Anales de Pediatría xxx (xxxx) xxx–xxx

analesdepediatría

www.analesdepediatria.org

EDITORIAL

A call for caution in the use of screens: a lack of evidence of risk is not evidence of a lack of risk

Llamada a la prudencia en el uso de las pantallas: ausencia de evidencia no es evidencia de ausencia

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In the past few decades, there has been growing concern in different fields regarding the impact of digital media on paediatric health and development. Paediatric scientific societies in many countries have published public health guidelines to reduce the deleterious impacts of screen use.[1–3]

However, scientific articles as will as articles aimed at the general public have been published that question the paediatric recommendations, on the basis of a false premise: that a scarcity of evidence for risks surrounding screen use is evidence of an absence of risk. This causes confusion. The current clinical and scientific evidence is sufficient to support the assumption that there are risks. Therefore, it is important that all stakeholders playing any role in research be rigorous and precise in their use of language when presenting their findings, so that they are conveyed appropriately.

The past decade was shaped by marked changes in the way that individuals interact with screens. Screen use in the paediatric population has also evolved over time for various reasons. Some examples are the universalization of electronic devices in the home setting with access at increasingly young ages, the perception of electronic devices as educational tools in school settings as educational tools, the proliferation of untested applications and devices, the easy access to inappropriate content, a business model based on the sale of personal data, or technological innovations such as plug-and-play or infinite scroll.

Digital media and scientific research develop and advance at different paces. On one hand, the pace of innovation is fast. The technology industry follows a commercial logic that consists in bringing new products into the market, designed to have a limited useful life to force consumers to continuously replace a model or product with a newer one. On the other hand, the pace of rigorous, methodologically sound research is slow. Thus, science can hardly keep up with the pace of technological innovations to assess their effects. More importantly, research findings are usually too late to guide education, public health and social policy.

The studies that are initially conducted after the release of a new product usually seek to establish consumer trends and associated risks in specific populations. Thus, most of the early scientific studies were cross-sectional and population-based and lacked a control group, providing limited data. These studies evinced the challenging complexity of this research. In consequence, current studies seek to establish cause-and-effect relationships. This type of

DOI of original article: https://doi.org/10.1016/j.anpedi.2024.03.009
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research requires a longitudinal design and a control group, and focuses on specific risks in specific age groups. This methodology yields conclusions that are more robust, as is the case of studies that have already been published on the impact of digital media on early neurodevelopmental outcomes. Still, further research is necessary to study other aspects more in depth.

Scientific evidence must be interpreted with the utmost caution. The fact that the evidence for risks is weak due to the study design or methodology does not demonstrate a lack of risk. To use a well-known axiom, ''absence of evidence is not evidence of absence''.

Today, there is growing concern among scientists and in society about the impact of screen use on the health and development of children and adolescents. In several countries, including Spain, there are movements or lawsuits initiated by parents, schools or governmental agencies demanding help or compensation for the alleged harm resulting from screen use. In 2022[4] and 2023,[5] paediatric societies felt the need to reassert their recommendations to limit screen use and offer guidelines for parents; one such example is the Family Digital Plan proposed by the Asociación Española de Pediatría (AEP, Spanish Association of Pediatrics).[6] The number of articles published on the subject is growing, both in scientific literature and in the press. In the field of education, primary and secondary school teachers report decreased attention in the classroom and an increase in the number of students with learning difficulties. In clinical settings, paediatricians manage patients with neurodevelopmental disorders or physical and mental problems who improve after limiting exposure to screens, although it is currently not known whether the effects of screen use are fully reversible once it is restricted.

At the same time, scientific articles are published and picked up by the press that, based on the logic of the ''absence of evidence'', call for the revision of paediatric recommendations[7] or even label them as alarmist.[8] It is precisely now, when the scientific community and the general population are in need of evidence of the highest rigour, that accuracy in the use of language becomes indispensable to keep from exacerbating the current confusion.

On the other hand, in the press or news media, it is not infrequent to find news items followed by industry-sponsored content that presents products aimed at the paediatric population under a favourable light when the current evidence is either ambiguous or contradictory. By now, it is well known that the business model of the mass media does not rely on providing content to readers, but on capturing the attention of readers for content sponsors. This demands an increasing level of courage and ethical integrity in all professionals involved in generating news content and an increasingly critical approach by the readership to differentiate actual news from advertising.

The responsibility to safeguard health and development is a collective one. Families, paediatricians, the mass media, policymakers and all individuals involved in education have a duty to care for individuals in the first two decades of life without being swayed by the economic interests tied to the tech industry. Although the current evidence may be limited in some areas, absence of evidence is not evidence of absence. The burden of proving the absence of deleterious effects falls to those parties that advocate for the introduction of digital media during childhood or adolescence. It does not fall to those of us who call for prudence and caution. The question whether the use of these devices can be risk-free should have been asked beforehand, not after their introduction is a *fait accompli*. We have unwittingly reversed the burden of proof.

The absence of scientific evidence is not evidence of an absence of risk. It simply highlights the need to conduct more studies that can establish causal relationships, as has been the aim of recent research studies. It is likely than in a few years the evidence will be overwhelming. However, we do not know whether the damage caused will be reversible. Therefore, we must be rigorous in the messages disseminated to the public from each field to avoid spreading confusion. All agents involved in research and the dissemination of knowledge must act with prudence.

Funding

This research did not receive any external funding.

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