ANSES Opinion
Request No 2019-SA-0152

The Director General

Maisons-Alfort, December 16, 2025

OPINION
of the French Agency for Food, Environmental and Occupational Health & Safety

on "the effects of social media use on the health of adolescents"

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It also contributes to the protection of the health and welfare of animals, the protection of plant health, the evaluation of the nutritional characteristics of food and the protection of the environment by assessing the impact of regulated products.
It provides the competent authorities with all necessary information concerning these risks as well as the requisite expertise and scientific and technical support for drafting legislative and statutory provisions and implementing risk management strategies (Article L.1313-1 of the French Public Health Code).
Its opinions are published on its website. This opinion is a translation of the original French version. In the event of any discrepancy or ambiguity the French language text dated December 16, 2025 shall prevail.

On 12 September 2019, ANSES issued an internal request to conduct the following expert appraisal: assess the risks to the health of adolescents associated with their social media use.

1. BACKGROUND AND PURPOSE OF THE REQUEST

Digital technologies have become ubiquitous in every aspect of our daily lives, and this has led to numerous questions being asked about their effects on health, well-being and the functioning of society[1]. These technologies have proved controversial on a number of levels, regarding the societal dimension (e.g. the links between social media and democracy), health (particularly addiction, see Chapter 7 of the expert appraisal report supporting this opinion), and their environmental impact[2].

Given the growth in the use of digital information and communication technologies, and the limitations of the available expert appraisals conducted in France and internationally to assess the possible risks associated with their use, ANSES issued an internal request on 12 September 2019 (Internal Request No 2019-SA-0152) to assess the health risks associated with digital communication tool use (see Annex 1). The issues raised by digital tools in terms of their health effects include, for example, the consequences of information overload in the workplace, the consequences of access to digital content from a very early age, and changes in the interactions between parents and children induced by digital technology use.

In a particularly dynamic environment for communication technologies, the emergence of social media and its massive development over the last 20 years represents a major socio-cultural upheaval. The growth in its use in the home, at school and in the workplace comes with many questions about the risks that this use may pose, particularly to the health of the most sensitive populations. Social media use during adolescence, a vulnerable period, raises concerns about the potential effects on cognitive development, mental health and emotional balance. The Agency therefore decided to focus its work on assessing the risks to the health of adolescents associated with the use of social media. The objectives of this expert appraisal, which is intended to help protect this population, are to:

- describe how social media functions and how it is used;
- explain the specific characteristics of the adolescent population studied in this expert appraisal and the associated issues;
- describe the ways in which adolescents use social media;
- set out the associated regulatory and institutional context;
- describe the health effects of certain specific practices;
- analyse the risks to the health of adolescents associated with their social media practices;
- make recommendations to protect the health of adolescents.

2. ORGANISATION OF THE EXPERT APPRAISAL

The expert appraisal was carried out in accordance with French standard NF X 50-110 "Quality in Expert Appraisals – General Requirements of Competence for Expert Appraisals (January 2024)".

[1] Some of the most recent questions concern video games and addiction, the digital divide and the digital transformation of public services, the quality of learning and digital technologies in schools, the confidentiality of personal data and digitised health data.

[2] See the study by ARCOM and ARCEP, in conjunction with ADEME: https://www.ademe.fr/presse/communique-national/larcom-et-larcep-en-lien-avec-lademe-publient-une-etude-inedite-sur-limpact-environnemental-des-usages-audiovisuels-en-france-en-2022-et-a-lhorizon-2030/.

It fell within the sphere of competence of the Expert Committee (CES) on "Physical agents and new technologies". ANSES entrusted the expert appraisal to the Working Group (WG) on "Effects of digital tool practices on the health of adolescents" set up in September 2020. The methodological and scientific aspects of the work were presented to the CES on "Physical agents and new technologies". It was adopted by the CES at its meeting on 16 October 2025.

The expert appraisal was coordinated by the Unit for Assessment of Risks Related to Physical Agents (part of the Risk Assessment Department) and the Social Sciences, Economics & Society Department.

ANSES analyses interests declared by experts before they are appointed and throughout their work, in order to prevent risks of conflicts of interest in relation to the points addressed in expert appraisals.

