HEALTH PROFESSIONALS FOR SAFER SCREENS

A CALL FOR CHANGE

A BRIEFING ON PROTECTING CHILDREN IN A DIGITAL WORLD AND WHY THE ONLINE SAFETY ACT ALONE CANNOT CONTAIN THE HARMS OF THE SMARTPHONE

SUMMARY

As Health Professionals, we see the harm smartphones cause children and young people in our clinics daily. While we support the aim of the Online Safety Act and recent calls to strengthen it, this will only partially address the many harms caused and facilitated by smartphone use.

Smartphones must be treated differently from other internet-enabled devices because there are many differences in how children can use them to access unsafe or inappropriate content and—critically—because of their fundamentally 'addictive by design' and omnipresent functionality.

The following harms are now evidenced by an increasing body of research, and crucially, evidence shows that mental health outcomes are worse the earlier a child has a phone.

- **Developmental issues caused by smartphone use**
  - Language and communication
  - Global development
  - Increases in ADHD and Atypical Sensory Processing
  - Emotional and Social Development
  - Academic attainment

- **The physical impact of smartphone usage**
  - Physical changes in the brain
  - Eyesight
  - Obesity
  - Musculoskeletal
  - Sleep

Our advice as Health Professionals is that the harms are overwhelming, increasing and outweigh any benefits. The time has come to launch a public health campaign to communicate these harms to the public and to adopt the precautionary principle for the sake of our children.

(Version 2 : Revised October 2024)

DETAILED BRIEFING

Children need access to the digital world. They need to be able to look up information, connect with people, and understand how the world works, and they need to be able to do this safely. Protecting children from the harms of online content is important and overdue, and we support the aim of the Online Safety Act[1] to protect children from the explicitly harmful content they can find on the internet.

Children and young people have a right to function within a digital environment which successfully protects them from pornographic material; content which encourages, promotes, or provides instructions for suicide, self-harm, and eating disorders; content which is abusive or incites hatred and bullying; and content which encourages, promotes or provides instructions for violence, dangerous stunts and challenges, self-administering of harmful substances and other harmful or destructive activities.

In principle, we support recent calls[2] to strengthen the Online Safety Act to enhance regulatory protections for children, focus on achieving measurable harm reduction, increase transparency and accountability for Big Tech, and introduce a new statutory code for app stores and operating systems. These will be essential contributors to online child safety, and almost all will agree that Big Tech must be held accountable for the harm it continues to monetise.

However, while these measures may make the digital environment for computers, tablets, and other larger devices less threatening for children, they only partially address the many harms caused and facilitated by smartphone use.

Smartphones must be treated differently from other internet-enabled devices because there are many differences in the ways and circumstances in which children can use them to access unsafe or inappropriate content and—critically—because of their fundamentally 'addictive by design' and omnipresent functionality.

[1] https://www.gov.uk/government/publications/online-safety-act-explainer/online-safety-act-explainer
[2] https://mollyrosefoundation.org/wp-content/uploads/2024/05/MRF-Manifesto.pdf

Why distinguish smartphones from the broader digital environment?

In a world where demands for enhanced protections relating to online content accessed by children are fulfilled, smartphones continue to retain significant potential for harm that touches children emotionally, physically, mentally, and developmentally due to the very nature of the device itself and the societal acceptance and peer pressure attached to it.

The smartphone extends a hold and influence over a person like no other device does. Its growing ubiquity amongst younger and younger children, accompanied by the rapid acceleration of the product cycle and lack of any risk assessment of harms for its use by children, means that the issues we are seeing now in our teenagers will be significantly increased in our toddlers when they reach their teen years. Developing children who lack self-control and crave social acceptance find themselves trapped in an escalating cycle of dependency and peer pressure.

1. Addictive by design

Smartphones are designed to be addictive. The brilliant colours, sounds, vibrations, better-than-real-life images, swipe mechanisms and the delivery push notifications are all designed to reward us and stimulate the release of dopamine – the same chemical people feel when they fall in love.

