HEALTH PROFESSIONALS FOR SAFER SCREENS

A CALL FOR CHANGE

A HEALTH BRIEFING ON THE EVIDENCED RISKS OF SCREENS FOR EARLY YEARS CHILDREN

Summary

As Health Professionals, we see the harm that screens cause children and young people daily. This report will focus on children in their early years (ages 0-5). We have a report dedicated to the harms of screens, smartphones and social media usage in school-age children and young adults (ages 6-22) **here**.

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 exacerbated by screens.

The World Health Organisation (WHO) recommends no screen time for babies under two years old and no more than one hour of screen time per day for children aged 2–4[1]. The risks of screen use for children in their early years are now evidenced by an increasing body of research, and crucially, evidence shows that outcomes are worse the earlier a child has a phone.[2]

Developmental issues caused by screen use

- Language and communication difficulties
- Delays in global development
- Impacts on symptoms of neurodivergence – Autism, ADHD and sensory processing
- Emotional and social difficulties
- Reduced academic attainment

The physical impact of screen usage

- Physical changes in the brain
- Poor eyesight
- Eating Disorders
- Obesity
- Musculoskeletal
- Sleep difficulties

The societal impact of screen usage

- Addictive by design
- Missed childhood experiences and impeded life chances.
- Technoference
- Parent understanding of screen usage

Our advice as health professionals is that the risks 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.

Developmental issues caused by screen use

The first five years are crucial to a child's development and are widely referred to as the critical period for growth and maturation. The neuroplasticity of young children's brains means they respond to the stimuli around them to develop and learn. There are increasingly significant harmful impacts when this stimulus is excessive screen use rather than human interaction.[3]

Patricia Kuhl, a leading neuroscientist who runs experiments, quoted in a UNICEF article:

"*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."*[4]

Figure 1, produced by Ofcom, summarises vital developmental moments in a child's life and how they relate to the digital world.[5]

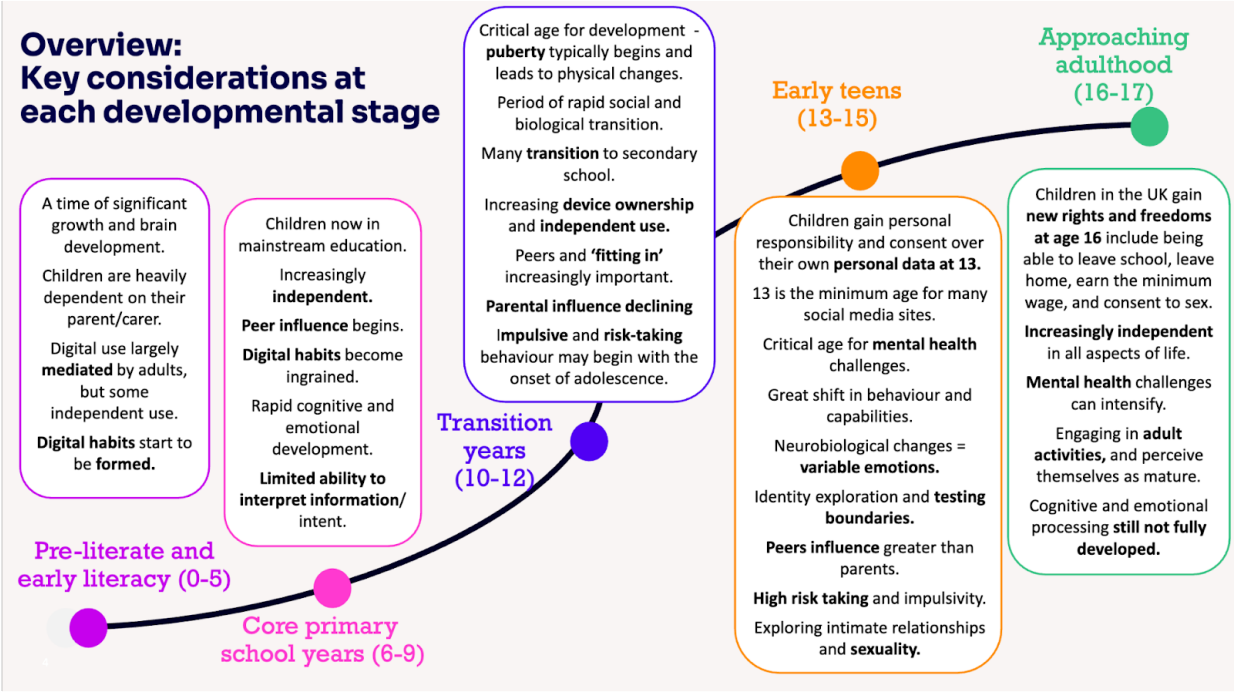

Figure 1

In the following paragraphs, we will discuss many of the important areas of development that are negatively impacted by smart devices and social media.

