

Erasmus+ Project TechWell

Report on Smartphone and Technology Addiction in Italy: Trends, Challenges, and Solutions

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Executive Summary

This report examines the phenomenon of smartphone addiction within the Italian context, with particular focus on educational policies, intervention strategies, and social implications. Recent research and policy developments in Italy demonstrate an increasing awareness of digital dependency issues and their impact on learning and social development. The widespread use of smartphones has given rise to significant concerns regarding technology addiction, particularly among adolescents and young adults. The ongoing global pandemic has further exacerbated this phenomenon, as periods of isolation have led to the primary use of digital devices for social interaction, resulting in a substantial increase in usage across all demographics.

The Neuro-biological Nature of Digital Dependency

The research establishes a robust neurobiological foundation for understanding smartphone addiction. Brain imaging studies have demonstrated that excessive use of smartphones results in alterations in structures and functions in regions of the brain that are responsible for decisionmaking, emotional processing, and cognitive control. A range of theoretical frameworks have been examined and validated, including Young's model (adapted from gambling addiction criteria), Suler's needs-denial approach, Cooper's Triple-A Engine, and Davis's cognitive-behavioral model distinguishing between specific and generalized pathological internet use. Collectively, these frameworks illustrate that smartphone addiction shares fundamental characteristics with substance use disorders, including neural pathway activation. However, treatment approaches necessarily differ due to the omnipresence of technology in modern life.

Prevalence and Demographic Vulnerability Patterns

Alarming dependency rates emerge across multiple Italian studies, with EURES research involving 1,600 students revealing that 81.4% demonstrate smartphone dependency (21.8% high, 59.6% moderate). Gender analysis shows females significantly more vulnerable, with 29.7% exhibiting high dependency compared to 13.8% of males. Age of first acquisition emerges as a critical risk factor—30.1% of adolescents receiving smartphones before age 10 develop high dependency versus just 12.7% receiving devices after age 13. The research identifies a troubling "digital divide paradox" wherein lower-education families tend to provide smartphones earlier, potentially reinforcing existing socioeconomic disadvantages through increased technology addiction risk rather than enhanced digital opportunity.

Regulatory and Policy Framework Development

In response to these challenges, substantial regulatory frameworks have been established at both the European and national levels. The EU's Digital Services Act (DSA) places a explicit priority on child protection, mandating platforms to implement measures against addictive design features. Italy has enacted specific legislation through Decree-Law n. 123 (September 2023), designating AGCOM as the Digital Services Coordinator and requiring Internet Service Providers to implement comprehensive parental control systems targeting harmful content. In response, Italian educational policy has adopted measures to restrict smartphone use in primary and lower secondary schools, while prioritizing the development of digital literacy skills rather than merely prohibiting technology.



Behavioral Manifestations and Daily Life Impact

The behavioral manifestations of smartphone addiction are multifaceted and concerning. Research has documented that a significant proportion of adolescents engage in phone use prior to sleep, with 77% of respondents reporting this behavior. Moreover, a substantial percentage, specifically 63.9%, report that they use their phones first thing in the morning. Beyond these routine behaviors, 42.3% of respondents report unsuccessful attempts to reduce their usage, and 36.7% report being unable to resist impulses to use their phones. The consequences of this addiction extend to the realm of sleep, as 60% of youth report sleeping late to engage in online activities. Research also reveals troubling correlations between smartphone addiction and academic performance, with struggling students showing higher addiction rates (27.3%) compared to high performers (19.5%). These findings suggest that Italian youth are undergoing fundamental changes in their relationships with both their devices and with each other.

High-Risk Digital Behaviors Among Italian Youth

Beyond general dependency, growing body of research has identified a number of high-risk behaviors that are associated with the use of smartphones. Online gaming has become a subject of concern, with adolescents reporting an average weekly expenditure of 16 hours on this activity. Furthermore, 33.1% of respondents have reported utilizing real money in online games, which has led to 2.8% of respondents exhibiting a high risk for gambling-related pathologies. Furthermore, social media challenges have emerged as a contentious issue, with 32.5% of students engaging in these activities, including 7.8% who have engaged in life-threatening behaviors and 6.8% who have performed self-harming acts. The phenomenon of sexting, defined as the distribution of sexual images or videos without consent, poses additional risks, with 11.3% of students voluntarily sharing intimate content and 8% having had their intimate content shared without consent, underscoring grave privacy and safety concerns.

Multi-Level Intervention and Prevention Strategies

The collective research end in several key recommendations for addressing smartphone addiction in Italy, these include: gradually reducing usage time through app-based monitoring; implementing structured daily limitations especially during bedtime; maintaining physical distance from devices during critical activities; developing alternative hobbies and non-digital skills and seeking professional help when self-control measures fail. Future research priorities should focus on conducting larger-scale treatment effectiveness studies, evaluating prevention programs longitudinally, and addressing emerging challenges posed by rapidly evolving technology. Success will ultimately depend on balancing technology's essential role in modern society with promoting healthy usage patterns through evidence-based practices and coordinated responses across stakeholder groups including educators, healthcare providers, families, and policymakers.



Technology and Smartphone Addiction in Italy: A Sociocultural Perspective



Technology and Smartphone Addiction in Italy: A Sociocultural Perspective

The widespread use of smartphones and the internet has transformed daily life but it has also given rise to a growing concern: **technology addiction**. This phenomenon, often referred to as **Internet Addiction Disorder (IAD)**, includes behaviors such as compulsive social media use, online gaming, excessive shopping, and other virtual interactions. Rooted in a combination of physical, psychological, and social factors, technology addiction often intersects with social isolation, mental health issues like anxiety and depression, creating a cycle of dependency that in some cases can disrupt daily life and interpersonal relationships. Since the 2010s, smartphones have become the primary means of internet access for adolescents and young adults in industrialized nations, including Italy. This shift has sparked debate about the risks and benefits of early and frequent smartphone use: while some academic researchers highlight concerns such as, others emphasize the learning opportunities these devices provide.

In **Italy**, where nearly **50 million** individuals use the internet daily and smartphone ownership exceeds the national population, the societal implications of technology addiction are particularly significant. **Adolescents and young adults** are affected, often with compulsive gaming and social media use being the most common forms of addiction. Italian studies underscore the growing prevalence of smartphone addiction, especially among **13-to-18-year-olds**, whose pathological usage patterns have been exacerbated by the **COVID-19 pandemic**. During this period, much of the youth's social interaction shifted to digital platforms, further fostering dependency on electronic devices and revealed an increase in smartphone dependency across all age groups and gender. While policymakers and educators recognize the dual nature of smartphones as both educational tools and potential sources of harm, fostering a joint effort to address their adverse effects is a complex task. The multifaceted nature of the issue, which affects **psychological, physical, cognitive, and social dimensions, requires collaboration between schools, healthcare institutions, and government agencies**. Yet, the differing priorities and approaches of these entities made it difficult to implement a coordinated strategy particularly for vulnerable groups such as adolescents and young adults.



The EU is placing more responsibility on digital platforms to protect children from online addiction and requiring the creation of safe, appropriate content.



1.EU and Online Addiction Among Children in the Landmark Digital Services Act

The European Union is taking a firm stand against the growing problem of online addiction among children. This landmark legislation places significant responsibility on online platforms to protect young users from the dangers of excessive internet and smartphone use. The Digital Services Act (DSA) recognizes the urgency of this issue, explicitly stating in the Regulation (EU) 2022/2065 that **"The protection of minors is an important policy objective of the Union."** This sets the stage for a comprehensive approach to online safety.