Harvard studies revealed evidence of the connection between the social reward of a 'like' and the presence of an activated dopamine pathway in the brain. Because of this, children are readily becoming addicted to social media, deepening behavioural addictions through smartphone use. If they become unable to access personal devices or decide to stop using them for a period, they will often experience withdrawal-like symptoms.[3]

"I feel tremendous guilt," admitted Chamath Palihapitiya, former Vice President of User Growth at Facebook, *"the short-term, dopamine-driven feedback loops that we have created are destroying how society works."*

44% of US teens say they feel unhappy and anxious without their phones, and 40% say they spend too much time on their phones.[4] A comprehensive review of smartphone addiction revealed a wide range of issues, including feelings of insecurity, staying up late at night, strained parent-child relationships, disrupted school relationships, and various

[3] https://sitn.hms.harvard.edu/flash/2018/dopamine-smartphones-battle-time/#content
[4] Screen time: US teens' and parents' experiences, approaches | Pew Research Center

psychological problems such as compulsive buying, pathological gambling, low mood, tension, anxiety, leisure boredom, and behavioural issues.

The most significant associations were found with hyperactivity, followed by conduct problems and emotional symptoms.[5] The omnipresent smartphone enables and facilitates the worst things because children simply cannot walk away.

A study by researchers at King's College London estimated that one in four children and young people use their smartphones in a way that is consistent with a behavioural addiction.[6] And a recent study highlighted the difference between smartphone usage and general screen time. They found that where excessive smartphone usage was associated with anxiety or depression, screen time was not.[7]

The WHO Health Behaviour in School-Aged Children report shows the proportion of adolescents classified as problematic social media users increased from 7% in 2018 to 11% in 2022. Girls reported higher levels of problematic use than boys (13% vs 9%). High rates of continuous online contact (online almost all the time throughout the day connecting to friends and other people): Over a third (36%) of adolescents reported continuous online contact with friends and others, with the highest rates among 15-year-old girls (44%).[8]The UK is higher than average and in Scotland, 22% of 13-year-old girls have experienced problematic social media use, up from 11% in 2018.[9]

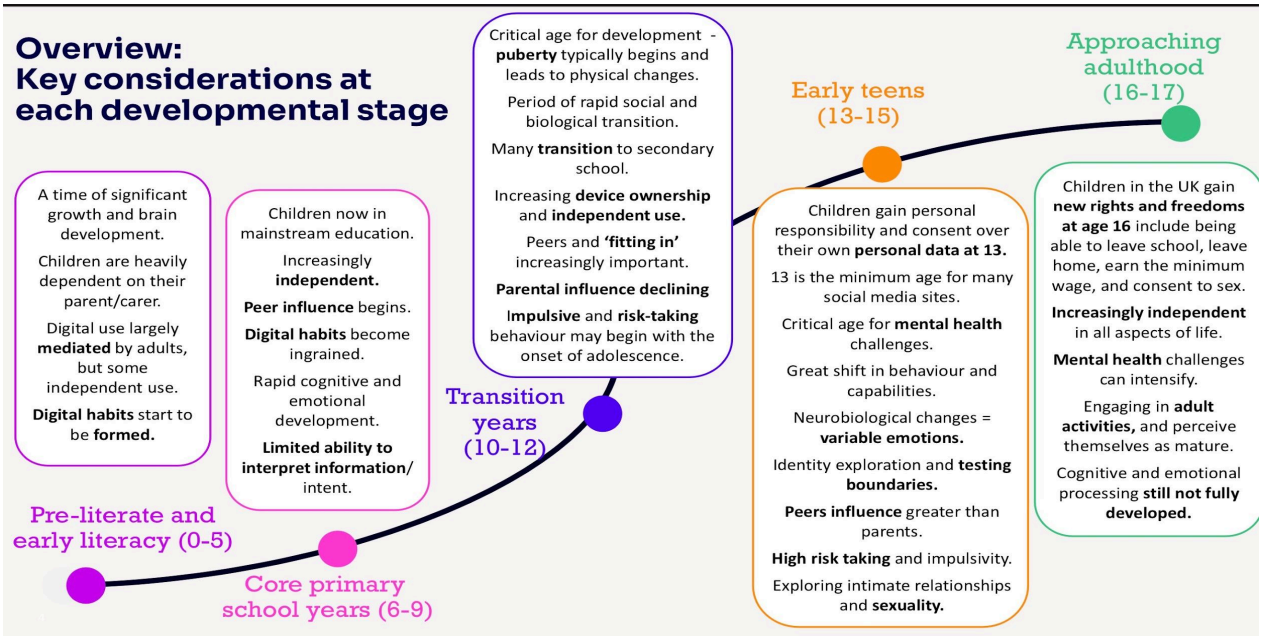
2. Developmental issues caused by smartphone use