- **Language and Communication**

There is compelling evidence across many longitudinal studies that greater screen use is associated with lower language skills and developmental delays in communication. [6]

Romeo et al.'s study describes the importance of conversational turns with adults for activating the left inferior frontal area of the brain (Broca's area - associated with speech and language), significantly improving the child's verbal ability. [7] The researchers also found that exposure to conversational turns is independent of socioeconomic status, IQ and adult-child utterances when measuring children's language processing outcomes.[8]

Brushe's study indicated that for every additional minute of screen exposure, parents and children generally talked or vocalised less and engaged in fewer back-and-forth interactions. It showed that 3-year-old children were reported to have an average screen time of 172

minutes, leading to a difference of 100 adult words, 840 vocalisations, and 194 daily conversations compared to if they used screens for the recommended 60 minutes. [9] Studies have shown that the fluency and connectedness of parent-child interactions at 24 months of age predicted children's language outcomes a year later.[10] Children learn new words better from their caregiver when they have their undivided attention, and the evidence states that interruptions due to devices impact children's language learning outcomes.[11] Word learning is most efficient when caregivers respond in a timely manner, expanding the child's use of that word to enrich their language learning environment. Similarly, children need repeated periods of joint attention (where both the child and caregiver attend to the same objects, activities and interaction), which occur less frequently when parents are distracted by screens. [12] Research consistently shows that shared reading boosts vocabulary, while excessive screen time harms vocabulary in 24-month-olds. The positive effects of shared reading on expressive vocabulary are more pronounced in lower SES groups, emphasising its importance in resource-limited settings.[13]

Reduced language skills caused by screen use in pre-school children have been shown to correlate with lower school readiness[14] and continues into adult life (Figure 2). [15]