A core principle of the **DSA** is the obligation of online platforms accessible to minors to ensure a high level of privacy, safety, and security. This directly addresses the need for platforms to design online environments with children's well-being in mind. **Article 28(1) "Online protection of minors"** of the Regulation mandates this protection, requiring platforms to prioritize the safety of young users. This means platforms can no longer ignore design features or content that can contribute to addictive behaviors in children and young. Furthermore, **Article 28(2)** of the Regulation strengthens this commitment by requiring platforms to take **"appropriate and proportionate measures"** to protect minors. This provision is crucial in the context of online addiction. It compels platforms to actively mitigate the risks associated with excessive screen time and exposure to potentially harmful content.

The DSA also emphasizes the need for platforms to consider the specific needs of children when designing their services. **Article 38** of the Regulation highlights this requirement, underscoring the importance of tailoring online experiences to children's level of understanding and susceptibility to addictive design. This means platforms must create **Apps and online spaces** that are safe and appropriate for young users, moving beyond a one-size-fits-all approach. A first example of application of DSA is the launch of a formal proceedings under the Digital Services Act (DSA) against the **Tik-Tok App**, over concerns about child safety and online addiction. The EU is investigating whether TikTok has adequately addressed systemic risks, particularly those related to addictive design, exposure to harmful content, data privacy for minors and if sufficient parental controls are in place.

2.Data Protection and Parental Control: Key Elements of Italy's New Online Child Safety Law

Italy has taken a significant step in protecting children online with the introduction of **Decree-Law n. 123 of September 15, 2023**. This legislation addresses the urgent need to combat youth issues, educational gaps, and juvenile crime, with a strong focus on enhancing online safety for minors. The decree aims to create a safer digital environment by tackling issues ranging from access to harmful content to the misuse of personal data. A key development is the designation of **AGCOM**, the Italian Communications Authority, as the Digital Services Coordinator. This move aligns with the **EU's Digital Services Act (DSA)**, giving AGCOM the crucial role of ensuring the regulation's effective implementation and, importantly, safeguarding children from online dangers, particularly exposure to pornography. Italy notably expedited this appointment, ahead of the EU's deadline.

At the heart of the decree is the strengthening of parental control measures. Following the implementation of **delibera n. 9/23/CONS** by AGCOM, Internet Service Providers (ISPs) have been required since **November 21, 2023**, to provide comprehensive parental control systems. These systems allow parents or guardians to manage their children's access to online content and screen time across various devices, including smartphones, computers, tablets, gaming consoles, and internet-connected home appliances. **The controls specifically target and restrict access to several categories of harmful content, including adult content, anonymizers, gambling and betting, violence, weapons, cults, hate speech, discrimination, and content promoting health-damaging practices.** ISPs have implemented these controls through two primary technical solutions: network filtering using **DNS (Domain Name System)** and dedicated applications installed on browsing devices.

The decree places obligations on both device manufacturers and service providers. Manufacturers must ensure their operating systems support parental control apps. Telecommunication companies are required to provide these apps free of charge and proactively inform users about their availability and importance, using clear instructions on devices. These services are pre-activated in contracts, particularly for accounts registered to minors, offering a baseline level of protection that can only be deactivated by the account holder. Critically, the decree prohibits the use of data collected through parental control apps for **commercial purposes**, like targeted advertising or profiling. This protects **children's privacy** and prevents their data from being exploited.

Smartphones in schools during the first cycle of education and lower secondary school reinforcing the existing guidelines established in the **1998 Student Statute** and the **2007 ministerial circular no. 30**. This policy framework reflects growing concerns about the impact of smartphone use on educational outcomes and student well-being, but beyond enforcement, it acknowledges the need to go beyond simply banning smartphones, emphasizing digital and media literacy as crucial for students' long-term success in a digital world.

In essence, this comprehensive legislation and its subsequent implementation represent a significant commitment from Italy to creating a safer online world for children. By bolstering parental control tools, regulating digital service providers, and promoting digital literacy, while maintaining strict enforcement through AGCOM, Italy aims to tackle the complex challenges of **online child safety** head-on. The success of this initiative will depend on careful implementation, ongoing monitoring, and close collaboration among all stakeholders.

“Italy aims to tackle the complex challenges of online child safety head-on by bolstering parental control tools, regulating digital service providers, and promoting digital literacy.”

Most important recent researches on Smartphone and tech Addiction in the Italian context

Most important recent researches on Smartphone and tech Addiction in the Italian context

3.The EURES Research

A report on Smartphone Addiction engaging over 1,600 Italian students

EURES - Ricerche Economiche e Sociali is an **Italian research institute** involved in the promotion and implementation of study, training and applied analysis activities in the **economic, social** and **cultural** fields. The technical-scientific activity of EURES is divided into three large areas of intervention. The area, **“Society, culture and public opinion”**, aims to study specific social phenomena and behaviors through the implementation of national and local sample surveys, using a national network of expert observers in face-to-face or telephone interviews. In this area, particular attention is paid to issues concerning the transformations and new phenomenologies of violence, deviance and social control, the new paths of exclusion and social fragility, the relationships and manifestations of power in social relations, mass communications and new technologies.

The report addresses the growing concern of **smartphone addiction**, particularly among adolescents aged **13-18** years. This issue has been significantly exacerbated by the COVID-19 pandemic, which increased reliance on digital devices due to social distancing measures and remote learning. With an **87.3% of Italian youth (11-17 years)** using phones daily, this represents a major social emergency. The cited scientific community's research has revealed several important insights into this phenomenon. First, smartphone addiction manifests behavioral patterns remarkably similar to substance addictions. Users experience an intense pleasure from phone use, find their thoughts dominated by their devices, and develop increasing tolerance, requiring more usage to achieve satisfaction. They also show clear signs of withdrawal when separated from their phones and continue using them despite obvious **negative impacts** on their daily lives. The neurobiological impact is equally concerning. Brain imaging studies have shown that excessive smartphone use actually changes the structure and function of brain regions responsible for decision-making, emotional processing, and cognitive control. Particularly noteworthy is the effect on the dopamine system - the brain's reward pathway - which shows alterations similar to those seen in drug addiction. Gaming, specifically, has been shown to activate the same neural circuits as drugs and alcohol.

From a **psychological** and **social perspective**, smartphone addiction rarely exists in isolation. Research has found strong connections with various **mental health issues**, including mood disorders, anxiety, and attention deficit disorders. Certain personality traits, such as impulsivity and sensation-seeking, appear to increase vulnerability to this addiction. Interestingly, researchers have identified two main categories of affected individuals: those who had pre-existing psychological issues and those who developed the addiction independently. The impact on communication patterns has been profound. Traditional face-to-face interaction is being disrupted, and new **pathological behaviors** are emerging. These include for example **nomophobia** (the fear of being without one's phone), phubbing (the habit of ignoring others in favor of one's phone), and vamping (the compulsion to use phones during nighttime hours). These patterns suggest fundamental changes in how people, especially young people, relate to both their devices and each other.

Research has found strong connections with various mental health issues, including mood disorders, anxiety, and attention deficit disorders.



The study was structured as a comprehensive investigation conducted by EURES in collaboration with the **Lazio Region** and the **Italian Ministry of Labor and Social Policies**. The research focused on **high school students** in Rome, involving **six secondary institutions** (three technical/professional institutes and three high schools) across multiple locations, engaging over **1,600 students** from **108 classes**. It achieved a remarkably balanced sample in terms of **gender representation**, with an equal split between male and female participants and it was particularly valuable as it allowed researchers to make meaningful comparisons across **gender lines** and identify **gender-specific patterns** in smartphone usage and addiction risks. The educational backgrounds of participants reflected a diverse cross-section of **Italian secondary education**. Just over half of the students (**52.2%**) were enrolled in traditional **high schools (Licei)**, while the remainder (**47.8%**) attended technical or professional institutes. This distribution helped researchers understand how different educational environments and academic focuses might influence smartphone usage patterns. In terms of age distribution, the study had a strategic focus on younger adolescents, with more than two-thirds of participants (**68.6%**) coming from the first two years of secondary school (ages 14-15). This emphasis on younger students was intentional, as these years often represent a critical period in smartphone adoption and usage patterns. The remaining **31.4%** were older students from the final three years.