Young children's brains are plastic and respond to the stimuli around them to develop and learn. There are increasingly significant impacts when this stimuli is excessive smartphone use rather than human interaction.

Patricia Kuhl is one of the world's leading brain scientists and runs experiments with more than 4,000 babies annually. *"What we've discovered is that little babies, under a year old, do not learn from a machine,"* she says, pointing to several brain scans on a computer. *"Even if you show them captivating videos, the difference in learning is extraordinary. You get genius learning from a live human being, and you get zero learning from a machine."* [10]

[5] Mobile Phone Addiction Among Children and Adolescents
[6] Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people
[7] A multi-school study in England, to assess problematic smartphone usage and anxiety and depression
[8] https://hbsc.org/new-who-hbsc-report-sheds-light-on-adolescent-digital-behaviours-across-europe-central-asia-and-canada/
[9] HBSC report
[10] https://www.unicef.org/parenting/child-development/babies-screen-time

The chart on the next page, produced by Ofcom, summarises vital developmental moments in a child's life and how they relate to the digital world.[11]



Numerous significant and evidenced concerns impact children's and young people's development at different stages, as described in the following paragraphs.

- ***Language and Communication***

There is compelling evidence across many longitudinal studies that show that greater screen use is associated with lower language skills and developmental delays in communication.[12] [13]

This is relevant to more than just the early years. It has also been shown that screen use adversely affects language skills and causes social problems in young adolescents.[14]

[11] Ofcom_child development
[12] Screen Time at Age 1 Year and Communication and Problem-Solving Developmental Delay at 2 and 4 Years
[13] Screen Time and Parent-Child Talk When Children Are Aged 12 to 36 Months.
[14] Causal Relationships Between Screen Use, Reading, and Brain Development in Early Adolescents.

- ***Global Development***

There is a higher risk of delays in child global development (communication, cognitive, personal-social, and motor skills) for intensive screen users compared to those with light screen usage. The risks of delays were not moderated by parent education, child sex, or temperament, suggesting that the impact of screen usage is universal.[15]

These developmental delays have consequences for school readiness. Studies show that children with higher screen usage are less ready for school, particularly regarding language and cognitive development. This causes issues for reception teaching and educational attainment.[16]

- ***Increases in ADHD and Atypical Sensory Processing***

Early-life digital media exposure is associated with atypical sensory processing.[17] Longitudinal studies have shown that frequent use of digital media, especially social media, is associated with a modest but statistically significant increase in the likelihood of developing ADHD symptoms.[18] Additionally, among boys, spending more time in front of screens at the age of 1 year was significantly associated with autism spectrum disorder at the age of 3 years.[19]

- ***Emotional and Social Development***

Smartphones and tablets are often used to keep children calm, but although this may work in the short term, it could hinder the development of children's self-regulation skills in the long run. This could lead to difficulties in controlling their behaviour and managing anger. It could also create a pattern where tantrums are linked to screen time, as using screens reduces control and leads to more tantrums. This is particularly important for very young children.[20] The earlier children start using screen devices and the more time they spend using them, the lower their self-regulation skills are likely to be.[21]