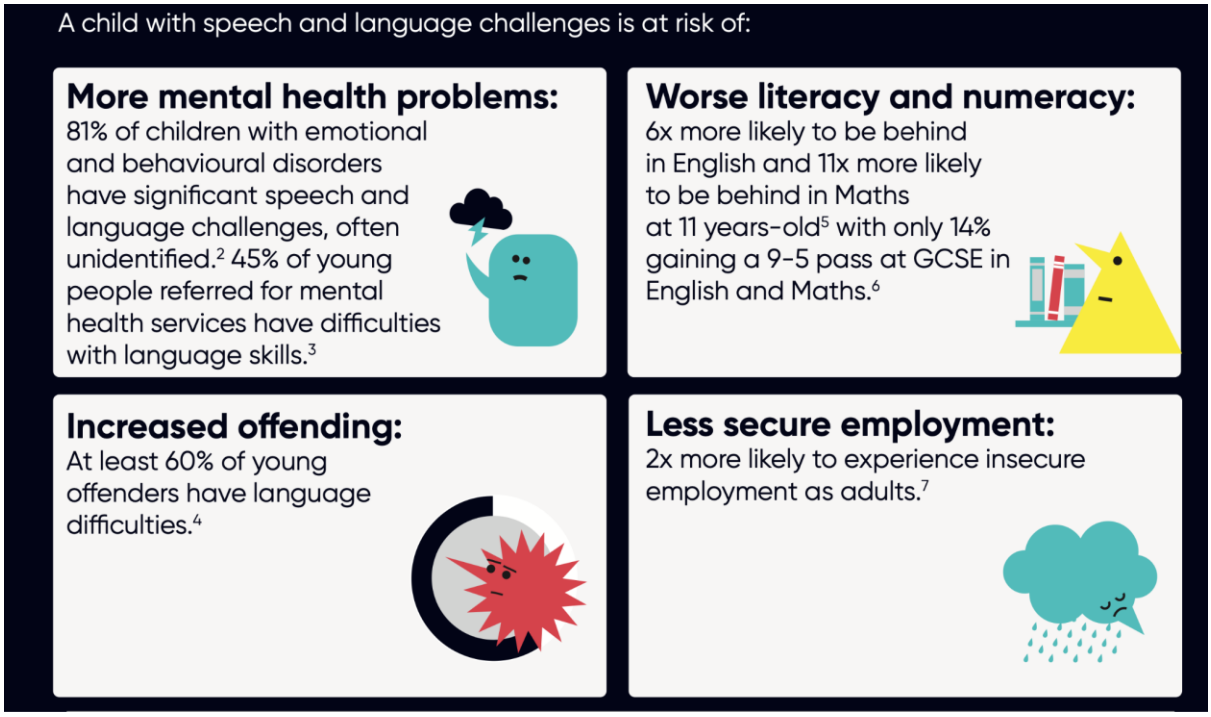

Figure 2

- **Global Development**

There is a higher risk of delays in child global development (communication, cognitive, personal-social, and motor skills) in intensive screen users compared to those with light screen usage.[16] A study from New Zealand discovered that 90 minutes of daily direct screen time at age two was associated with below-average language and educational ability and above-average levels of peer relationship problems at age four and a half.[17] Screen use was shown to be an independent predictor of developmental outcomes in the study, even when individual child and family factors were considered, suggesting that the impact of screen usage is universal.[18] Figure 3 shows the evidenced potential impacts of early screen exposure.[19]

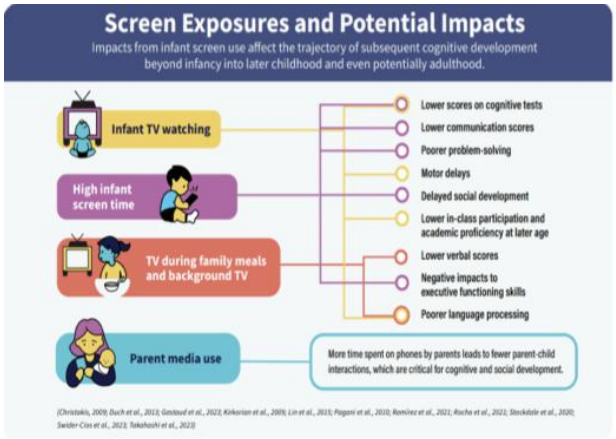

Figure 3

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.[20] This causes issues in accessing the early years curriculum and educational attainment. From Kindred Squared's (2025) survey into school readiness, 54% of teachers reported that children spending more than the recommended time on screens was a contributing factor to school readiness. [21] This demonstrates the risk to negative impacts of early screen use.

Infants lack the cognitive skills required to learn from screens, demonstrating the importance of human interaction for children in their early years to thrive.[22] Experts have described the "video deficit" effect, which explains how young children learn more from 3D than 2D stimuli. [23] [24] Young children can only learn from media by adults using electronic devices to mimic real-life interactions, for example video chats with family, and electronic media, even electronic toys, interfere with learning for very young children. Research has shown that children can imitate actions, demonstrate learning, from television using the corresponding real-word objects.[25] Similarly, children only learn words from television when there is a real-life demonstration and context is provided by an adult not on screen.[26]

- **Impacts on symptoms of neurodivergence – Autism, ADHD and sensory processing**

Meta-analysis of 28 studies has evidenced significant associations between digital media and later ADHD symptoms. [27] A reciprocated association was also found, with some studies showing that ADHD symptoms are related to an increased risk of developing problematic use of digital media. Furthermore, all children are at risk of developing shorter attention spans and ability to focus, not just those with ADHD.[28] The negative impact of screen use on attention in young children has been demonstrated for over 25 years. A study looking at TV viewing in 1997 showed that attention is worsened if the child is exposed to TVs before the age of 3 years old.[29]

When toddlers are used to high levels of sensory stimulation from screens, everything else appears dull or uninteresting in comparison. The child is, therefore, less motivated to explore their environment and seek interactions, missing meaningful learning and development opportunities.