Looking at **academic progression**, the vast majority of participants (**84%**) were advancing through their studies at the expected pace. Interestingly, the study found equal proportions of students at opposite ends of the academic spectrum: **8%** were repeating years, while another **8%** were academically advanced and ahead of their typical grade level. This distribution allowed researchers to explore potential correlations between **academic performance** and **smartphone usage patterns**. The study also collected important information about students' extracurricular activities and family situations. About **65.2%** of students regularly practiced **sports**, **16.5%** studied **music**, and **14.5%** studied **foreign languages** outside school. However, a significant **17.6%** reported **no extracurricular activities** at all, with this percentage rising to **20%** among female students. Regarding **family structure**, **75%** of respondents lived in "traditional" families with both natural parents, while **20.9%** lived with a single parent (due to separation/divorce or death), and **3.3%** lived in blended families.

The average number of children per family was 2.1, with 21% being only children, 36% youngest children, 33% firstborn, and 10% middle children. This comprehensive sampling and detailed demographic information allowed researchers to analyze potential correlations between various social, family, and personal factors and smartphone addiction risk. The broad representation across different school types and socio-demographic backgrounds provided a good foundation for understanding smartphone usage patterns and addiction risks among adolescents.

Smartphone Addiction, Social Media Usage and Risk Behaviors

The research employed validated indicators from scientific literature, including the Korean "**Smartphone Addiction Scale Short (SAS)**" psychological test, to assess addiction levels among students. The study reveals distinct gender and age patterns in smartphone usage. **Female students** show higher usage rates across multiple activities, with **91.5%** primarily using smartphones for **music** listening compared to **84%** of **males**. They also demonstrate higher rates for news consumption (**45.3%**) and **watching TV series (34.2%)**.

Regarding social media preferences, **Instagram** and **WhatsApp** dominate with **90.1%** and **87.1%** active accounts respectively, while traditional platforms like **Facebook (16.8%)** and **Twitter (12.1%)** show significantly lower usage. **TikTok** has emerged as a major platform with **55.8%** of users, followed by **YouTube** at **42.3%**.

The addiction assessment revealed that 21.8% of respondents show high dependency, 59.6% demonstrate moderate dependency, and 18.6% show no significant dependency. The most prevalent behavior is pre-sleep phone checking (77%), followed by acknowledgment of excessive use (72.2%). Notably, 66.9% of respondents recognize the negative effects of smartphone use yet continue excessive usage, while 66.2% admit to using their devices longer than intended. Morning routines are significantly impacted, with 63.9% checking their smartphones as their first daily action.

“**Notably, 66.9% of respondents recognize the negative effects of smartphone use yet continue excessive usage, while 66.2% admit to using their devices longer than intended.**”

Several risk factors for high dependency were identified. **Early smartphone adoption** shows a clear correlation, with **30.1%** of those who received phones before age 10 showing **high risk**, compared to **12.7%** for those who got them after age 13. Gender differences are substantial, with **29.7%** of **females** showing high dependency versus **13.8%** of **males**. Daily usage patterns significantly impact dependency levels: **36.8%** of those using phones more than 8 hours daily show high dependency, compared to just **8.7%** among those using less than 4 hours.

More severe indicators of **addiction emerged: 42.3% report failed attempts** to reduce usage, **36.7%** cannot resist usage impulses, and **27.7%** experience discomfort when separated from their device. The impact extends to daily life, with **18.4%** reporting negative effects on social relationships or academic performance. Concerningly, **12.9%** admit to using smartphones in risky situations, and **8.7%** report chronic **physical or psychological problems** due to excessive use. Academic performance shows a strong correlation with addiction levels. Students with poor academic performance demonstrate higher addiction rates (**27.3%**) compared to those with excellent performance (**19.5%**). This pattern extends to students who have repeated school years, showing a **25%** high dependency rate compared to **21.5%** among regular students. The lack of extracurricular activities also correlates with higher addiction rates (29.4% versus 19.8% for those with activities). Despite these concerning trends, the study notes that traditional **face-to-face communication** remains preferred for important personal interactions, with over **60%** of respondents choosing in-person communication for significant social exchanges.

There is a significant level of **awareness** among young people regarding **smartphone addiction risks**. According to the study, 43.9% of respondents consider it a "**real emergency among new generations**," while 39.8% acknowledge its existence but don't view it as an emergency. Only 16.3% minimize or deny the phenomenon, with 12.2% believing media coverage exaggerates the issue and 4.1% considering it nonexistent. **Gender analysis** shows notable differences in perception, with **54.3%** of **female** respondents viewing smartphone addiction as a serious emergency compared to **32.7%** of **male** respondents. Academic context also influences perception: **48.3%** of **high school students** consider it an emergency versus 38.7% of technical/professional school students. Notably, 54.3% of respondents who demonstrate high dependency themselves recognize it as a **social emergency**. While scientific research suggests limiting usage to two hours daily during developmental years, respondents consider over 4 hours "appropriate" and only deemed usage "excessive" beyond 9 hours. This perception varies significantly based on current usage patterns. Moderate users (less than 4 hours daily) consider 2 hours and 49 minutes appropriate, while heavy users (8+ hours daily) consider 5 hours and 48 minutes appropriate and only view usage as excessive beyond 12 hours and 18 minutes.

Peer influence analysis reveals that within respondents' close friend groups, an average of 4.7 out of 10 friends use smartphones for an "**appropriate**" duration, while 5.3 use them "**excessively**." This distribution shows significant **gender variation**, with **57%** of female respondents' friend groups showing "excessive" use compared to a more balanced distribution among male respondents' friends. Regarding motivations for excessive use, the primary reason cited is **boredom (46.9%)**, followed by the desire to feel part of a group and be accepted (**22.5%**), and inability to do without the device (**18.2%**). Less common motivations include maintaining online visibility (**6.7%**) and lack of parental control (**5.6%**). Gender differences emerge here as well, with females more likely to cite group acceptance as a motivation (**25.4%** versus **19.3%** for males), while males more frequently mention lack of parental control (**8.3%** versus **3.2%** for females).





Academic performance shows a strong correlation with addiction levels. Students with poor academic performance demonstrate higher addiction rates (27.3%) compared to those with excellent performance (19.5%).



School and Institutional support

There is strong support for **school involvement** in smartphone education, with **85%** of respondents believing schools should play a role in teaching appropriate smartphone use and associated risks. Specifically, **62.1%** view this as a fundamental educational responsibility of schools, while **21.9%** believe schools should intervene only in **serious situations**. A minority (**15%**) oppose school involvement, with **9.5%** saying it's not within schools' institutional duties and **5.5%** believing schools lack the necessary **expertise**. Regarding implementation, the study found that two-thirds of surveyed classes (**66.7%**) received some form of smartphone-related education, while **33.3%** reported no exposure to such programs. The delivery methods varied: **31.5%** received instruction from external experts, **22.7%** from their teachers, and **12.5%** through informational materials. This aligns with national guidelines stemming from Law 71/2017, which mandates schools to implement educational programs about cyberbullying prevention and appropriate internet use, often in collaboration with local socio-educational services and through media campaigns.