The experts' declarations of interests are made public via the website: https://dpi.sante.gouv.fr/.

To carry out this expert appraisal, the Working Group drew mainly on the available academic scientific literature and grey literature (institutional reports, publications and web pages by the stakeholders concerned by the topic). An analysis of the legislative framework relating to social media use by minors (analysis of the existing legal framework, the issues and changes under way), funded by ANSES, was also carried out by researchers from the Sorbonne Legal Research Institute (IRJS, 2025). The results of this analysis are available in a report that can be downloaded from the Agency's website.

3. ANALYSIS, CONCLUSIONS AND RECOMMENDATIONS OF THE WORKING GROUP AND THE CES

This section is based on the data in the expert appraisal report. It summarises the collective expert appraisal work carried out by the Working Group and adopted by the CES.

3.1. Expert appraisal method

3.1.1. Documentation on the ways in which adolescents use social media

To assess the health issues associated with social media, it was essential to begin with a study phase to learn how it is designed, how it functions and how it is used by adolescents.

This included a search and analysis of the academic literature on attention-getting strategies. This documentation mainly came from the fields of information science and psychology. In addition to studies on social media, the experts also examined the insights gained from similar technologies (e-commerce websites, online video games, etc.).

In order to identify relevant data for the study of practices, a specific literature search was carried out using multidisciplinary scientific databases (Cairn, OpenEdition, Erudit, Scopus, HAL, etc.)[3]. The corpus was supplemented by a literature watch focusing on publications by research teams in the fields of information and communication sciences, sociology and

[3] Keyword search cross-referencing the following dimensions: adolescents, digital usage, social media, information practices, socialisation, family mediation, educational systems.

education sciences, and by consulting recent institutional or association reports (in particular those by INJEP[4], CLEMI[5] and UNAF[6]).

The selected publications were those that directly addressed adolescents' digital practices, while considering the informational (access, selection, circulation, receipt of information), social (identity, interpersonal relations, norms of young people) and educational (family socialisation, school mediation, formal and informal learning) dimensions.

Although the subject of the expert appraisal was specifically focused on digital practices by adolescents aged 11 to 17 years, some studies of children, particularly those in the 8–12-year age group, were included in the analysis of data. This is because data from studies of children provide valuable insights into the trajectories of digital socialisation and help gain a better understanding of how adolescent use is rooted in practices initiated in childhood.

3.1.2. Literature search and analysis of studies on the links between social media practices and health effects in adolescents

The expert appraisal was based on the available scientific literature on the effects of social media practices on the health of adolescents aged 11 to 17 years. For this purpose, a corpus of scientific articles that was as comprehensive and relevant as possible was compiled through a literature search. A search equation[7] was developed specifically for the purposes of this expert appraisal and used in queries of two scientific databases (Scopus and PubMed). Only original articles (therefore excluding opinions and reviews of articles) published in French or English between 1 January 2011 and 24 May 2021 were included.

This corpus was supplemented by studies published before 2011 that the Working Group experts believed were relevant to complete the literature search, particularly in order to present the state of the art of knowledge on the various health effects studied, retrace the context of the definition and understanding of the period of adolescence, and analyse how social media is used. The Working Group experts also consulted data published after 2021 presenting prevalence results for the studied disorders, in order to compare the conclusions drawn from the literature review with the results of recently published studies.

The corpus of articles thus compiled was filtered with a view to selecting relevant publications of sufficient scientific quality (see Chapter 2.6 of the expert appraisal report). This led to data on adolescents aged between 11 and 17 years being selected (see Chapter 4 of the expert appraisal report).

The data gathered for each health effect studied are presented in separate chapters of the expert appraisal report. These chapters have been uniformly structured in order to present:

- in the introduction: a definition of the health effect in question and its prevalence in France, according to the available data and the methods used in the scientific literature to study it;
- a summary of the analysis of the scientific literature data, including the key findings of each selected study;
- a discussion of these findings, while drawing on more recent or earlier studies, or studies conducted on a different age group (in adults or children), or presenting assumptions of explanatory mechanisms from the literature;

[4] National institute for youth and popular education.
[5] Centre for media and information literacy.
[6] National union of family associations.
[7] Equation based on three categories of keywords: terms relating to social media usage, including "problematic usage"; terms relating to the health effects, in particular mental health; and lastly, terms relating to the adolescent population.

