interventions, group therapy, and digital detox programs also provided beneficial outcomes, underscoring the value of integrating multiple therapeutic approaches. Although pharmacological treatments like SSRIs and bupropion showed potential, especially for patients with co-

existing mental health conditions such as anxiety or depression, the lack of large-scale, long-term studies means their effectiveness remains somewhat uncertain.

Importantly, this study identified significant limitations in the existing diagnostic tools for IA. Popular instruments, such as the Internet Addiction Test and Compulsive Internet Use Scale, currently lack clear standards for clinical use, suffer from inconsistent psychometric properties, and show poor adaptability across different cultural contexts. This creates obstacles for accurately identifying affected individuals, complicating clinical decision-making and hampering research efforts. The absence of standardized diagnostic criteria further contributes to ongoing challenges in effectively recognizing and addressing IA at a global level.

Considering these findings, early detection combined with personalized treatment plans that address specific subtypes and symptoms would greatly enhance therapeutic outcomes.

Lastly, ongoing interdisciplinary research is essential for deepening our understanding of IA. Future studies should prioritize validating culturally sensitive diagnostic tools, exploring the long-term effects of IA, and evaluating sustained effectiveness of therapeutic interventions.

In conclusion, Internet Addiction is a significant contemporary challenge, intertwined deeply with modern life and technology. By improving recognition, tailoring treatments, and investing in public awareness and robust research, we can better support individuals affected by IA, contributing positively to their health, quality of life, and overall digital well-being.

This research contributes for better understanding of the current data available for Internet Addiction. Additionally, for research to internet addiction to have its own classification more stablished, so physicians, healthcare providers and researchers can become more knowledgeable about the subject and treat and care for the patients with such conditions better. As with the advance of technology, IA will increase even more. The limitations of this study consist on giving an general overview of the Internet Addiction, it’s clinical signs and possibility treatments, since it’s a complex topic without stablished definitions, it is challenging to determine with any precision the most appropriate classifications, clinical sign and treatments. Further research is more necessary to an optimal knowledge of Internet addiction.

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The software tool Zotero was used to cite the literature resources. It was used the Vancouver citation style (author-date).

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