Screen use and health in young people

Devices with screens include game consoles, laptops and televisions. Screen use refers to activities undertaken on such devices and the time spent on them. Children's screen use has increased over the past decade. This POSTnote considers evidence on the effects that screen use may have on young people's health.

Overview

- Smartphones, tablets and other devices with screens provide children/young people with opportunities (such as connecting with friends over social media) and risks (such as being exposed to harmful content).
- Evidence suggests that screen use can both support and inhibit child development, depending on the activities undertaken.
- There are some associations between screen use and poorer physical health (such as short-sightedness, obesity and poor sleep). However, it is unknown if screen use causes such outcomes.
- Studies indicate that different types of screen use can be associated with both increases or decreases in well-being.
- Healthy screen use can be supported by guidance, technological solutions (such as parental controls) and education.

Background

Devices can be used by children/young people for a variety of activities, including doing school work, using social media and gaming.[1,2] Ofcom publishes an annual report on children's media use based on interviews with around 3,000 children and their parents, chosen to be representative of the whole UK population.[3] Screen use has been found to start as early as 6 months of age and the amount of time children/young people spend using screens is increasing.[4] Ofcom reports that the amount of time those aged 5–15 years spent online rose from an average of 9 hours per week in 2009 to 15 hours in 2018.[5] Advancing technology also means that screens are being used in increasingly diverse ways. While older screen-based devices (such as televisions) only support a small number of activities, modern digital devices (such as smartphones, smartwatches or tablets) can be used for a wide array of activities.[6,7] In this POSTnote, screen use refers to the activities undertaken with screens and the time spent on them.

Many parents view screen use as beneficial, with 70% of 2,000 parents in a survey by the non-profit organisation Internet Matters agreeing that screen use is essential for their children's learning development.[8] However, 47% of parents also expressed concern about the effects of screen use on health.[8] The 2019 Online Harms White Paper identified excessive screen time for children as an emerging concern, suggesting that it could have negative effects on physical and mental health.[9] These concerns were also discussed in a 2019 report by the UK Chief Medical Officers and a report in the same year by the Commons Science and Technology Committee.[10,11]

This POSTnote provides an overview of how children/young people use screens, the opportunities and risks of this use, evidence on the possible effects on health and development, and evidence on ways to support healthy screen use.

Trends in screen use

Screen-based activities are prevalent in modern childhood and adolescence.[12] The number of different device types used by children, the types of activities undertaken, and time spent using screens have all increased in recent years.[3,5] Screen use also increased during school closures in 2020 (Box 1).[13]

Box 1: Screen use during 2020 school closures
During school closures, children/young people used digital devices to learn, socialise and play.[13,14] Researchers propose that increased social interactions through screens could help mitigate negative effects from reduced face-to-face contact.[15–18] However, access to digital devices is unequal, with children from poorer households less able to access devices.[19] A survey of 5,500 parents in spring 2020 by the Institute for Fiscal Studies found that 92% of children were provided with some form of home learning resources by their schools.[19] Although most secondary school students had access to a computer to use these resources, up to 14% used a smartphone or had no access to a device.[19] There are concerns that those without access to appropriate technologies face being left behind (see rapid response on COVID-19 and the disadvantage gap).[19] A study surveying 2,500 parents every month from late March to August 2020 found that most secondary school children had regular contact with friends, often via texting, gaming and social media.[20,21] However, around half of primary school children had little or no contact with their friends over this period.

Device type
A 2019 Ofcom survey found that 90% of children aged 5–15 years use the internet.[3] For this, the most popular devices are tablets (68% of children aged 5–15 had ever used them to go online), mobile phones (55%), laptops (55%), game consoles (27%), desktop computers (18%), and smart televisions (18%).[3] Children/young people may also use multiple screens simultaneously (such as using a smartphone while gaming on a console) with this usage becoming increasingly common.[22–24] In terms of ownership, Ofcom research found that at age 9 years, 23% own a smartphone.[3] At age 10 years, 50% own a smartphone and at age 15 years 94% own one.[3]

Device types may change over time with newer technology (such as virtual reality, holograms or brain-computer interfaces; POSTnote 614) replacing or supplementing screens. However, the activities (such as gaming) that screen devices are used for are likely to continue on newer technology.[25]