- a conclusion from the Working Group on the links between social media use and the studied health effect in light of all this evidence.

3.1.3.Limitations of the available scientific literature

The analysis of the studies identified by the Working Group revealed several limitations.

The first is linked to differences in timing between the production of science and the development of social media practices and technologies. Indeed, a large proportion of the studies were carried out on social media platforms that are now less popular with adolescents, while few studies on recent platforms such as TikTok, for example, are available. Nevertheless, due to similar mechanisms between the various existing social media platforms, particularly those described as highly visual[8], the effects caused by older platforms can be transposed to more recent ones.

The average time spent on these platforms has also increased considerably since the advent of social media. As a result, today's definition of "intensive" use does not correspond to the same duration of use as 10 years ago.

Another limitation concerns how researchers quantify or qualify social media use. Most studies assessed the use of social media based on the time spent on these platforms or the number of times they are consulted daily. However, this assessment method is based primarily on retrospective statements by respondents. These questionnaire measurements can be affected by memory bias, which compromises their precision and accuracy. They may also be subject to social desirability bias, which consists in giving the answer that seems to project the most favourable self-image in relation to social norms. Measurements of time spent on social media are also difficult to interpret. Prolonged use alone does not mean that a situation is cause for concern; it may simply reflect a strong interest – temporary or regular – in the online activity. It is therefore essential to interpret social media use (see Section 3.2) in its social and cultural context.

Some studies have analysed adolescents' social media use in more detail, either through "problematic" use, by observing or questioning their practices (e.g. use of filters, photo retouching, publication of selfies), or by questioning adolescents about their emotional investment or the importance they attach to social media. Through the various dimensions explored, these approaches enabled the experts to specify the types of social media use associated with health effects.

The data in the corpus came from studies carried out on adolescents from different countries and a variety of socio-cultural backgrounds. However, while this heterogeneity called for a systematic process of reflection on how to transpose their results to the French context, the Working Group believed that the technical characteristics of social media and the known mechanisms of action on health were broadly similar. It was therefore considered that, beyond the specificities linked to the socio-cultural context, the health effects observed in these studies could apply to all adolescents.

Lastly, even though a number of longitudinal studies are available and their results can provide insights on the timing of events, thereby enabling a causal effect to be considered, the majority of available studies are cross-sectional. Therefore, while some of these studies show a statistical link between social media use and certain health conditions or behaviours (digital

[8] Highly visual social media refers to online platforms whose main content is based on visual elements – mainly images, videos, illustrations and even animations – rather than text. They focus on aesthetics, visual storytelling and graphic creativity to encourage user engagement.

multitasking, cyberbullying or "sexting"[9]), they do not allow conclusions to be drawn about the causality of these effects.

3.2. Definitions and operating principles of social media

In the absence of an unequivocal and commonly agreed definition of social media in the scientific literature, mainly because of the highly evolving and heterogeneous nature of these technologies, certain institutional players have sought to provide a description. In France, in 2022, the Council of State described social media as "a space (online communication service) where, by creating a digital profile, it is possible to connect with other Internet users and discuss and exchange pre-existing content or content created by the user". Act 2023-566 of 7 July 2023, which aims to establish a digital majority and combat online hate, defined social media as follows: "Any platform that enables end-users to connect and communicate with each other, share content and find other users and content, across multiple devices, particularly through online conversations, publications, videos and recommendations".

As the work for the expert appraisal did not require the scope of these digital objects to be strictly defined – which in any case has proved to be particularly fluid – the Working Group did not propose a new definition, but nor did it rely exclusively on any of the pre-existing ones. The expert appraisal was therefore underpinned by a broad concept of social media, along the same lines as that proposed by Act 2023-566 of 7 July 2023.

The companies that own the social media platforms, which will be referred to simply as "platforms" in the remainder of this opinion, very often claim that the services offered to their users are free. However, the business model of the main players on the market is similar, in part, to that of an advertising agency: making the users a source of profit by monetising their personal data and attention (using information provided directly by the users or indirectly through their actions on the platform). These platforms therefore deploy attention-getting strategies designed to keep users engaged for as long as possible, by locking their use within the platform or a linked system of interconnected services (e.g. the Meta platform with Facebook, Instagram and WhatsApp).

