Recognition, prevention and management of 'digital harm'

Arthur Joustra,[1] Lauren Quinn,[1] Vicki Walker [2]

[1]Sherwood Forest Hospitals NHS Foundation Trust, Sutton-in-Ashfield, UK
[2]Paediatrics, Sherwood Forest Hospitals NHS Foundation Trust, Sutton-in-Ashfield, Nottinghamshire, UK

Correspondence to
Dr Arthur Joustra, Sherwood Forest Hospitals NHS Foundation Trust, Sutton-in-Ashfield, Nottinghamshire, UK; arthurjjoustra@gmail.com

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ABSTRACT

The digital world continues to evolve and is apparent in all aspects of daily life. For children and young people, their online life is as real to them as their in-person life. Health professionals urgently need to update their knowledge and awareness of the positive and negative impacts of the myriad of online content and how this is viewed and used by children and young people. Digital harm can contribute to multiple clinical presentations and paediatricians must ask about online life in consultations and be able to provide holistic digital safety advice, while recognising serious digital harm requiring safeguarding input.

This article will introduce the main areas of harm and how to include assessment in routine clinical practice. It will equip paediatricians to offer advice and safeguard children and young people and offer resources and links to further learning.

INTRODUCTION

With the average teenager's screen time exceeding 8 hours daily, there is a significant risk of 'digital harm' defined as negative outcomes associated with use of digital devices[1 2] (table 1). To mitigate this risk, the UK government introduced online safety laws and guidance for education, police and other professionals, alongside internet watch groups to monitor and promptly remove inappropriate online content.[3] Subsequently, the UK education sector introduced 'Education in a connected world' recommending mandated online safety teaching.[4] The NHS and new integrated care systems must acknowledge and act on physical and mental health effects of digital harm, promoting a multi-agency proactive approach between health, education, police and social case.

Positive impacts of digitalisation including education, creativity and connectivity should be acknowledged, alongside the negative impacts of digital poverty. Approximately 8% of young people have no access to digital devices at home, restricting access to educational resources and limiting digital literacy. The UK government and UNICEF have initiated a 10-point action plan to eliminate digital inequality.[5] Meanwhile, paediatricians should advocate for children having access to digital resources, signposting towards charities such as 'the Good Things Foundation'—a national digital inclusion network providing free data and refurbished devices for disadvantaged children.[6]

PRESENTING SYMPTOMS: LINKS TO DIGITAL HARM

Physical health

Blue light exposure disturbs melatonin production, disrupting natural circadian rhythm and resulting in poor sleep[7] which directly correlates with poor concentration, worsening school performance and delayed development.[8 9] Childhood obesity is multifactorial, with screen time replacing physical activity, and increasing advertisement of junk food being directly associated with increased prevalence.[10] Prolonged use of in-ear headphones, particularly high-volume use, is linked to a fivefold increase in long-term hearing morbidity.[11]

Misinformation (*poorly sourced or lacking context*) and disinformation (*deliberate or malicious*) relating to health, often result in detrimental impacts on medical compliance, including parents/carers refusing treatments for children.[12]

Online health forums enable groups with specific medical conditions to connect. While this may be beneficial for education, awareness and peer-to-peer support, misinformation is often shared. Interpreting misinformation without health literacy or personal medical context can lead to unfounded

Table 1 Digital harm outcomes

Category	Digital harm outcomes	
Physical health	► Obesity ► Poor sleep, fatigue ► Developmental delay ► Consequences of misinformation/disinformation	► Physical consequences of poor mental health ► Medically unexplained physical symptoms ► Cyberchondria ► Long-term hearing morbidity
Mental health	► Anxiety and depression ► Self-harm and suicide ► Body and skin dysmorphia	► Disordered eating ► Digital/gaming addiction
Safeguarding	► Sexual exploitation ► County lines ► Online radicalisation	► Stalking ► Gambling

medical anxieties and inappropriate medical requests and expectations, termed 'cyberchondria'.[13 14]

Mental health

Mental illness often presents atypically in children, frequently manifesting as behavioural concerns or physical symptoms.