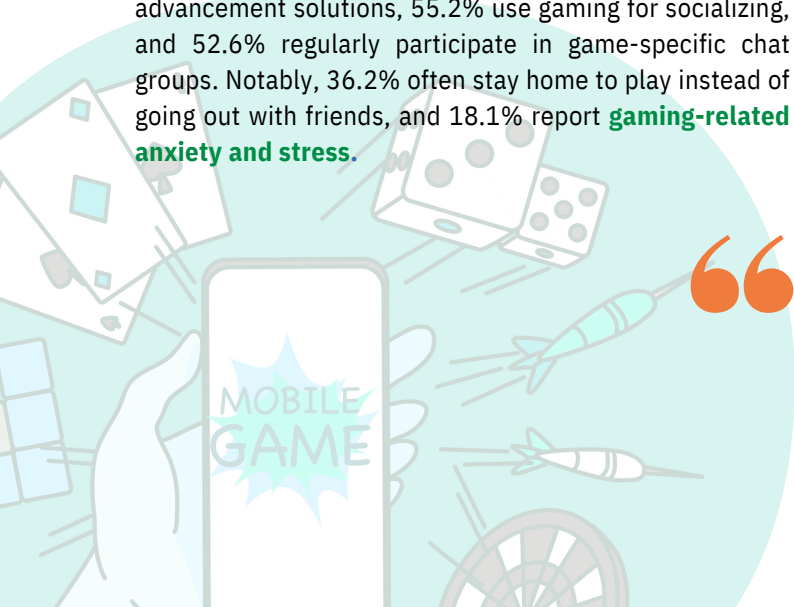
Online Gaming

The research provides an in-depth analysis of **online gaming** and **gambling behaviors** among youth, highlighting significant concerns about the increasing **accessibility** of both gaming and gambling through smartphones. According to the study, young people spend an average of **16 hours per week** (2 hours and 17 minutes daily) on online gaming. The data shows that while 35% of respondents don't play online games and **21.6%** play less than an hour daily, approximately half of the young people surveyed fall into a **potential risk category**: 17.2% play 1-2 hours daily, 12% play 2-3 hours, 6.7% play 3-4 hours, and 7.5% play more than **4 hours daily**. **Gender analysis** reveals significant differences in gaming behavior, with males showing substantially higher engagement: over 25% of male respondents spend more than 3 hours daily gaming (12.4% playing 3-4 hours and 13% playing 4+ hours), compared to just 3.8% of females. Educational context also influences gaming patterns, with **technical/professional school students** showing **higher risk behaviors** - 20.4% play more than 3 hours daily compared to 8.8% of **high school students**. Among heavy gamers (4+ hours daily), strategy and role-playing games are most popular (59.5%), followed by shooter games (50%) and sports games (31.9%). More concerning is that 8.6% of these players engage in gambling or betting with real money. The study identified several risk behaviors among heavy gamers: 61.2% search for game advancement solutions, 55.2% use gaming for socializing, and 52.6% regularly participate in game-specific chat groups. Notably, 36.2% often stay home to play instead of going out with friends, and 18.1% report **gaming-related anxiety and stress**.

Regarding real-money gaming, 33.1% of respondents admit to having used real money in online games over the past three years - 13.1% on a single occasion and 20% multiple times. The gender disparity is stark: 57.3% of males have spent real money on online games compared to 10.4% of females. Among those who spend money on gaming, 74.6% use it exclusively for video game purchases, 8% solely for gambling/betting, and 17.4% for both. The study developed a three-tier risk assessment for gambling behavior among those who use real money in gaming: 68% show no pathological behaviors, 23% demonstrate moderate risk behaviors, and 9% (representing 2.8% of the total youth sample) show high risk for developing gambling-related pathologies. When projected onto the Italian youth population (ages 14-18), this suggests approximately 80,000 young people at high risk for gambling addiction and 205,000 at moderate risk. Spending patterns reveal that most young gamers spend modest amounts, with 67.8% spending less than €10 monthly on video games and 17.8% on betting/gambling. However, concerning behaviors emerge: 10.7% have borrowed money or sold items to fund gaming, 9.8% feel compelled to bet increasing amounts, and 5% either gamble more than they can afford to lose or hide their gambling losses.

Parental awareness varies significantly: **57.2%** of young people who spend money on gaming say their parents are aware (53.3% informed directly by the youth), while **36.1%** say their parents are unaware. The primary motivation for spending money on gaming is enjoyment (**75.1%**), followed by peer influence (9%), and escapism from daily problems (5.6%). Notably, 22.1% cannot articulate their motivation for spending money on gaming, suggesting a lack of awareness about potential risks.

The study developed a three-tier risk assessment for gambling behavior among those who use real money in gaming: 68% show no pathological behaviors, 23% demonstrate moderate risk behaviors, and 9% (representing 2.8% of the total youth sample) show high risk for developing gambling-related pathologies.





Social Challenges (Challenges)

The phenomenon of **social media challenges** emerged as a significant aspect of **youth digital culture**, with **32.5%** of students actively participating in these challenges. While the majority of 14 these activities appeared harmless on the surface - such as posting dancing videos or funny content (**74.1%**) - the study uncovered a darker underbelly to this trend. A concerning portion of students engaged in potentially **dangerous challenges: 16.6%** participated in taking "extreme selfies," which often involve dangerous locations or situations; 8% posted intimate content as part of challenges; and most alarmingly, 7.8% admitted to engaging in life-threatening activities for these challenges. Perhaps most disturbing was the finding that 6.8% performed self-harming acts as part of social media challenges. The motivation behind participation in these challenges revealed complex **social dynamics**. While most students cited "**fun**" as their primary motivation, deeper analysis revealed that peer pressure and the desire for social acceptance played significant roles. Many participants reported feeling pressured to join challenges because "**everyone was doing it**" or to gain acceptance within their social groups. The study also found that students with higher levels of **smartphone dependency** were more likely to participate in risky challenges, suggesting a correlation between general smartphone addiction and engagement in dangerous social media behaviors. This in-depth examination of both gaming and challenge behaviors highlighted how seemingly innocent digital activities can evolve into risky behaviors, particularly when combined with peer pressure, the desire for social validation, and the **addictive nature of digital platforms**.

Sexting

The research uncovered concerning patterns regarding **sexting** behaviors among **adolescents**. While 11.3% of students admitted to voluntarily sharing intimate content, a **gender difference emerged** with **males (14.2%)** more likely to engage in this behavior than **females (8.6%)**. However, these percentages likely underestimate the full scope of the phenomenon, as many students might have been reluctant to report such personal behaviors. The study revealed a troubling **cascade effect** in how intimate content spreads: while **85%** of students had received intimate photos or videos from others, nearly half (**47.9%**) had received intimate content of third parties - suggesting how quickly private content can become public in digital spaces. Most disturbingly, **8%** of students reported having their intimate content shared without their consent, highlighting the potential for serious privacy violations and emotional harm.

The motivations behind sexting revealed complex psychological and social factors. While many participants cited "**fun**" or "**entertainment**" as their primary motivation, deeper analysis revealed more concerning drivers. Female students, in particular, reported feeling unable to refuse requests for intimate content (**30.4%** compared to **12.8%** of males), suggesting troubling dynamics of pressure and compliance. The study also found that students with higher levels of smartphone dependency were more likely to engage in sexting, indicating a possible link between general smartphone addiction and risky online sexual behavior. The most concerning aspect was the apparent normalization of this behavior among youth, with many viewing it as a standard part of modern relationships, despite potential legal and personal consequences. This normalization, combined with low parental awareness (**only 11% of parents knew about their children's sexting activities**), creates a particularly vulnerable situation for adolescents.



Conflicts over smartphone use were common in many households, with nearly one-third of adolescents reporting frequent arguments with their parents about their phone usage.



Parental Awareness, Control, and Recommendations

The research revealed a complex dynamic between **parents** and **adolescents** regarding smartphone use. While parents play a crucial role in both providing access to smartphones and potentially controlling their use, the study found significant gaps in **parental oversight** and **awareness**. Interestingly, **40.6%** of young people received their first smartphone as an **unexpected gift** from family members, without having requested it, suggesting that parents might be inadvertently contributing to **early smartphone adoption**. The research indicates that young people typically receive their first smartphone at an average age of 10.9 years, with more than half (**54.2%**) acquiring it between ages 10-11, and **28.1%** between ages 12-13. Notably, **40.6%** receive it as an unexpected gift from family members, without having requested it, suggesting that parents might be inadvertently contributing to early smartphone adoption; while **52.8%** obtain it upon request, suggesting a complex dynamic in parental decision-making regarding digital access. Conflicts over smartphone use were common in many households, with nearly one-third of adolescents reporting frequent arguments with their parents about their phone usage. However, young people showed significant resistance to **parental control measures**.