To achieve this, the platforms design and program algorithms and interfaces in social media that incorporate persuasive and deceptive mechanisms intended to influence user behaviour. These interfaces[10] can take a variety of forms and are not necessarily specific to social media (some of them are also used on e-commerce sites, for example). However, the mechanisms used to capture attention can have health consequences for their users. Indeed, certain interfaces (such as those enabling infinite scrolling of content) ultimately encourage users to spend more time on social media and lead to a loss of control[11].

3.3. Ways in which adolescents use social media

In the scientific literature, social media use is mainly understood by quantifying the time spent using it. This quantification is relevant when it comes to studying certain health effects of social media, such as its link with sleep. However, more than the amount of time spent using it, it is important to consider the type of content viewed and the notion of emotional involvement in

[9] Sexting is "sending, receiving or forwarding sexually explicit messages or nude, partially nude or sexually suggestive digital images of one's self or others via a cell phone, e-mail, Internet or social networking service" (Ngo *et al.*, 2017).

[10] Deceptive interfaces are commonly known as dark patterns, deceptive designs or persuasive mechanisms. They exploit aspects of human psychology in order to encourage users to perform actions they would not otherwise consider (Gray *et al*., 2018).

[11] Loss of control: inability to limit impulses and behaviour despite the negative consequences.

the platforms, in particular, when assessing the health effects of social media. It therefore seemed essential, where possible, to qualify use beyond simply quantifying the time spent.

3.3.1. Definition of terms used

The Working Group distinguished between the following concepts:

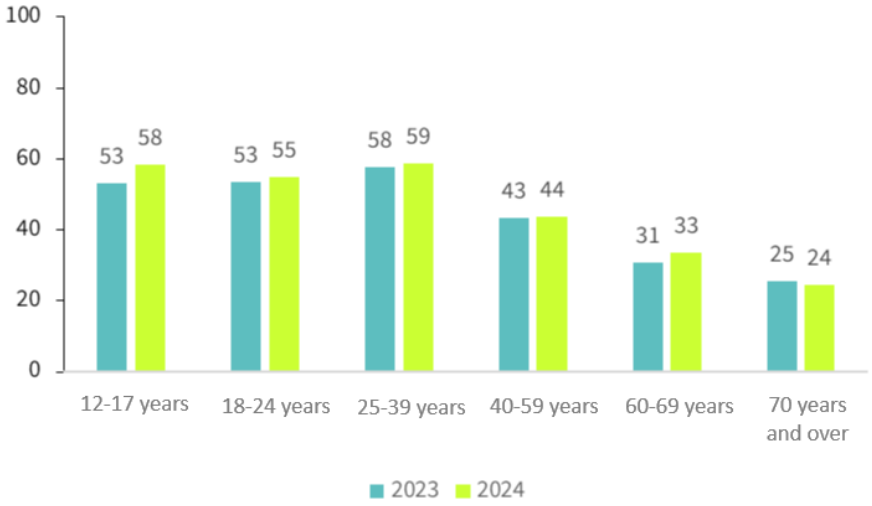
- "use" generally refers to the act of using a tool or device, often in a functional or technical way. The approach adopted is descriptive: it focuses on an observable interaction without exploring the underlying meanings or intentions;
- "usage" introduces a social and cultural dimension. This term refers to the integration of a technical object in a given context ("situated behaviour of an individual in relation to an object"[12]), and to the way in which it is appropriated by individuals or groups according to their values, norms and needs;
- "practice" goes beyond usage, incorporating routines, habits and know-how. This term aims to go beyond the object's functionality and refers to activities that are part of everyday life, often stabilised, and that reflect a subjective or collective relationship with the technical device[13].

These distinctions enable digital practices to be considered as a complex phenomenon, dependent on the user's experience and rooted in social and cultural contexts.