---

[15] Preschooler Screen Time During the Pandemic Is Prospectively Associated With Lower Achievement of Developmental Milestones. Journal of Developmental & Behavioral Pediatrics
[16] Children's screen use and school readiness at 4-6 years: prospective cohort study.
[17] Early-Life Digital Media Experiences and Development of Atypical Sensory Processing.
[18] Association of Digital Media Use With Subsequent Symptoms of Attention-Deficit/Hyperactivity Disorder Among Adolescents
[19] Association Between Screen Time Exposure in Children at 1 Year of Age and Autism Spectrum Disorder at 3 Years of Age:
[20] Cure for tantrums? Longitudinal associations between parental digital emotion regulation and children's self-regulatory skills.
[21] Association of Young Children's Use of Mobile Devices With Their Self-regulation.

Dr Vivek Murthy, the US Surgeon General, has spoken about how children are not developing the skills needed to feel confident in the company of others and approach new situations. He attributes this in part to the school closures but predominantly to the impact of screens and how children do not interact in real time.[22] Indeed, less than 30% of young people said phones helped them learn good social skills.[23]

Research shows that too much screen time can hinder young children's ability to interpret facial expressions and develop critical social skills, which can impede the development of empathy. Young children must engage in face-to-face interactions to understand non-verbal cues.[24]

- ***Academic attainment***

A study of almost 150,000 students in 16 countries showed that the greater the use of a phone while studying, the more significant the negative impact on learning and academic achievement. Additionally, the results suggest that skills and cognitive abilities needed for students' academic success and learning are negatively impacted.[25]

Since 2012, with the advent of smartphones and social media, PISA grades have progressively dropped, and lower scores in maths correlate with more smartphone usage.[26] There is now evidence of what parents and teachers have long suspected, 'digital distractions' are dragging down the educational attainment of many children.[27] The presence of one's own smartphone may occupy limited-capacity cognitive resources, thereby leaving fewer resources available for other tasks and undercutting cognitive performance. In experiments, the mere presence of a phone in a room delivered worse test results than those whose phones were elsewhere.[28] [29]

[22] The U.S. Surgeon General's Advisory on Social Media and Youth Mental Health 2023 and The US Surgeon General in conversation with Dr Rangan Chatterjee elaborating on his concerns
[23] https://www.pewresearch.org/internet/2024/03/11/how-teens-and-parents-approach-screen-time/
[24] ttps://www.unicef.org/parenting/child-development/babies-screen-time#
[25] The effects of smartphone addiction on learning: A meta-analysis.
[26] Time spent on digital devices at school and mathematics performance
[27] PISA learnings on digital distractions
[28] Metanalysis of the brain drain
[29] Brain drain

3. The physical impact of smartphone usage

Many physical issues are associated with excessive screen time, mainly smartphone usage, which is the predominant usage among children and young people.

- ***Physical changes in the brain***

White matter is vital for processing information in the body, as it connects different regions that send and receive signals. This impacts our ability to focus, learn, solve problems, and maintain balance while walking.

Research has shown that individuals with smartphone dependency tend to have significantly lower white matter integrity in specific areas such as the superior longitudinal fasciculus (SLF), superior corona radiata (SCR), internal capsule, external capsule, sagittal stratum, fornix/stria terminalis, and midbrain structures.[30]

Moreover, young people with smartphone addictions have been found to have concerning changes in specific neurotransmitters. GABA is the main inhibitory neurotransmitter which slows down brain signals, and glutamate (main component in Glx) is the major excitatory neurotransmitter.

Studies have shown increased GABA levels in subjects with internet and smartphone addiction, and this maybe associated with the down-regulation of anterior cingulate cortex functions, including impulsiveness control during the decision-making process under conditions of risk.