Most teens opposed tracking their movements via smartphone (**49.4%** said this should "never" happen) or having parental controls installed (**44.9%** against). They were somewhat more accepting of time limits, with only **10.4%** completely opposing this measure. Despite this resistance to direct control, adolescents broadly acknowledged the educational role of both parents and schools in promoting healthy smartphone use. An overwhelming **91.9%** believed parents should inform and explain appropriate smartphone use to their children, though **27.7%** felt this should only happen in serious situations. Similarly, **85%** recognized schools' role in providing education about proper smartphone use and associated risks.



Study conclusions

The research, involving **1,600 students** across **six secondary institutions**, strategically focused on younger adolescents, with **68.6%** of participants aged 14-15 and **31.4%** aged 16-18. This age distribution was deliberately chosen to capture critical periods in smartphone usage patterns. The **21.8%** of respondents show **high smartphone dependency**, while **59.6%** demonstrate moderate dependency - a concerning total of **81.4%** showing some level of addiction. **Early smartphone adoption** (before age 10) correlates strongly with higher dependency risks (30.1% versus 12.7% for those who received phones after age 13). Gender differences are notable, with females showing significantly higher dependency rates (**29.7%**) compared to males (**13.8%**).

The research uncovered troubling **behavioral patterns**, with **77%** of students checking their phones before sleep and **63.9%** as their first daily action. More critically, **42.3%** report failed attempts to reduce usage, and **36.7%** cannot resist usage impulses. The study also revealed strong correlations between smartphone addiction and academic performance, with struggling students showing higher addiction rates (27.3%) compared to high performers (19.5%).

Particularly concerning are the findings regarding **online gaming** and **sexting behaviors**. It was found that **33.1%** of respondents used real money in online games, with 2.8% of the total youth sample showing high risk for gambling-related pathologies. Regarding sexting, while **11.3%** admitted to sharing intimate content voluntarily, 8% reported having their intimate content shared without consent, highlighting serious privacy risks.

The research culminated in ten key recommendations that emerged from the students themselves:

- Gradually reduce smartphone usage time
- Utilize apps to limit phone use
- Restrict usage to specific time periods
- Turn off phones at bedtime
- Maintain physical distance from the phone
- Silence the phone during social interactions
- Turn off or silence phones during homework
- Cultivate other hobbies and interests
- Find alternative ways to accomplish tasks typically done on phones
- Seek help when unable to control usage

Smartphone addiction among these **Italian high school students** closely mirrors patterns of substance dependency, requiring interventions through coordinated efforts from parents, educators, and policymakers. The study's findings suggest that early prevention strategies, particularly around the age of first smartphone acquisition (average 11-12 years), could be crucial in mitigating these risks during the critical adolescent years.



4. ISS – Istituto Superiore di Sanità: A Report on Internet Addiction Disorder

Internet addiction has emerged as a significant focus of scientific inquiry in recent years, garnering increasing attention from **researchers and clinicians** worldwide. This comprehensive analysis synthesizes current knowledge regarding Internet addiction and related phenomena, drawing from both academic literature and **clinical experience**. The synthesis incorporates findings from the "**Rete senza fili. Salute e Internet Addiction Disorder (IAD)**" project, conducted under the auspices of the **Italian Ministry of Health's 2018 CCM** program. Despite the absence of consistent diagnostic criteria, substantial research has examined Internet addiction prevalence across populations.

Studies indicate prevalence rates ranging from **0.3% to 38%** in the general population, though this wide variation likely reflects methodological differences and cultural factors rather than true prevalence disparities.

In the Italian context, recent data from the **ESPAD** study (2021) examining youth aged 15–19 revealed significant patterns of digital engagement:

- **64%** of participants reported playing video games at least once in the previous year (84% among males, 44% among females)
- **53%** used social media for more than two hours daily (44% males, 62% females)

These findings underscore the complex nature of Internet addiction and its varied manifestations across different populations and cultural contexts.



Theoretical Frameworks

The complexity of Internet addiction has spawned several **theoretical frameworks**, each offering unique perspectives on the phenomenon's nature, development, and maintenance. **Young's model**, developed from **DSM-IV gambling** addiction criteria, represents one of the most widely adopted frameworks. This approach conceptualizes Internet addiction as an umbrella term encompassing various behaviors and impulse control problems, including cyber-relational addiction, information overload, cybersexual addiction, net compulsion, and computer gaming addiction.

Suler's theoretical framework, based on needs denial, examines Internet use, abuse, and addiction through **eight critical factors**, including need satisfaction spectrum, underlying deprivation level, and impact on **real-life functioning**. This model emphasizes the importance of understanding how Internet use satisfies various **psychological** and **social** needs while potentially leading to problematic patterns of engagement.

Cooper's model, originally developed for understanding Internet sexuality, identifies three primary factors known as the "**Triple-A Engine**": **Access, Affordability, and Anonymity**. This framework was later adapted by Young into the **ACE Model** (Anonymity, Convenience, Escape), specifically addressing cybersexual dependency while maintaining similar theoretical underpinnings.

Davis's cognitive-behavioral model introduces a sophisticated framework distinguishing between **Specific Pathological Internet Use (SPIU)** and **Generalized Pathological Internet Use (GPIU)**. This model emphasizes the role of cognitive distortions in maintaining problematic Internet use, categorizing these distortions into self-focused and world-focused thoughts.

“

"Young's model conceptualizes Internet addiction as an umbrella term encompassing various behaviors and impulse control problems"

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Interface Between Internet Addiction and Substance Use Disorders

The relationship between Internet addiction and **substance use disorders (SUDs)** is characterized by a complex interplay of shared characteristics and distinct features, offering valuable insights for both **theoretical** understanding and **clinical** practice. While these conditions share several fundamental characteristics, their differences illuminate important considerations for assessment, treatment, and prevention strategies.

The commonalities between **Internet addiction and SUDs** manifest primarily in behavioral patterns and **neurobiological mechanisms**. Both conditions exhibit hallmark features of addiction, including loss of control over the behavior, development of tolerance, and the presence of withdrawal phenomena. Individuals with either condition typically exhibit compulsive engagement in their respective behaviors, make repeated failed attempts at cessation, and continue use despite adverse consequences. A notable parallel exists in the activation of **dopamine reward systems** and alterations in executive control mechanisms. These shared neural adaptations imply the existence of common pathways in the development and maintenance of both types of addiction.

However, there are crucial differences that demand careful consideration in clinical practice. Unlike substance use disorders, Internet addiction does not involve the direct introduction of psychoactive substances into the body, resulting in fundamentally different **physiological mechanisms of action** and withdrawal patterns. Perhaps most significantly, while complete abstinence often represents a viable therapeutic goal in substance use treatment, the pervasive nature of Internet technology in modern society necessitates a more nuanced approach to **Internet addiction treatment**. The integration of Internet use into various facets of daily life, including work, education, and social interaction, underscores the necessity for treatment approaches that emphasize the cultivation of healthy usage patterns rather than merely the cessation of problematic behaviors.

Treatment Approaches and Interventions

The treatment of Internet addiction necessitates a sophisticated, **multi-modal approach** that addresses both the complexity of the condition and the practical challenges of managing technology use in contemporary life. **Cognitive-Behavioral Therapy (CBT)** has emerged as one of the most thoroughly researched and promising approaches, offering a structured framework for addressing both cognitive distortions and behavioral patterns associated with problematic Internet use.

