

Evolution of Digital Natives and the New Role of Research

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Digital media, including the internet, computer games, and smartphones, has been subject to intense debate in relation to its impact on child and adolescent mental health. Although the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) did not include internet gaming disorder in the main disease criteria, it should be investigated whether it has similar characteristics to other substance-related conditions and whether they share the same biological mechanisms. Recently, there has been an increasing interest in screen media such as smartphones and smart pads. While internet gaming is a matter of choice in which an individual can decide whether to use it or not, a smartphone is an essential part of life. It is a lifeline to save you in an emergency, a certificate to confirm your identity, and a virtual network to help you keep living a quasi-normal life in the so-called new normal era of the pandemic. Today, the young generation is referred to as digital natives or born with the ubiquitous influence of the internet and digital media. Even very young children can operate smartphone applications, including YouTube and Instagram, in an intuitive manner. Digital media has become a necessity of daily living, corresponding with the fact that we cannot go back to the era when there were no automobiles. Here, the more serious issue arises: how can the potential hazard of exposure to media and the inevitable evolution of human species be compromised?

It is not easy to determine the amount of smart media use among children, how early they are exposed to it, whether it has a negative impact on them, and what the related variables are, if any. Observing temporal relationships and trajectories may be the best way to understand their complex interplay. In 2015, the Kids Cohort for Understanding of Internet Addiction Risk Factors in Early Childhood (K-CURE) initiated a prospective, longitudinal follow-up study to explore the cause and effect of media-related conditions. Thus far, owing to the efforts of investigators who followed up with a group of young children for more than five years, K-CURE has presented evidence of smart media use among children. Accordingly, 12.0% of toddlers use smartphones during weekdays

while 23.4% use it only on weekends, maternal depression is linked to children's over-exposure to television, children with smartphone overuse showed shorter sleep time and poor sleep quality, and mother's smartphone addiction is related to early smartphone exposure in children [1-4]. In the current issue, K-CURE reported observations from the most recent follow-up, stating that elementary school children with screen overuse showed higher externalization behavior, social problems, and rule violation behavior than those in the control group. Another article in the current issue reported significant brainstem structure changes in adolescents with problematic smartphone use. These studies imply that media overuse might be a universal issue throughout the developmental lifespan, is an interplay between the child and the environment in which it is reared, and might reflect general discipline issues as well as other comorbid emotional and behavioral problems in children.

In spite of the clear concerns regarding overuse, a more complicated discourse might exist in the ever-evolving universe we live in than merely when and how children are permitted to use smartphones. In other words, Society is evolving at a faster rate than the older generation can comprehend fully, especially when the change is facilitated by industries pursuing maximum economic benefits by facilitating the change and getting into the big wave. Works such as *"The Social Dilemma,"* a documentary film by Netflix as well as Yuval Harari's *"Homo Deus"* suggest that our species might already be living in a world composed of data which manipulate our preferences, opinions, and value systems. My generation may be the last one to consider the differentiation and dilemma of the virtual and real world before the human species stops raising the question of whether social media or the virtual world is hazardous or not. The real dilemma exists in the fact that the speed of research cannot keep abreast with the actual rate of change of society and technology. Future child psychiatry research should, therefore, focus on how the world of digital data alters the development of the human brain, cognition, and emotion and not merely on the final outcome observed in the form of behavior. In addition, researchers need to establish sound evidence on digital therapeutics as currently digital therapeutics that are backed by lit-

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tle evidence are being marketed for commercial gain. We might be in the passageway of an essential turning point of human evolution as well as research on it.

REFERENCES

- 1) **Kim B, Han SR, Park EJ, Yoo H, Suh S, Shin Y.** The relationship between mother's smartphone addiction and children's smartphone usage. *Psychiatry Investig* 2021;18:126-131.
- 2) **Kim SY, Han S, Park EJ, Yoo HJ, Park D, Suh S, et al.** The relationship between smartphone overuse and sleep in younger children: a prospective cohort study. *J Clin Sleep Med* 2020;16:1133-1139.
- 3) **Chang HY, Park EJ, Yoo HJ, Lee JW, Shin Y.** Electronic media exposure and use among toddlers. *Psychiatry Investig* 2018;15:568-573.
- 4) **Park S, Chang HY, Park EJ, Yoo H, Jo W, Kim SJ, et al.** Maternal depression and children's screen overuse. *J Korean Med Sci* 2018; 33:e219.