Activities
The activities undertaken by children/young people on devices vary by age and gender.[3] The 2019 Ofcom survey indicates that children aged 3–7 years mainly use screens to watch television. Children aged 8–11 years tend to use screens to view YouTube, watch television and play games.[3] Children aged 12–15 years mostly use screens for social media.[3] Gaming is becoming more popular among girls, but it is still more common among boys (48% versus 71% among 5–15 year olds in 2019).[3]

Ofcom data show that 21% of children aged 8–11 years have a social media profile.[3] At age 13 years (the minimum age restriction on most social media platforms), 56% had a profile and at age 15 years, 92% reported having one.[3] In 2019, the most popular social media and messaging platforms for children aged 12–15 were: Facebook (69% reported having a profile), Snapchat (68%), Instagram (66%), WhatsApp (62%), YouTube (47%), Pinterest (13%), TikTok (13%) and Twitch (5%).[3] The popularity of online platforms changes quickly, with new applications continuously appearing while others lose popularity or disappear.[26] Even when a platform remains prevalent, its specific features evolve over time.[26] This means that research

can become quickly outdated and findings may not be generalisable beyond a specific platform at a set time point.[26]

Time
Based on the 2019 Ofcom survey, children aged 5–15 use screens most for accessing social media and messaging (averaging nearly 12 hours per week).[27] Other common screen activities include watching television programmes or films (around 11 hours per week), watching YouTube (around 10 hours per week) and playing games (nearly 10 hours per week).[27] However, screen time varies between children, with some groups of vulnerable children spending more time online than their peers.[28] A study of nearly 3,000 children aged 10–16 years found that more than half of young carers spent five or more hours online per day, often using screens as part of their caring.[28,29] Studies of screen time are often based on self-reported estimates, which can be inaccurate.[3] For example, one study found that when asked about weekly internet use, most people either overestimate (42%) or underestimate (26%).[30]

Opportunities and risks of screen use
Evidence suggests that screen use can positively support children/young people's educational, emotional and social development.[18,31,32] For example, screen use can support the following activities:

- **Learning and creating.** Devices can be used to complete homework, search for information, read the news, or pursue interests/hobbies.[31,33] A 2018 survey of over 2,000 8–17 year olds found that 70% said that being online helped them to understand what was happening in the world.[34] Devices with screens have also been used to support remote learning during the 2020 school closures (Box 1).
- **Connecting with others.** Devices can be used to keep in contact with those who are geographically remote, including through social media and online forums based on shared interests.[35] A 2015 survey in the USA of over 1,000 young people aged 13–17 years reported that 83% said that social media makes them feel more connected to their friends, and 68% said that they have received social support using digital technologies in tough or challenging times.[36] Online communities can be a particularly important way for young people from minority groups to connect.[37,38]
- **Civic action and engagement.** Devices can be used to join community groups, sign petitions and engage with social justice movements.[39] Young people use social media to engage online and organise protests offline, for example against gun violence, climate change or racial inequalities.[40,41] The 2019 Ofcom survey saw an increase in older children using social media to support causes (12% in 2018 to 18% in 2019), with 9% having signed an online petition.[3]

There are also risks associated with using internet-connected screens. Risks posed to children/young people online are commonly categorised as:[31,42,43]

- **Content risks.** The child/young person is exposed to potentially harmful material.[42] This can include pornographic, violent, racist or misleading content (POSTnote 559 and POSTnote 622).[31] Exposure to such content is rising. In the 2019 Ofcom survey, half of 12–15 year olds said that they

have seen something 'hateful' about a particular group of people in the previous year, compared with 34% in 2016.[3]

- **Contact risks.** The child/young person is approached or followed online by a harmful individual.[42] This can include stalking/harassment (POSTnote 592) or impersonation.[31]
- **Conduct risks.** The child/young person is a perpetrator or victim of harmful behaviour.[42] Risks include cyber-bullying, inappropriate online sexual activity, or misuse of personal information.[31] Evidence indicates that offline and online risks are linked, with those who have negative offline experiences being more likely to have negative online experiences.[28,44,45] For example, those who have a history of victimisation offline are more likely to be bullied and victimised online.[46]
- **Commercial risks.** The child/young person is exposed to inappropriate commercial advertising, hidden costs or marketing schemes (POSTnote 460).[42] Risks can include gambling or overspending on in-app purchases.[31,43]