The CBT approach to Internet addiction is predicated on three primary components: **cognitive restructuring**, **behavioral modification**, and **social skills development**. The cognitive restructuring component of CBT involves the identification and challenge of distorted thinking patterns that perpetuate problematic Internet use. **Behavioral interventions** incorporate practical strategies such as time management training, activity scheduling, and stimulus control techniques. The social skills training component is particularly noteworthy in its emphasis on the frequent correlation between Internet addiction and difficulties in face-to-face communication. This component helps individuals develop more effective offline relationship skills.

Pharmacological interventions, while not typically used as standalone treatments, can play an important supportive role, particularly in addressing co-morbidity conditions. Antidepressants, particularly SSRIs, have shown utility in managing underlying anxiety and depression, while mood stabilizers may help regulate emotional volatility and enhance impulse control. **Anti-anxiety medications** may provide short-term support during acute withdrawal phases or crisis situations.

“
The treatment of Internet addiction necessitates a sophisticated, multi-modal approach that addresses both the complexity of the condition and the practical challenges of managing technology use in contemporary life.
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Prevention Strategies and Public Health Approaches

The **prevention of Internet addiction** necessitates a comprehensive, **multi-level approach** that addresses various risk factors while promoting healthy technology use patterns across different societal contexts. The intricacy of this issue necessitates meticulously designed interventions that operate concurrently at universal, selective, and indicated prevention levels, while taking into account the complex interplay among individual, family, and societal factors.

Universal prevention efforts, particularly those implemented in educational settings, serve as the foundational element of broad-based prevention strategies. **School-based programs** have emerged as pivotal conduits for imparting **digital citizenship education and media literacy** training. These programs are designed to integrate critical thinking enhancement with the development of life skills, with the aim of helping students cultivate healthy relationships with technology from an early age. **Community-based interventions**, in the form of public awareness campaigns and parent education programs, serve to reinforce the efforts of educational initiatives, thereby cultivating an environment conducive to the promotion of healthy technology use patterns.

Selective prevention strategies are employed to target populations that are identified as having elevated risk factors for Internet addiction. These approaches prioritize the identification and intervention of vulnerable groups, implementing targeted programs that address specific risk factors. **Environmental modifications** play a crucial role in these efforts, including the development of school policies and workplace guidelines that promote balanced technology use. Enhanced support systems and the development of community resources serve to fortify these targeted interventions, thereby establishing a comprehensive safety net for individuals at risk.

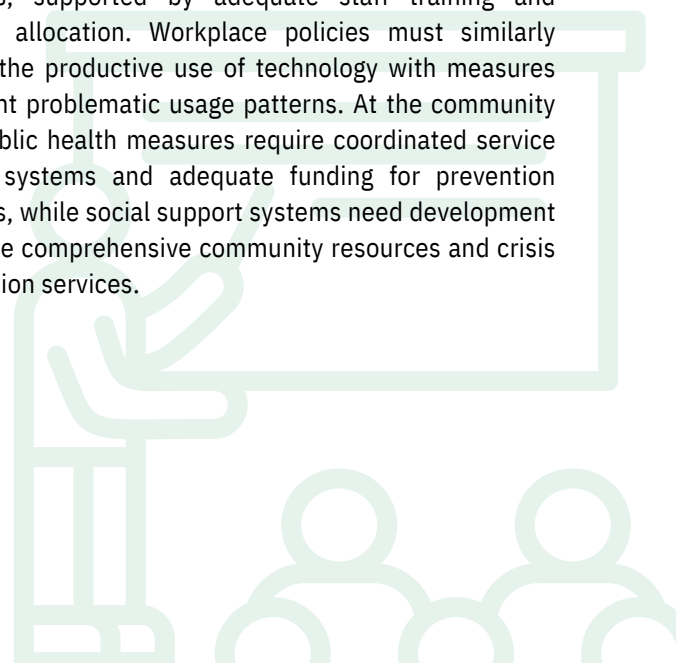
Indicated prevention, focusing on individuals showing early signs of problematic Internet use, requires more intensive and personalized approaches. These interventions typically combine individual counseling with **family support services**, providing **specialized guidance** tailored to specific **manifestation patterns**. Clinical prevention protocols, including regular screening and risk assessment procedures, help identify and address emerging problems before they develop into full-blown addiction. The establishment of clear treatment pathways and referral systems ensures that individuals requiring more intensive intervention receive appropriate care in a timely manner.

Implementation strategies across these prevention levels require careful consideration of various contextual factors. In educational settings, successful implementation depends on **effective integration of prevention content** into existing curricula, comprehensive teacher training programs, and active engagement of both students and parents. Higher education institutions face unique challenges in implementation, requiring specialized approaches that address the particular needs and circumstances of young adult populations.

Pharmacological interventions, while not typically used as standalone treatments, can play an important supportive role, particularly in addressing co-morbidity conditions. **Antidepressants**, particularly **SSRIs**, have shown utility in managing underlying anxiety and depression, while mood stabilizers may help regulate emotional volatility and enhance impulse control. Anti-anxiety medications may provide short-term support during acute withdrawal phases or crisis situations.

Family-based approaches represent another crucial dimension of prevention efforts. These strategies typically encompass both parent education and family support components. **Parent education programs** focus on developing digital literacy skills, enhancing communication capabilities, and establishing effective monitoring strategies. **Family support services** provide resources and guidance for managing technology-related challenges, while also offering crisis intervention when needed.

Policy recommendations at both institutional and community levels play a vital role in supporting prevention efforts. **Educational institutions** require clear technology use guidelines and comprehensive digital wellness programs, supported by adequate staff training and resource allocation. Workplace policies must similarly balance the productive use of technology with measures to prevent problematic usage patterns. At the community level, public health measures require coordinated service delivery systems and adequate funding for prevention programs, while social support systems need development to provide comprehensive community resources and crisis intervention services.



Conclusions and Future Directions

The current state of Internet addiction research and treatment reveals both significant progress and critical gaps requiring attention. **Three critical gaps** emerge from current research and practice. First, **diagnostic consistency remains a significant challenge**, with varying assessment approaches and a lack of standardized criteria hampering both research efforts and clinical practice. Second, **treatment evidence shows limitations in long-term outcome data and intervention effectiveness** studies, necessitating more rigorous evaluation of existing therapeutic approaches. Third, **prevention research requires** more systematic approaches and evidence-based program development, particularly in light of the rapidly evolving digital landscape.

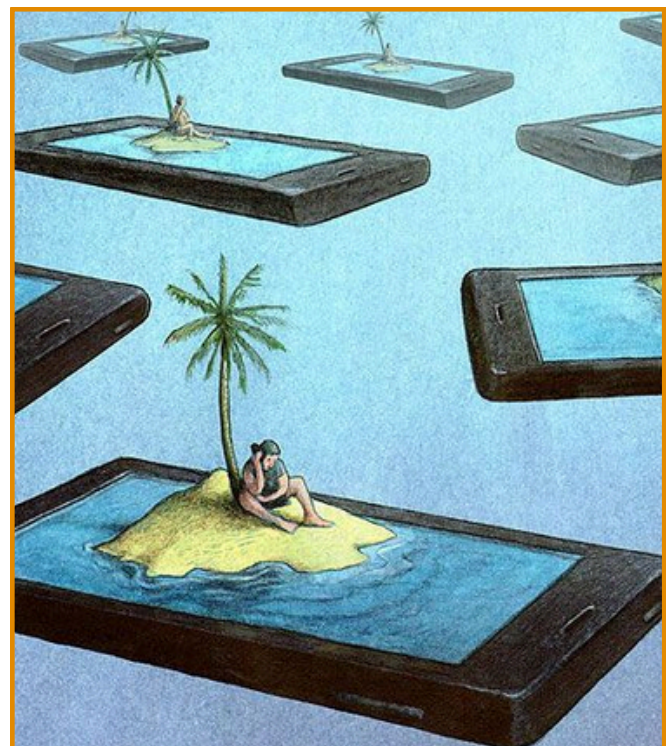
Clinical practice recommendations emphasize the need for comprehensive assessment protocols that consider both direct manifestations of Internet addiction and potential co-morbidity conditions. The implementation of multiple assessment tools, considering developmental factors particularly for younger populations, becomes crucial for accurate diagnosis and treatment planning. Treatment approaches should integrate various modalities, customizing interventions to individual needs while maintaining strong **family involvement** and consistent outcome monitoring.