Early-life digital media exposure is associated with atypical sensory processing. Results from a US sample of 1,471 pre-school aged children found that viewing of television or video on any device at 12 months old led to the child being twice as likely to experience low registration (i.e. not readily perceiving sensory stimuli in their surroundings, commonly described as uninterested in their environment and apathetic).[30] This continued for 18-month-old children, who additionally showed increased risk of sensory avoidance if they had had greater screen

exposure. For two-year-old children, greater screen exposure was associated with higher sensory seeking (i.e. actively searching their environment for sensory experiences, commonly described as restless, noisy, and easily bored), sensory sensitivity (i.e. react more quickly and strongly to sensory input, commonly leading to overwhelm), and again avoidance of sensory input. Subsequent studies have since replicated these associations.[31]

Autistic children find it harder to build social and interpersonal skills and overuse of screens can reduce access to critical developmental activities like face-to-face interaction and play, which are essential for building social and communication skills.[32] Studies have shown that autistic children are exposed to more screen time than their typically developing peers or other clinical groups and that the exposure starts at a younger age.[33] Excessive screen time poses unique risks for those with sensory processing needs.[34] It has become increasingly more difficult for nursery staff and early years professionals to identify learning difficulties or neurodivergence in pupils, as they could be masked or replicated by the effects of excessive screen use. [35] Clinicians are now being encouraged to inquire about screen time during early childhood as part of their assessment of a child's development. [36]

- **Emotional and Social Development**

Screens and tablets are often used to keep children calm, but while this may seem effective in the moment, it can hinder the development of children's self-regulation skills in the long term.[37] Studies have shown that the amount of screen time a child has at 3.5 years old can predict the increase in their anger and frustration at 4.5 years old.[38] Furthermore, it may create a pattern where meltdowns become associated with screen time, as using screens can diminish self-control and result in more frequent outbursts.[39] This is particularly important for young children.[40] The earlier children start using electronic devices, the more time they spend on them, the lower their self-regulation skills. [41] [42]

In his book The Anxious Generation, psychologist Jonathan Haidt[43] discusses how children struggle to develop the skills to feel confident around others and approach new social situations. This issue can be partly attributed to school closures during COVID-19, but, as summarised by the 2023 US Surgeon General's Advisory, primarily to the impact of screens and the lack of real-time interactions. [44]

Less than 30% of young people reported that phones helped them learn social skills.[45] Research shows that when parents give their child a screen to watch in an effort to help regulate their emotions, this can hinder the child's ability to interpret facial expressions and develop essential social skills which can imped empathy development.[46] Young children must engage in face-to-face interactions to properly understand non-verbal cues.[47]

The age at which a child first has a screen is correlated with worse mental health outcomes. The younger the age of having a first screen, the worse the mental health that the young adult reports today.[48] Research also shows that changes in screen exposure between the ages of 4.5 and 8 correlate to increased difficulty with peer interactions.[49] Academic attainment

Excessive screen time negatively impacts children's academic achievement by reducing executive function, language development, and social-emotional skills, while also increasing risks of obesity, sleep disorders, and mental health issues.[50] The context of any screen use, for example, parental guidance and engagement, and imposing screen limits can help mitigate these effects and support healthy development.[51]

The physical impact of screen usage

- **Physical changes in the brain**

A study of children aged 3 to 5 suggests that screen time impacts the development of brain areas responsible for visual processing, empathy, attention, complex memory and early reading skills.[52] Research shows that developing brains are more sensitive to experience in the first few years of life than in later years.[53]

Increased screen-based media use has been linked to lower white matter integrity in young children's brains, potentially impacting language, literacy, focus, problem-solving, and motor skills, highlighting the need for further research during early brain development.[54] Individuals with screen 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. [55] These differences in physical structures of the brain particularly affect higher-order cognitive and language skills needed for self-regulation, learning, academic achievement and mental health. [56] [57]

- **Eyesight**

Excessive screen time on smart devices, particularly mobile phones, is linked to a 30% higher risk of developing myopia. Myopia, commonly known as nearsightedness, is a vision condition in which distant objects appear blurry while close objects are seen clearly. It generally worsens over time before stabilising in adulthood. When this screen time is combined with excessive computer use, the risk increases to approximately 80%. This is seen in children as young as three years old as well as into adulthood.[58] The prevalence of myopia in children has grown from 24% in 1990 to 36% in 2023, and this trend is expected to continue.[59]Every additional hour of screen time daily increases myopia risk by 21%. In children already diagnosed with myopia, an extra hour raises the risk of progression by 54%.[60]

- **Obesity**

There is increasing evidence of a strong association of excessive screen usage and an increased risk of obesity.[61] Children with higher screen time are more likely to engage in mindless eating and overeating. [62] Longer screen time can interfere with health-promoting experiences such as physical activity, and children from families with lower annual household incomes are more affected.[63] Children are often sedentary when watching screens, which reduces physical activity and is known to have a positive effect on motor development.[64]