Ofcom reports that fewer parents of 5–15 year olds feel that the benefits of their child being online outweigh the risks compared with 5 years ago (65% in 2015 to 55% in 2019).[3] Some stakeholders raise concerns that use of screens may be addictive,[47] but there is limited evidence suggesting that screen use carries this risk.[48] Instead, screen use may be exposing children/young people to content to which they can develop problematic behaviours (such as gambling or pornography).[2,49]

Screen use and health

Policy-makers and parents express concern about possible effects of screen use on children's/young people's development and health.[10,48] However, the evidence base in this area is still growing.[50] Most published research has studied television use with less research on more modern devices (such as smartphones) or on multi-screen use.[2,1] Findings relating to passive consumption of content (such as watching television) may not be generalisable to active screen use (such as speaking to friends over social media).[1] Most research also looks at associations between screen use and health indicators without exploring the reasons for these associations.[1,10] Existing evidence on how screen use interacts with child development, physical health and mental health is summarised below.

Screen use and child development

Screen use may support child development, including through supporting important relationships at a distance. For example, research has shown that children aged under 2 years can successfully interact via video chat with family members.[16] In addition, devices may support early learning.[17,18] A review of 42 studies on screen use and child language skills found that, although greater overall screen time among those aged 0–12 years was associated with poorer child language development, better quality of screen use (such as using screens for educational programs) was associated with improved language skills.[51] A survey of over 700 parents of children aged 6–36 months also found an association between greater use of touchscreens and fine motor skills.[52] However, as most published research in this area explores associations, it is not possible to prove causation. For example, children who have better fine motor skills may engage more with touchscreens, rather than the use of touchscreens improving motor skills.

As well as potential impacts from children's use of screens, child development and behaviour may be influenced by parental screen use. For example, increased parental screen use is associated with fewer verbal and nonverbal interactions with the child.[53,54] In studies where interactions between children (6 months to 6 years old) and parents (such as during meal time or teaching periods) were interrupted more regularly by parents using mobile phones, children showed more negative emotions and/or learned fewer new words.[53,55,56]

Screen use and physical health

Research suggests that some types of screen use may support good physical health. For example, young people reading blogs on personal health issues can improve their knowledge and prompt them to access relevant health services.[57] However, a 2018 Internet Matters survey of over 2,000 parents found that parents' main concerns regarding screen use were related to physical health effects.[8] Parents' main concern changed with their child's age. For those aged 6–10 years, it was the impact of screens on eyesight (39%); for 11–13 years, it was lack of physical activity (39%); and for 14–16 years, it was the impact of screen use on sleep (50%).[8]

Eyesight

Short-sightedness in children and adults has increased over the past few decades.[58] Evidence suggests that this is likely due to a decrease in outdoor activities (requiring focusing on objects at a distance) and an increase in near work activities (those that require focusing on objects close by).[59] Near work activity includes screen use but also many other activities (such as reading or drawing). As such, increases in short-sightedness cannot be attributed directly to increasing screen use.

Physical activity

Researchers have found that higher television screen time is associated with being more likely to be overweight.[1] However, it is difficult to establish causality as people who are less able to be physically active may spend more time watching television. For example, studies have indicated that children whose parents perceived their neighbourhoods as unsafe took part in less physical outdoor activity and watched more television.[60–62] In addition, even if it was determined that increased television screen time caused higher levels of obesity, it would be difficult to identify which aspect of watching television was driving this. For example, it may be that watching television increases food intake (such as through increased snacking when watching) and/or it could be because watching television is replacing time spent doing physical activity.[12,63,64]

There is limited research investigating the association between physical activity and screen use on devices other than televisions (such as on smartphones).[1,12] Some studies have shown that some screen use can actually increase physical activity, for example through playing games where one has to move around (such as Pokémon GO).[65,66] There are also wearable devices (such as smartwatches) and smartphone apps to encourage physical activity by setting activity goals. However, there is limited research into how children/young people use these and what the effects are on their health.[67]

Sleep
Several studies have highlighted a relationship between screen use and the amount/quality of sleep (POSTnote 585).[68–70] For example, television viewing and touchscreen use in children are associated with shortened and/or disturbed sleep.[71–73] However, it is neither clear if screen use causes these issues nor what could be the root cause. For example, causes could include delayed bedtimes or the effects of light from screens.[69,74] There is some evidence that reducing screen use prior to bedtime can improve sleep. A study with 63 people aged 14–18 years found that they slept on average 21 minutes longer per night when they stopped using their smartphones one hour before going to bed.[75] However, it is likely that the relationship between screen use and sleep is complicated. Poorer sleepers and/or those who have naturally later sleeping preferences may also be more likely to use screens at night to pass time before they sleep.[76,77]