Policy development requires attention at three primary levels. **Healthcare systems** need to establish specialized treatment services supported by clear clinical guidelines and adequate resource allocation. **Educational institutions** must implement comprehensive prevention programs while developing and enforcing appropriate usage policies. Public health initiatives should focus on **awareness campaigns** and **the establishment** of monitoring systems that can track both prevalence and intervention effectiveness.

Future research priorities should address several key areas. The development of standardized diagnostic criteria remains paramount, as does the need for larger-scale **treatment effectiveness** studies. Prevention program evaluation requires particular attention, with emphasis on longitudinal designs and standardized outcome measures. Methodological improvements should focus on increasing sample sizes and implementing multi-site studies to enhance generalizability of findings.

Emerging challenges include the continuous evolution of technology platforms and applications, changing usage patterns, and novel risk factors requiring **innovative prevention approaches**. These challenges are compounded by broader social changes, including increasing **technology integration in daily life** and **evolving communication patterns** that may create new vulnerability factors for addiction. However, these challenges also present opportunities for innovation in several areas. Digital intervention tools and prevention technologies offer new possibilities for reaching affected individuals, while assessment applications may improve early identification and monitoring. The integration of **cross-disciplinary** approaches and **multi-stakeholder** collaboration provides promising avenues for addressing the complex nature of Internet addiction.

Success in addressing Internet addiction will ultimately depend on maintaining balance between recognizing **technology's essential role in modern society** and promoting healthy use patterns. This requires evidence-based practices, coordinated responses across stakeholder groups, and adequate resource allocation for both treatment and prevention efforts. The way forward demands approaches that can adapt to rapid technological change while maintaining focus on supporting affected individuals and fostering community resilience.



Other Recent Italian Resarches

Other Recent Italian Researches

5. Child and Adolescent Neuropsychiatry research group at Bambino Gesù Pediatric Hospital in Rome

According to recent research of **2023**, presented by **Professor Stefano Vicari**, Ordinary Professor of Child Neuropsychiatry at the **Catholic University of Rome** and Head of **Child and Adolescent Neuropsychiatry** at the **Bambino Gesù Pediatric Hospital** in Rome, smartphone dependency among Italian youth has significantly increased following the COVID-19 pandemic. Findings reveal that 98% of Italian adolescents between 14 and 19 years old have owned a mobile phone since age 10, with **50%** spending between 3 to 6 hours daily on their devices. Of particular concern is the early exposure to these technologies, with **30%** of children having access to mobile devices before age 2. The pandemic, has exacerbated this situation, with isolation periods leading to increased device usage as the primary means of social interaction.

“*Findings reveal that 98% of Italian adolescents between 14 and 19 years old have owned a mobile phone since age 10, with 50% spending between 3 to 6 hours daily on their devices.*”

Behavioral patterns that characterize the Smartphone Addiction

The research identifies several concerning **behavioral patterns**: **10%** of adolescents engage in risky selfie-taking behavior that could lead to potential grooming situations, while **20%** participate in suspicious communication with unknown individuals. Sleep patterns are significantly affected, with **60%** of youth staying up late for online chatting. Perhaps most alarming is **Vicari's observation** that **90%** of young people use these technologies without any parental or adult supervision. He emphasizes that despite the growing concern, these disorders are not yet officially recognized as mental health conditions in their entirety.

While **Internet Gaming Disorder** has been included in the **DSM-5's third section**, it is still categorized as a condition requiring further research. However, the **World Health Organization (WHO)** has taken a step forward by including gaming disorder (both online and offline) in the 11th revision of the **International Classification of Diseases (ICD)**. The neurological basis for smartphone addiction, as explained by Vicari, shares remarkable similarities with substance dependencies. He identifies three critical elements that characterize this addiction:

- 1)** the phenomenon of "**craving**" - an sudden, uncontrollable urge to use the smartphone. Vicari emphasizes that this is not a casual comparison, as scientific research has demonstrated that the neural circuits involved in smartphone addiction are identical to those activated in substance dependencies, particularly affecting reward and pleasure pathways.
- 2)** **withdrawal symptoms** manifest as restlessness and both physical and psychological discomfort when unable to access the device for chatting or gaming.
- 3)** the development of tolerance, characterized by the progressive need to increase time spent on the device to achieve satisfaction.





The research emphasizes a structured approach to prevention and management.



Behavioral Indicators and Professional Guidance

Pediatricians play a crucial role in early detection, recommending that they incorporate screen time assessments into routine check-ups. This has become particularly important as the average age of problematic smartphone use has decreased since the **COVID-19 pandemic**, with reported cases doubling in frequency. For parents, he outlines several key warning signs that may indicate smartphone dependency. These include the inability to disconnect from the internet, strong adverse reactions when forced to do so, and denial about excessive usage. **Additional concerning behaviors** include a noticeable decline in other interests, social withdrawal, and the emergence of symptoms such as **apathy, depression, irritability, and general psychological distress** when unable to connect online.

Practical Recommendations and Prevention

The research emphasizes a structured approach to **prevention** and **management**. **Vicari** strongly recommends that **device exposure** should not begin before age three, and even then, it should always occur under **parental supervision**. He notes that neuropsychiatric risks begin to decrease only after age twelve, corresponding to the development of the **prefrontal cortex**, though addiction risks remain significant. The study concludes with specific **preventive measures**, including establishing **protected device-free hours** for the entire family, prohibiting electronic devices during meals and family activities, and maintaining clear, shared rules about device usage. Importantly, he recommends **avoiding internet-connected devices** in bedrooms and establishing a **one-hour device-free period before bedtime**. He emphasizes the importance of early digital education through dialogue, emotional guidance, and consistent rules to help young people develop critical thinking skills regarding internet use.



6. The side-effects of an early Smartphone use: the Digital Wellbeing - Schools project

Age of first smartphone and various outcomes

This report examines the relationship between the **age** at which adolescents receive their **first smartphone** and various outcomes measured later in their lives. The study is particularly relevant given that smartphones became the primary means of **internet access** for pre-teens and adolescents in many industrialized countries during the 2010s. The research emerges from ongoing debates about the potential dangers of **early smartphone use**, with some scholars highlighting risks of isolation, **neuro-psychological** issues, and decreased wellbeing, while others emphasize learning and relational opportunities.

The study was conducted in **2018** as part of the "**Digital Wellbeing - Schools**" project, co-funded by the **University of Milan-Bicocca and Fastweb S.p.A.** The research involved **3,600 students** from **18 secondary schools** in the **Milan and Monza-Brianza** provinces. The methodology included: questionnaires about the age of first smartphone acquisition, assessment of problematic smartphone use, life satisfaction measurements, digital competency testing, integration with standardized test results (**INVALSI**). The sample characteristics show that **98.8%** of respondents owned a smartphone, with a balanced gender distribution (**48.2% male, 41.7% female**). The majority of participants (**87.2%**) were native Italians, and most came from families with medium (**46.2%**) or high (**34.6%**) educational levels.

The research reveals interesting patterns in when adolescents receive their first smartphone. The majority of students received their first personal smartphone around age **11-12** (**28.7% at age 11 and 29.2% at age 12**). Early adoption, defined as receiving a smartphone before age 11, occurred in **21%** of cases (**13% at age 10 and 8.4% at age 9 or younger**). Late adoption, at age **13** or older, represented **20.6%** of the sample. Gender differences emerged in the timing of smartphone acquisition. Girls typically received smartphones earlier than boys, with **9.1%** of girls getting their first device at age 9 or younger, compared to **7.5%** of boys. Conversely, only **18%** of girls received their first smartphone at age **13** or later, compared to **23%** of boys.