3.3.2. Overview of types of use

The smartphone is now the main means of accessing the Internet for adolescents: almost 90% of 12–17-year-olds use it every day to connect. In France, 42% of adolescents aged 12 to 17 years spend between 2 and 5 hours a day on their smartphone, while 9% spend more than 5 hours (Credoc, 2025). This facilitated access, coupled with the attention-getting strategies, leads to increasingly frequent and continuous connection to social media, both in time and space. In 2024, 58% of adolescents were using social media on a daily basis (see Figure 1).

[12] Béguin-Verbrugge, Annette. 2006. "Pourquoi faut-il étudier les pratiques informelles des apprenants en matière d'information et de documentation ?" ["Why should learners' informal information and documentation practices be studied?"] Article presented at the CIVIIC conference "History and Knowledge", Rouen, May 2006.
[13] Jeanneret, Y. 2008. *Penser la trivialité. Volume 1: La vie triviale des êtres culturels [Thinking triviality. Volume 1: The trivial life of cultural beings].* Hermès-Lavoisier.



Source: CREDOC digital barometer

Figure 1: Reported daily use of social media (e.g. Facebook, Instagram, Twitter, Snapchat, etc.) and sharing platforms (e.g. YouTube, Dailymotion, TikTok, etc.) as a percentage by age group.

Understanding adolescents' digital technology use means considering the diversity of contexts, the timing of practices and the meanings that adolescents themselves attribute to it. The social environment, particularly the family sphere, has an influence on adolescents' engagement in social media. The family sphere can be a resource for supporting adolescents in their social media use, when it implements strategies to regulate this use. Social media can also be beneficial, for example in situations where children are far from their families[14].

In addition to these data on use, the expert appraisal highlighted the importance of taking account of adolescents' trajectories in terms of digital practices: these practices are shaped by technical, social, cultural and educational factors. They vary greatly over time, but also according to age, gender, social background, and family and school contexts. By way of illustration, US data[15] show that boys spend more time on video games than girls (56 minutes versus 7 minutes per day among 13–18-year-olds), while girls spend more time on social media than boys (1 hour 32 minutes versus 52 minutes per day). A study carried out in France[16] showed that children under the age of 12 years use the Internet to watch live television and tutorials, while the over-13s prefer social practices: video-driven social media (YouTube, Snapchat, Instagram, TikTok) and chat rooms for certain video games (Fortnite, Discord, Twitch), as well as instant messaging. In many respects, social media extends and modifies long-standing processes of socialisation through the media. Social media plays a part in the exploration of identity in adolescence, adolescents' relationships with themselves and the world, and even the way in which society conceives adolescence (see Chapter 6.4. of the expert appraisal report). As a result, it resonates particularly with adolescents, as it responds

[14] Potin, É., Henaff, G., Trellu, H. & Sorin, F. (2018). "Foster-care children and connected families: toward a socio-legal approach of digital correspondence within the family". *Enfances Familles Générations*. An interdisciplinary journal that focuses on the contemporary family (31).
[15] Rideout, Vicky; Common Sense Media. 2015. *The Common Sense Census: Media Use by Tweens and Teens*. Common Sense Media. https://www.commonsensemedia.org/sites/default/files/research/report/census_researchreport.pdf.
[16] Ipsos; Bayard-Milan; Unique Heritage Media. 2022. *Junior Connect 2022 : fréquentation média et comportements des jeunes de moins de 20 ans [Junior Connect 2022: media use and behaviour of young people under 20].* Ipsos / Bayard-Milan / Unique Heritage Media. https://www.ipsos.com/sites/default/files/ct/news/documents/2022-03/CP_Junior%20Connect%202022.pdf.

to their most common aspirations: the need for social interaction, sensation-seeking and risk-taking, and the desire to obtain information from their peers. At the same time, adolescence is a time when they are particularly vulnerable to attention-getting strategies, as they are still less able to regulate their emotions and behaviour than adults.

3.4. Effects of social media use on the health of adolescents

While social media use can contribute to the social, cognitive, emotional and identity development of adolescents, it can also have negative consequences for their health.

This expert appraisal shows that for most of the health effects considered, girls are more affected than boys by a deterioration in their well-being and mental health linked to social media. There are several reasons for this:

- girls use social media more than boys;
- girls are more likely to use highly visual[17] social media based on exchanging and sharing images and self-portrayal;
- they are subject to greater social pressure linked to gender stereotypes;
- they are victims of cyberbullying more often than boys;
- they also seem to attach more importance to the content of social media, with greater emotional engagement.