Digital use activates dopamine-mediated reward pathways in the brain fuelling overuse and 'digital addiction' resulting in dysfunctional vitamin D and melatonin metabolism correlating with poor sleep, depression, inattention and low energy.[15 16] Online platforms and gaming websites use personalised algorithms to exploit digital addiction.[17]

The 'online self' is created with an audience in mind; users feel pressured to meet social standards and expectations. Therefore, young people associate popularity online to personal adequacy affecting their self-esteem. Social media platforms have sophisticated software, allowing users to edit content, creating unrealistic body expectations leading to body dissatisfaction.[18] 'PRO-ANA' websites further promote this 'slim ideal' providing advice about obtaining slim physiques including encouragement of anorexic and bulimic behaviours. This culture is significantly impactive, leading to increased body dissatisfaction and disordered eating.[19]

Young people can easily access pornography online, creating unrealistic views of sexual intimacy and healthy relationships, resulting in behavioural changes and clinical presentations concerning their 'abnormal' genitalia.[20 21]

Cyberbullying permits perpetrators to use internet anonymity to target victims, including 'trolling' where targeted hurtful or provocative comments are posted. These online behaviours are significantly associated with victim anxiety and depression.[22]

Deliberate self-harm is a leading cause of mortality in young people. Self-harm imagery is increasingly accessible online via hashtags and forums. Exposure, alongside peer-to-peer encouragement online, coincides with the rapid increase in paediatric self-harm.[23] Nuanced risks are constantly evolving; including digital self-harm in which individuals target themselves with negative content online to self-inflict psychological distress or communicate psychological distress indirectly.[24]

Online safety

Internet anonymity poses significant risks for online exploitation of children. Online grooming occurs when perpetrators build trusting relationships, allowing manipulation, exploitation and abuse of victims. This may include sexual exploitation, with the sending or receiving of explicit images. Location tracking and poor privacy settings facilitate stalking behaviours and enable evolution of online connections into physical meetings creating significant safety risks.

Criminals target young people online coercing them into facilitating illegal contraband and drug smuggling—referred to as 'county-lines'. Clinicians need a low threshold for raising concerns as these children travel between different counties and have limited contact with healthcare services.[25] Radicalisation increasingly begins online, with extremist groups targeting vulnerable children, playing to their insecurities to convert them to extremist ideologies.

MANAGEMENT OF DIGITAL HARM

Digital history

Taking a full digital history in every consultation is impractical, therefore recognition of common digital harm outcomes should prompt further questioning.

In preadolescents, it's important to start open conversations with parents determining their child's screen time and online activities, making possible links to the presenting complaint.

In adolescent consultations, it's important to ask sensitive questions one-to-one as parental presence may limit disclosure. Digital history can be explored using the HEADSSS assessment (box 1), for example, asking about device access and supervision in 'home', privacy settings in 'safety', screen

Box 1 HEADSSS assessment

Home: Does the child neglect family activities for their device? Does their mood change if the device is removed from them?
Education: Do they get told off for using their device at school? Is screen time interfering with homework? Is there evidence of cyberbullying at school?
Activities: Do they have a healthy range of non-digital activities and exercise?
Drugs: Have they been approached online by a drug dealer, or shared or received inappropriate drug-related content online?
Sexual relationships: Have there been inappropriate contacts online that may have been sexual in nature? Has the child sent or received explicit content? Is there a possibility of online sexual abuse, grooming or exploitation?
Social care: Is there any social care history as a direct result of a digital harm event?
Safety: Has a child's physical safety ever been at risk due to events that initiated online? Do they have adequate privacy settings?
Social media: Has social media ever caused you to have a low mood? Do you think social media has a positive or negative impact on your life?