Screen use and mental health
There is mixed evidence on how screen use affects mental health in children/young people.[32,78–81] A 2019 review of seven studies found increased screen use to be associated with higher levels of depressive symptoms.[1] A study investigating the well-being of over 350,000 young people (mainly aged 12–18 years) in the UK and the US found slightly lower levels of well-being among those who used screens more.[82] However, the same study found that other factors (such as cannabis consumption and bullying) had much stronger associations with reduced well-being than screen use.[82] A UK study of the screen use of over 120,000 people aged 15 years found no association between moderate screen use and well-being.[83] However, very high levels of usage were linked to slightly lower levels of well-being.[83] A study using US census data with over 35,000 parents/caregivers suggested that any negative effects on children's psychological and social health were only noticeable when screen use exceeded around 5 hours a day.[84] However, moderate screen use (up to 2 hours a day) was associated with more positive psychological and social health.[84]

This variation in results may be due to differences in types of screen use. Studies have only recently started to differentiate types of screen use by, for example, comparing active usage (such as posting pictures on social media) and passive usage (such as scrolling through a social media feed).[85] Results for social media indicate that passive usage is more likely to be linked with lower levels of well-being, while active usage is more likely to be associated with higher levels of well-being.[85]

As research in this area focuses on associations, it is not possible to conclude that screen use causes reduced well-being.[2] It may be, for example, that children/young people with lower well-being engage more with social media or other screen-based content as a support mechanism.[10] Additionally, it is not clear which aspects of screen use could influence well-being and mental health. For example, it could be that screen use displaces healthy offline social relationships or exposes children/young people to harmful content.[22] However, it could be that potential physical health effects of screen use (such as reduced physical activity and/or less sleep) are in turn causing or exacerbating mental health effects.[68]

Supporting healthy screen use
Ways to ensure that children/young people use screens appropriately can include guidance for parents, technological solutions to limit unhealthy screen use, and education for children/young people on healthy screen use.

Guidance
There is limited and conflicting guidance internationally on how different age groups should engage with screens. The World Health Organization recommends no screen time for children under the age of 2 and limits of 1 hour per day for children aged 2–4 years.[86] The American Academy of Pediatrics recommends limiting screen time for children aged 2–5 years to 1 hour per day.[87] However, experts question what evidence these screen limit recommendations are being based on.[88]

In the UK, guidance by the Royal College of Paediatrics and Child Health acknowledges the limited evidence base.[89] Instead of setting arbitrary limits, it recommends that parents negotiate limits according to individual need, the activities undertaken, and the extent to which screen use displaces other activities.[89] In 2019, the UK Chief Medical Officers also found the scientific research insufficiently conclusive to recommend guidelines on optimal amounts of screen use or online activities (such as social media use), although they recommend a precautionary approach based on the emerging evidence.[10]

Even with evidence-based guidance, parents' influence on their child's screen use may be limited. For example, in the 2019 Ofcom study, 43% of parents of 12–15 year olds reported finding it difficult to control their child's screen time.[3] In addition, guidance may be more likely to be implemented in some households than others. A 2014 study of 3,500 children aged 9–16 years from seven European countries, found that parents in wealthier households were more likely to mediate what their child did online (such as discussing internet safety).[90]

Technological solutions
There are various tools available to control screen use.[91] Many hardware and software manufacturers (such as Apple, Google and PlayStation) allow users to access their screen use data and set time/content limits.[9] Tools such as parental control software can regulate children's access to websites, or installation and use of apps, but Ofcom research found that most parents are not aware of these options.[27] In 2018, Ofcom found, for the first time, that some older children were self-regulating their time spent on social media to focus on school work.[6] Stakeholders have suggested that data on screen use should be shared with researchers by industry (in an anonymised form) to improve understanding of screen use.[10,92]

Education
Researchers have highlighted the importance of fostering 'digital resilience' in children.[9,93,94] Digitally resilient children are able to identify online risks and deal with and learn from difficult experiences online.[9,93,94] In 2018, a survey of 6,500 children/young people found that 67% of children aged 12 and under would welcome more education at school about online safety.[95] However, online safety education (POSTnote 608) is currently not taught consistently across UK schools and there is not much evaluation of whether it is effective.[96]

Endnotes

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