- **Musculoskeletal Disorders**

Children who use screens for more than 60 minutes daily are ten times more likely to develop musculoskeletal disorders than those who do not, especially if young children use devices while lying down.[65] Teachers have observed that children have difficulty developing core strength to sit on a carpet when they arrive at school, due to lying down whilst using screens.[66] The physical health issues that come with the overuse of screens include problems with the text neck, wrist, and back.[67] In a study conducted in the United States, children who engaged in more screen time performed worse on a manual dexterity scale.[68]

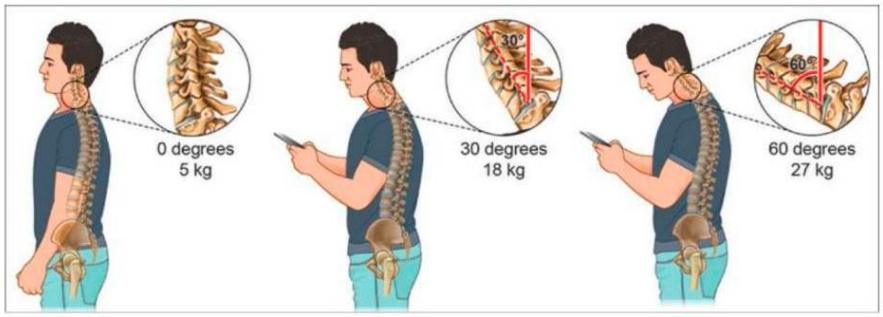

Figure 4

Experts are concerned about hand and wrist weakness, reduced grip, and hand-pinch strength attributed to screen use.[69] Hutton et al discuss how this can be seen in pre-school children for example, in simple letter formation[70]. Young children are starting primary school without adequate finger muscle strength for writing or other activities such as painting, scissors cutting, looping thread, doing up buttons, etc.[71]

- **Sleep issues**

Quality sleep is critical for a child's healthy development and its absence drives untoward behaviour, impaired learning and impedes overall wellness. Screens significantly impact sleep patterns and the ability to fall or stay asleep, which is particularly important for young children during a crucial developmental period.[72]

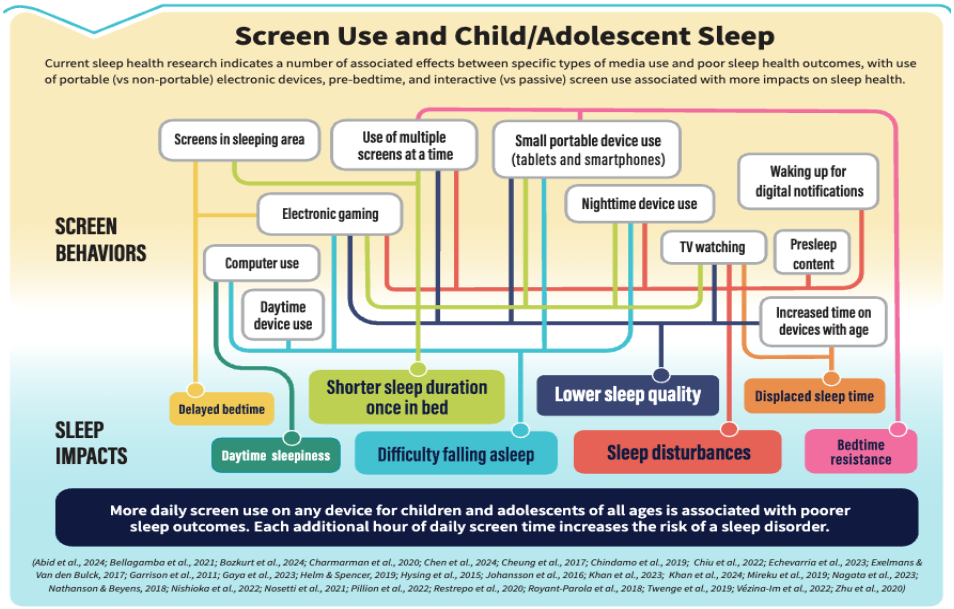

Figure 5

There is a strong and consistent association with bedtime media use and inadequate sleep quantity, poor quality, and excessive daytime sleepiness as shown in Figure 4. [73] [74] Studies have also shown that children who had access to, but did not use, devices at night had comparable sleep disturbance.[75]