Box 2

Sophia, aged 14.
History: Recurrent abdominal pain with nausea resulting in poor school attendance.
Normal bowel habits. 4 lb weight loss in 3–6 months.
Nil medical or family history. Lives at home with mother and brother (6 years). No social care involvement.
Examination and blood tests are normal.
She struggles with anxiety, low mood and panic attacks.
History of previous self-harm, cutting. No suicidal ideation.
You enquire if she spends a lot of time on digital devices…
Sophia reports using Instagram and TikTok for many hours every day and finds it distracts her from schoolwork.
You ask how her online use makes her feel…
Seeing social media posts of her friends having fun makes her feel lonely and isolated. She has received some negative messages online, causing her to 'dread' school.
You ask if there is any other content online that makes her feel unhappy…or anything that doesn't feel safe…
She says social media makes her feel negative about her body image resulting in her trying several diets. A boy from school recently gave her compliments about her figure and asked for indecent images. Sophia becomes tearful and says she sent him explicit images which he then threatened to post on social media. She feels embarrassed and blames herself.
You have clearly identified digital harm and emotional health needs which could be presenting with physical symptoms.

time in 'activities' and potential inappropriate interactions and exposure in the sexual history.[26]

If concerns are apparent, the Social Media Disorder Scale may be used to further define the problem. There is both a 9-step screening version and a 27-step in-depth version that may be used to understand trends in behaviour and focus on specific problems.[27]

Different concerns may be discussed which warrant a more urgent response (table 2).

Please consider the case study in box 2.

Interventions

Investigation and management of digital harm requires a proactive multi-agency approach.

Red flags must be raised to local safeguarding leads to support onward referrals to social care. Reporting of adverse digital events is crucial to identify dangerous content. Online abuse and sexual exploitation should be reported via the Child Exploitation and Online Protection Command website.[28] Alongside this, Childline's 'Report Remove' tool allows confidential reporting and removal of sexual images.[29] In instances where new or worsening mental health diagnoses are suspected, Child and Adolescent Mental Health Services referral is required.

To aid digital harm discussions, up-to-date awareness of what young people are accessing online is important, however, can be difficult due to the constant evolution of digital media. The NSPCC resource 'Keeping Children Safe Online' provides information for parents, carers and professionals regarding popular online sites.[30] Websites such as 'Internet Matters'—provide professionals with a helpline for advice regarding digital safety issues. In the UK, health professionals have access to the e-learning for health module: online safety and

Table 2 Red and amber flags

Red flags—urgent safeguarding input	Amber flags—not immediate safety concerns but may be contributing to the presenting complaint
► Receiving or sending explicit images ► Suspected grooming, talking to or planning to meet strangers ► Suspected online radicalisation ► Online content resulting in self-harm, suicidal ideation or eating disorders.	► Excessive screen time ► Inadequate privacy settings ► Viewing inappropriate content, unsupervised internet access without restrictions ► Poor body image

digital harm, providing in-depth information, case studies and learning points.[31]

Amber flags should be managed using a holistic multi-agency approach in conjunction with parents and carers. Involving education providers facilitates ongoing emotional support, addressing bullying concerns and providing digital safety teaching. Professionals can help families implement social prescribing measures, including screen-time recommendations of less than 2 hours daily, 'prescribing' screen-free activities and advising on safe and constructive internet use. Parents and carers should be signposted towards the following online resources:

- Digital five-a-day—positive internet use for creativity, connectivity and education as well as encouraging screen-free activities.[32]
- MindED—'parenting in a digital world' e-learning module.[33]
- NSPCC—'keeping children safe online'—resource providing up-to-date information and advice on what to do if your child sees inappropriate content online and guidance on reporting harmful content.[30]

Young people should be encouraged to build digital resilience through an understanding of online safety, including the importance of adequate privacy settings, not engaging with strangers online, how to report and block inappropriate content and most importantly when to seek help from a trusted and informed adult.

CONCLUSIONS

- Digital harm is constantly evolving and may influence both physical and mental health of children and young people (CYP).
- Healthcare professionals (HCPs) working with CYP need to be aware of digital harm and its effects.
- Training of HCPs to identify indicators of digital risk and its management in integrated care settings should be facilitated.
- HCPs should update their knowledge using reliable resources, attending regular safeguarding training and discussing shared learning experiences with colleagues.
- CYP should be empowered to take responsibility for their own digital safety through promotion of open and non-judgemental discussions with trusted and informed adults, engagement with digital education and utilisation of available resources.
- Government, education, health and social sectors should continue to provide national guidance and develop policies to address this area.

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ORCID iD
Vicki Walker http://orcid.org/0009-0007-9661-4929

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