These raised GABA levels disrupt the balance with the excitatory neurotransmitter Glx. Changes in these neurotransmitters can lead to drowsiness, anxiety, and depression, as well as affect vision and motor control.[31]

Internet addiction has also been shown to impact several neural networks that influence an adolescent's behaviour and development. There was a mix of increases/decreases in functional connectivity, which led to subsequent behavioural changes associated with the mechanisms relating to the areas of cognitive control, reward valuation, motor coordination, and the development of the adolescent brain.[32]

[30] Alterations in White Matter Integrity in Young Adults with Smartphone Dependence.
[31] Changes of Neurotransmitters in Youth with Internet and Smartphone Addiction
[32] Functional connectivity changes in the brain of adolescents with internet addiction:

A longitudinal study[33] showed that adolescents who habitually checked social media had divergent brain development, shown on fMRI scanning, compared to those who reported lower smartphone engagement. These changes in neural sensitivity to the anticipation of social feedback were in important brain networks associated with emotional salience, motivation, and cognitive control. These changes could have significant long-term impact for psychological adjustment to social situations and again show how the smartphone is the perfect facilitator of 'habitual checking behaviours', which we increasingly realise to be harmful and are changing the function and development of adolescent brains.

- ***Eyesight***

High levels of smart device screen time, such as looking at a mobile phone, are associated with a 30% higher risk of myopia, and when combined with excessive computer use, that risk rose to around 80%.[34] Childhood myopia has increased from 24% in 1990 to 36% in 2023, and this is expected to rise.[35]

- ***Eating Disorders***

In 2023, eating disorders were identified in one in eight (12.5%) 17-19-year-olds, with rates four times higher in young women (20.8%) than young men (5.1%).[36]

There is increasing evidence of the link between problematic smartphone usage, social media and eating disorders. A recent UCL study corroborated the link between social media and eating disorders. Lead author Alexandra Dane writes, *"Through the lens of social media, someone else can always look better, skinnier, or prettier... The outcome is a population of young people at risk of corroded body image, gaping discrepancies between their actual and*

[33] Association of Habitual Checking Behaviors on Social Media With Longitudinal Functional Brain Development
[34] Association between digital smart device use and myopia: a systematic review and meta-analysis

[35] Global prevalence, trend and projection of myopia in children and adolescents from 1990 to 2050: a comprehensive systematic review and meta-analysis
[36] New report highlights increase in number of children and young people with eating disorders | University of Cambridge

'polished' online selves, and an increased likelihood of engaging in compensatory disordered eating behaviours".[37]

A separate, large longitudinal study of 9-14-year-olds showed that greater total screen time, social media use, and problematic screen use are associated with more eating disorder symptoms in early adolescence. Each additional hour of total screen time and social media use was associated with higher odds of fear of weight gain, self-worth tied to weight, compensatory behaviours to prevent weight gain, binge eating, and distress with binge eating two years later). Both problematic social media and mobile phone use were associated with higher odds of all eating disorder symptoms.[38]

A further study of the evidence reveals that heavy use of these platforms, especially amongst young women, increases the likelihood of girls aspiring to cosmetic surgery as a solution to perceived body image issues.[39]

It has been shown that girls with high usage of the internet at 15 are more likely to have anxiety issues at 17. The evidence indicates that this is not bidirectional – it is not that girls with higher anxiety are drawn to the internet but that higher internet usage leads to higher levels of anxiety.[40]

A reduction in explicit content promoting eating disorders will help. Still, it will not reduce the pressure from relentless images of beautiful people, influencers, advertising and the addictive nature of getting likes for content.