A significant socio-educational pattern emerged: children from families with lower educational levels received smartphones earlier. Among parents with only **middle school education, 12%** gave smartphones to their children at age **9** or earlier, compared to **8%** for parents with **high school education** and **7%** for university-educated parents. This pattern aligns with previous research showing that families with fewer socio-cultural resources often prioritize expensive technology purchases. **School type** also correlated with smartphone acquisition age. Students in **vocational schools** received smartphones earliest (**11%** at age **9** or **younger**), followed by **technical institute students** (**9.8%**), while **lyceum students** received them latest (**6.8%**). However, across all school types, the peak acquisition age remained between 11 and 12 years.

School Performance

The study found a significant relationship between smartphone acquisition age and school performance at age **15-16**. Students who received smartphones after age **11** showed **better performance** in Italian language tests, with a difference of approximately 3.5 points on a normalized scale (0-100). To contextualize this difference, it represents about one-third of the typical performance gap between lyceum and technical school students. For mathematics, similar trends emerged, though the differences were less pronounced and statistically significant only between students who received smartphones at age **10** versus ages **11-12**.



Digital Competency

Paradoxically, earlier smartphone acquisition correlated with lower digital competency levels at age **15-16**. Students who received smartphones at age **11 or later** scored approximately 4 points higher on digital **competency tests** compared to those who received devices earlier. This finding challenges the common assumption that earlier exposure to digital devices naturally leads to better **digital skills**. The researchers suggest this might be due to early smartphone users developing more limited, routine-based usage patterns focused on basic functions rather than complex digital skills.

Active Web Usage

The study examined three types of **web usage**: educational purposes, creative content production, and social media engagement. Students who received smartphones at age **9 or earlier** showed significantly lower scores (by about 6 points) in educational web use compared to later adopters. Similarly, creative digital content production was higher among those who received smartphones later, with a nearly **10-point** difference between early (**age 9 or younger**) and later (**age 12**) adopters. Social media engagement showed comparable patterns.

Problematic Usage Patterns

The study revealed strong correlations between **early smartphone acquisition** and problematic usage patterns in adolescence. Using the "**Smartphone Pervasiveness Scale**," researchers found that students who received smartphones at age **11** or later showed significantly lower levels of pervasive use, scoring **7.6 to 10** points lower than those who received devices at age **9** or earlier. The relationship appears linear: the later the smartphone acquisition, the lower the pervasiveness of use. Similarly, when measuring smartphone dependency using the "**Smartphone Addiction Scale**" (**SPS-A**), early adopters showed higher risk levels. Students who received smartphones around age **9** scored an average of **34.7** points, approximately **8** points higher than those who received smartphones at age **13** or later. These findings align with international research showing negative correlations between age of first use and problematic smartphone behavior.

Well-being Outcomes

The **well-being** analysis produced more nuanced results. Overall life satisfaction showed no significant variation based on smartphone acquisition age. However, specific aspects of well-being demonstrated interesting patterns:

School satisfaction: While satisfaction with school performance showed no significant differences, satisfaction with overall school life was notably higher among later smartphone adopters. Students who received smartphones at age 13 or later reported satisfaction levels approximately 8 points higher than early adopters.

Social relationships: The findings regarding friendship satisfaction revealed a complex pattern. Students who received smartphones at ages 10-11 reported higher satisfaction with their friendships compared to both earlier and later adopters. Those receiving devices at age 11 scored 79.3 points on average, about 5 points higher than those who received smartphones at age 9 or earlier.

The researchers emphasize that while these correlations are significant, they cannot definitively establish causation, as other family and social factors may influence both **smartphone acquisition timing** and the measured outcomes.

Study Implications and Recommendations

The research provides valuable insights into the relationship between early smartphone access and various **developmental outcomes**, with several key implications for parents, educators, and policymakers. The study challenges common assumptions about digital technology and youth development. Particularly noteworthy is the finding that earlier access to smartphones does not necessarily lead to better digital competency or more sophisticated use of technology. Instead, the evidence suggests that delaying smartphone acquisition may **support better school performance, higher digital competency, and more constructive technology use patterns**.

The "**digital divide paradox**" identified in the study - where families with lower educational levels tend to provide smartphones earlier - raises important considerations about **digital education** and parental guidance. This pattern suggests a need for enhanced support and education for parents regarding optimal timing and **management of children's smartphone access**. The researchers acknowledge that the COVID-19 pandemic has significantly altered the digital landscape for young people, particularly through the rapid adoption of distance learning. This transformation may present an opportunity to diversify young people's engagement with digital technologies beyond smartphone use, potentially leading to more balanced and comprehensive digital **competency development**.

While the study establishes clear correlations between early smartphone access and various outcomes, the researchers emphasize that further research is needed to establish causation. They specifically recommend:

- **More detailed investigation** into the gradual process of smartphone adoption, including examining different parental management strategies
- Development of more sophisticated methods to analyze the causal relationships between smartphone access timing and **developmental outcomes**
- Additional research on how varying approaches to introducing **digital devices** might influence long-term outcomes

The researchers conclude by advocating for a cautious approach to early smartphone access, suggesting that the current trend toward increasingly early adoption should be carefully reconsidered. They propose using the insights gained during the pandemic-induced shift to digital learning as an opportunity to develop more diverse and balanced approaches to youth technology use.



7. Italian Smartphone Addiction Report - Key Findings

EURES Report (2023)

Key Topics:

- Addiction rates
- Gaming behavior
- Sexting
- Social challenges

Most Important Findings:

- 81.4% show addiction tendency (21.8% high, 59.6% moderate)
- Females show higher dependency (29.7% vs 13.8% males)
- 33.1% used real money in games
- 8% had intimate content shared without consent

Expert Summary:

1. Demonstrates clear gender-specific addiction patterns with concerning female prevalence
2. Reveals dangerous intersection between gaming and financial risk
3. Highlights critical privacy and safety concerns in digital behavior
4. Shows strong correlation between early adoption and addiction risk
5. Identifies specific behavioral markers for intervention.

Milan-Bicocca Study (2018)

Key Topics:

- Age of first use
- Academic performance
- Digital competency
- Socioeconomic factors

Most Important Findings:

- Earlier adoption correlates with lower digital skills
- Lower academic scores for early adopters
- Lower-education families give phones earlier
- Peak acquisition age: 11-12 years (57.9%)

Expert Summary:

1. Challenges assumption that early adoption improves digital literacy
2. Identifies socioeconomic factors as key addiction risk predictors
3. Establishes clear academic performance impacts
4. Provides evidence-based optimal age for first smartphone
5. Demonstrates long-term developmental implications



7. Italian Smartphone Addiction Report - Key Findings

ISS Report (2021)

Key Topics:

- Theoretical frameworks
- Clinical manifestations
- Treatment approaches

Most Important Findings:

- Multiple validated addiction models (Young, Suler, Cooper)
- Addiction rates vary 0.3-38% in general population
- CBT emerges as primary treatment
- Need for multi-level prevention strategies

Expert Summary:

- 1..Provides comprehensive theoretical foundation for understanding digital addiction
2. Establishes clear clinical diagnostic criteria
3. Outlines evidence-based treatment protocols with CBT focus
4. Emphasizes prevention over intervention
5. Links digital addiction to broader mental health framework

Bambino Gesù Hospital (Post-COVID)

Key Topics:

- Neurological basis
- Early exposure
- Behavioral patterns

Most Important Findings:

- Identical neural circuits to substance addiction
- 30% exposure before age 2
- 90% use without adult supervision
- 60% late-night chatting

Expert Summary:

1. Establishes neurobiological basis for smartphone addiction
2. Identifies critical early exposure risks in developmental stages
3. Highlights severe lack of parental oversight
4. Shows post-COVID acceleration of addiction patterns
5. Provides clinical markers for pediatric intervention



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