The Societal Issues of Screens

- **Addictive by design**

Screens 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.[76] The manufacturers and app makers use that "younger users, who are particularly sensitive to reinforcement in the form of social reward and have minimal ability to self-regulate effectively," can be habituated to apps like TikTok in less than 35 minutes.[77]

Because of this, children readily become addicted to social media and their screens, deepening behavioural addictions through screen 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.[78] A study by researchers at King's College London estimated that one in four children and young people use their screens in a way that is consistent with a behavioural addiction.[79]

This was defined as a child panicking or becoming upset when a device is unavailable, using the device for uncontrolled lengths of time and being used at the detriment of other enjoyable and developmentally meaningful activities.[80] From 'The National Parent Survey 2024' in the UK, 14% of children spend more than 7 hours on electronic devices, the average being 3 hours and 20 minutes outside of school.[81]

A comprehensive review of screen 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 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.[82]

- **Missed childhood experiences and impeded life chances**

Children spend significant amounts of time on their smartphones. This means they spend that time alone rather than with their family and friends and in real-life situations, which prepares them for adulthood (Figure 6).[83] The more time early years children spend on screens is associated with less shared reading, lower language skills, fewer quality interactions with parents, and lower parent-child closeness.[84] Recent research has suggested that playing outdoors can mitigate some of the negative effects of screen time on daily living skills by 20%.[85]

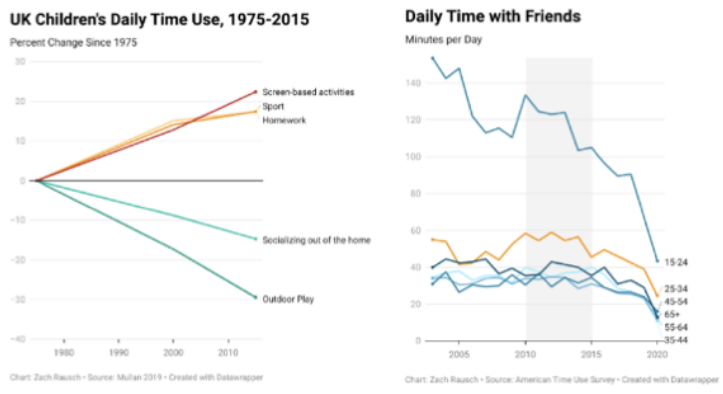

Figure 6

- **Parent understanding of screen usage**

The Kindred Squared School Readiness survey highlights that 43% of parents were unaware of the full range of skills required for a child to be 'ready for school' before their child was 4 years old. [86] Crucial information is being provided to parents too late, or factually incorrect information. An example is recommendations to use screen time to avoid behaviour that challenges when evidence demonstrates that screen time worsens behavioural difficulties.[87]

Research has shown that parents experience confusion about screen time recommendations, and there is a need for more robust educational programs that explicitly explain the risks of screen use and the developmental appropriacy of children using screens.[88] Sociodemographic characteristics such as education level and occupation influence parents' awareness and confidence in their knowledge of the impact of screen use.[89]

Nagata et al. further discuss the lack of sufficient evidence-based guidance from governmental organisations for parents managing their children's screen use. [90] Since screen time is potentially modifiable through parent training and education, studies have shown the need for greater adherence to the recommendations to avoid screen viewing in children younger than 2 years old. [91] [92] Healthcare professionals and parents can work collaboratively together to create 'media plans' to ensure that screen time does not interfere with vital parent-child interactions and is used in a responsible manner for short periods, aligning with WHO recommendations.[93]

- Technoference

"Technoference" is a term for when the use of devices distracts from interpersonal activities.[94] This section will focus on how technoference impacts parent-child interactions. Studies have shown how parental use of devices reduces engagement when their children attempt to initiate interaction and reduces their attunement to their child's needs.[95]

When engrossed using their devices, parents are less aware of children's social and/or behavioural cues and this could lead to more conflict within families. [96] [97] [98] A study concluded that "technoference" was correlated to three key markers of parent-child interactions: parent directiveness (giving a child verbal or non-verbal cues about what the child should do), responsiveness and scaffolding (parent's adjusting behaviour to provide a framework for their child to learn from).[99]

This impacts situations where children are playing in the park, trying new foods and during breastfeeding. [100] [101] When using smartphones and breast-feeding, mothers can take longer to respond to changes in their baby, the mother's feeding posture can be affected, which can cause pain for the mother, and mother-baby communication is different.[102]

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