- ***Obesity***

There is increasing evidence of a strong association between screen time, including smartphones, and childhood obesity.[41] [42] [43] [44]

[37] The Social Media Diet

[38] Screen time, problematic screen use, and eating disorder symptoms among early adolescents: findings from the Adolescent Brain Cognitive Development (ABCD) Study

[39] The association between use of social media and the development of body dysmorphic disorder and attitudes toward cosmetic surgeries: a national survey

[40] https://www.sciencedirect.com/science/article/pii/S2211335523003625?via%3Dihub

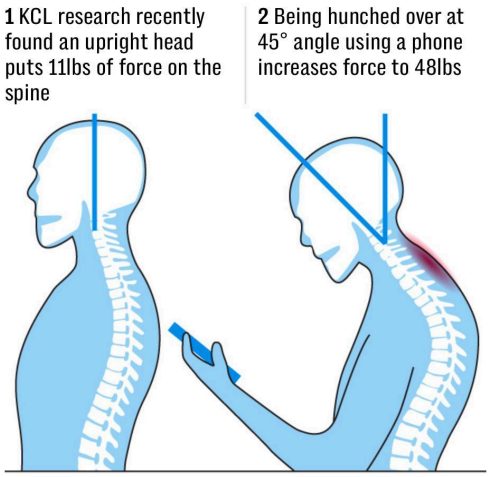
[41] Screen Media Exposure and Obesity in Children and Adolescents.

[42] Screen time increases overweight and obesity risk among adolescents: a systematic review and dose-response meta-analysis.

[43] Is excessive smartphone use associated with weight status and self-rated health among youth? A smart platform study

[44] Five or More Hours of Smartphone Usage Per Day May Increase Obesity

- ***Musculoskeletal issues***



Research[45] among adults has shown that the human head weighs 5kg when upright. However, when it is at a 45-degree angle—the angle many smartphone users position their heads at—it is 48kg. This is the equivalent of a seven-year-old child draped around the neck. This has led to an increase in adults with tension headaches, muscle spasms and bone spurs.

Children and young people who use smartphones for more than 60 minutes daily are ten times more likely to develop musculoskeletal symptoms than those who don't. It is even higher for those who use it lying down.[46]

The physical health issues that come with overuse of smartphones include text neck, wrist and back problems.[47] [48]

- ***Sleep issues***

Smartphones significantly impact sleep patterns and the ability to fall or stay asleep. This is true for all ages, from pre-schoolers to adolescents. [49] [50]

[45] Rise in tech neck problems
[46] Predictors of Musculoskeletal Pain among Primary School Students Using Smartphones in Nakhon Si Thammarat, Thailand - PMC
[47] The relationship between smartphone use and subjective musculoskeletal symptoms and university students - PMC
[48] The effects of smartphone use on upper extremity muscle activity and pain threshold - PMC
[49] Bedtime screen use behaviors and sleep outcomes: Findings from the Adolescent Brain Cognitive Development (ABCD) Study
[50] An examination of bedtime media and excessive screen time by Canadian preschoolers during the COVID-19 pandemic

4. The challenge of the camera and self-generated imagery: sextortion and CSAM

When children have access to a camera, a messaging app, and the internet, there is a severe risk of child sexual abuse material. The OSA does not have any mechanism to protect children from this.

For girls, predatory behaviour is often amongst those whom they know in real life as well as those they only know online. The sharing of naked pictures is now a norm within teenage culture, with a quarter of under 19s having received an unwanted intimate photo or video and 15% of 13-14-year-olds having sent nudes – with 5% sending them weekly. Evidence suggests that many girls feel pressured into sending nude pictures: *"Boys are really pushy,"* another 15-year-old girl tells me softly. *" 'Send me nudes!' they sext to prove that they're really manly"*.[51]

Sending and receiving a sext is illegal for under 18s in the UK.[52] Whilst we know that this is unlikely to result in a criminal conviction for most children, there is increasing anecdotal evidence of police involvement in schools for these sorts of crimes. Regardless of conviction rates, this significant police involvement in schools is alarming and traumatic for students and their families.

The rapid growth of access to a smartphone and the ability of children to film themselves easily in privacy has led to an exponential increase of more than 400% in self-generated Child Sexual Abuse Material (CSAM) – images and videos – generated and shared by children themselves – with 127,732 incidents linked to 11-13-year-old girls.[53]

5. Youth crime, extremism and smartphone/social media use

Nearly 40% of robberies in London were for mobile phones in 2023.[54] In 2020, 500 children were mugged a day in the UK - almost all for their mobile phones.[55]

At least 27,000 children, with as many as 4,000 in London alone, are believed to be trapped in county lines across the UK. Smartphones are critical to this epidemic of child criminal exploitation, which is being fuelled by gangs who use social media to target, groom, coerce, and track the movements of vulnerable children online as young as 11. Between

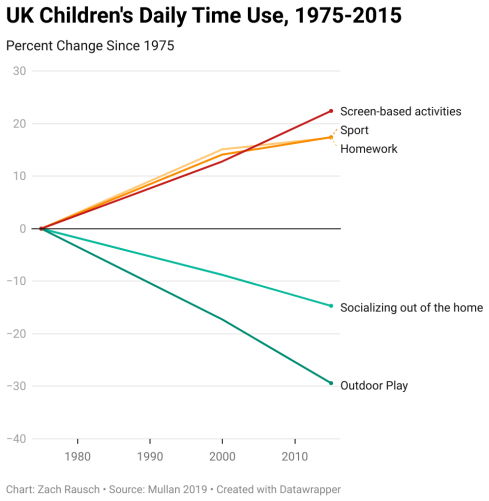
[51] Everything you need to know about teens and sexting:
[52] Police advice on sexting
[53] Study to examine four-fold rise in self-generated child abuse images | CYP Now
[54] Nearly two-fifths of robberies in London last year were for mobile phones | Crime | The Guardian
[55] More than 500 children are robbed a day for mobile phones

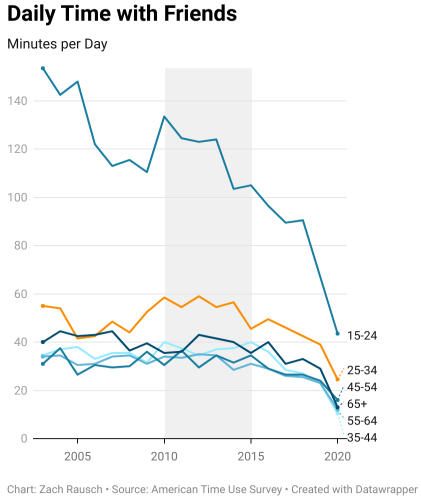
2017 and 2022, online grooming crimes surged by 82%, with 73% involving platforms like Snapchat, Facebook, Instagram, and WhatsApp.[56]

Nearly one in five people arrested for terrorism-related offences in the past year were children aged under 18. These included some as young as 12 or 13 who were being investigated by police because of their potential involvement in terrorism. They account for 18.9% of arrests compared to 2.4% a decade ago. The Met Police attribute this rise to social media saying " You have the combination of the overt social media and then the closed messaging apps …….. We would never have seen 12 and 13 year olds exposed to the kinds of things they are now exposed to. Social media, messaging apps, that connectivity is really impacting homes, in communities and, as we have seen over the summer, on the streets." Over half of the 7,000 people referred to counter terrorism police are children including primary school age.[57]

6. Experience blockers

Children spend significant amounts of time on their smartphones. This means they spend that time alone rather than with their friends and in real-life situations. The increase in online time detracts from spending time with family and friends, which means fewer children are experiencing the critical building blocks to prepare them for adulthood.





A recent Education Select Committee report[58] on screen time and children provided sobering data on smartphone addiction: even at ages 7 to 8, children are losing nearly 3

[56] #LikestoLines: Protect your child from county lines online exploitation - Unseen
[57] Children under 18 arrested for counter terrorism
[58] Screen time: impacts on education and wellbeing

hours per day to their phones, i.e. outside of classroom time; by 15 to 16 that increases to a staggering 5 hours per day.

The report commented, *"The overwhelming weight of evidence submitted to us suggests that the harms of screen time and social media use significantly outweigh the benefits for young children…Government needs to do more across departments to protect them from addiction, online harms and the mental health impacts of extensive use of devices"*.

7. Mental Health Indicators

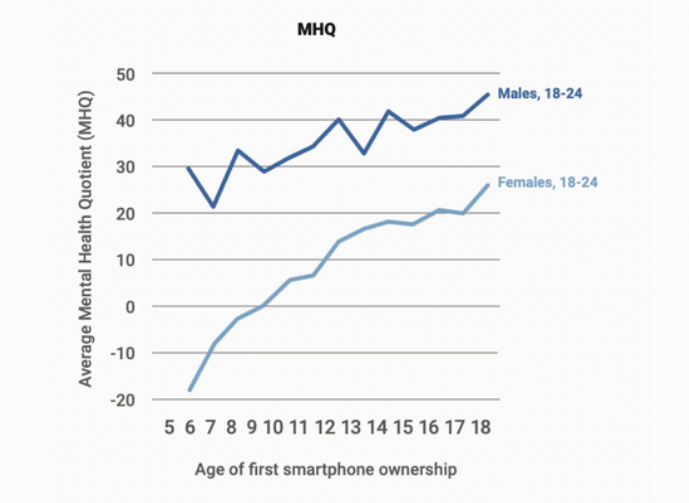
A recent study by Sapiens Labs concludes that the younger the age of having a first smartphone, the worse the mental health that the young adult reports today.[59]

The study tested the hypothesis that the first global generation to grow up using smartphones became the first generation to have lower well-being than the one before them.

The researchers asked nearly 28,000 participants across multiple countries about 47 elements of their mental, social and emotional functioning on a life impact scale. This was aggregated into a single score called the Mental Health Quotient (MHQ).

The results of that study, summarised in the chart on the next page, clearly shows that the earlier the age of receiving a smartphone, the lower the MHQ mental health score. Younger children receiving phones are doing worse, on average, than those who didn't receive one until their teens. This is notably more acute for females.

[59] Age of First Smartphone/Tablet and Mental Wellbeing Outcomes | Sapien Labs



Further evidence compiled by Kings College London shows that problematic smartphone use (PSU) is linked to youth mental health, with nearly half of 13–16-year-olds with PSU reporting symptoms of anxiety (44.4 per cent) compared to 26.4 per cent without PSU and over half of 13-16-year-olds with PSU reported symptoms of depression (55.6 per cent) compared to 35.8 per cent without PSU.[60]

* * *

[60] Teens with problematic smartphone use are twice as likely to have anxiety - King's College London

Who are Health Professionals for Safer Screens?

Health Professionals for Safer Screens (HPFSS) is a fast-growing group of health and healthcare professionals founded by Dr Becky Foljambe earlier this year. Dr Foljambe is an NHS GP and passionate campaigner for safer device use among children. Our members include Consultant Child Psychiatrists, Consultant Paediatricians, GPs, Nurses, Public Health Consultants, Social Workers, Dieticians, Speech and Language Therapists, Child Psychologists, and Psychotherapists. We work with leading academic researchers across the globe to understand the harms.

HPFSS's position is that many health professionals in this country require no further evidence of the harmful impacts of these devices for children. The group is calling for the government to act based on the 'precautionary principle', to urgently introduce a regulatory framework for internet-enabled devices for children under 16 and to launch a public health campaign around these devices to better inform parents and protect children.

Health Professionals for Safer Screens is an independent group supported by SafeScreens that fully endorses SafeScreens' legislative and regulatory proposals for tackling smartphone harms.

Dr Becky Foljambe says, *"Health professionals have stayed quiet for too long on this issue, and it is time to change this. If a device or its addictive use is being evidenced as causing harm to our children, then it is our job as doctors to act to prevent this and educate for the safer use and supply of these devices in the same way as we would for alcohol and smoking. This is a modern-day impediment to the healthy development of our young, especially the most vulnerable. It is now our moral responsibility to change things for the better."*