Some adolescents accumulate a number of factors that increase the risk of deterioration of their mental health. These factors may be related to their family or social environment, personality traits (such as low self-esteem), or pre-existing anxiety and depressive symptoms. LGBTQIA+ adolescents[18] and adolescents suffering from certain psychiatric disorders, particularly depression or neurodevelopmental disorders (ADHD[19], ASD[20], IDD[21]), are also particularly affected.

3.4.1. Problematic use and social media addiction

Although the term is frequently used in the scientific literature and the media, "social media addiction" is not currently included in international classifications of mental disorders (DSM-5R[22], ICD-11[23]). Whether it is appropriate to define an addictive disorder linked to the Internet and/or social media is still the subject of debate within the scientific and medical communities working on mental health, which are seeking to define the boundaries of non-substance behavioural addictions. It should be noted that the criteria for defining and diagnosing an addiction are based on collective construction and negotiation between the stakeholders, which can be a lengthy process and change over time.

In the discourse of the stakeholders (institutional, academic, associations, media, etc.) concerned by the subject of digital exposure, social media is not systematically distinguished from digital technologies as a whole. There is confusion between digital tools (smartphones, screens, etc.), systems (Internet) and services (social media), and the ways in which they can

[17] Highly visual social media refers to platforms whose main content is based on visual elements – mainly images, videos, illustrations and even animations – rather than text. They focus on aesthetics, visual storytelling and graphic creativity to encourage user engagement.
[18] LGBTQIA+: abbreviation for lesbian, gay, bisexual, transgender, queer, intersex and asexual.
[19] ADHD: attention deficit hyperactivity disorder.
[20] ASD: autism spectrum disorder.
[21] IDD: intellectual development disorder.
[22] DSM-5R: Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision, American Psychiatric Association.
[23] ICD-11: International Classification of Diseases, 11th revision, World Health Organization.

be used. Given the lack of a consensus within the scientific community on how to characterise criteria for social media addiction, the Working Group adopted the vocabulary used by authors in the descriptions of their scientific studies, and opted for the notion of "problematic" use, found most frequently. Irrespective of the possibility of the debate being mediated by a recognised authority such as the WHO, many stakeholders are already taking action in relation to "overexposure to screens", also described as "excessive screen time" or "addiction", depending on their position on the subject. For some of them, using the term "addiction" provides a reference framework and methods for responding to users needing support or parents seeking advice. Some stakeholders refer to the attention-getting strategies, highlighting the central role played by the digital platforms in social media practices. These platforms have developed a business model that depends largely on time spent and data generated by users. In this context, the personalisation of content and the exploitation of situations of individual vulnerability are powerful resources for the "platform economy".

The Working Group analysed the methods used in the studies from the corpus to measure problematic use or social media addiction. Their results show a variety of different methods. For example, some studies defined "problematic use" as use exceeding a certain daily duration, which varied from one study to another. Other researchers used scales for problematic use or social media addiction (e.g. IAT[24], SMDS[25]). The criteria documented in these scales correspond to some of the criteria attributed to the "non-substance" behavioural addictions officially recognised to date: gambling disorder (DSM-5) and gaming disorder (ICD-11). These criteria, also known as "dimensions", are: loss of control, dependence, increased emotional distress and interference with daily activities. The Working Group's analysis revealed common factors with these scales; they measure two factors characteristic of addiction: the negative impact on health and the inability to control the time spent on social media. However, the other dimensions measured are not necessarily comparable, resulting in fairly heterogeneous conceptions of problematic use. This means that comparisons between studies using these scales must be considered with caution.

3.4.2. Social media and sleep

An analysis of the scientific studies revealed that social media use has a negative impact on adolescents' sleep. The increased time spent on these platforms delays bedtime, thus reducing total sleep duration. In addition, the content consulted and the online interactions stimulate physiological, cognitive and emotional alertness, thus hindering the process of falling asleep and staying asleep. Moreover, exposure to screen light in the evening has a direct effect on the circadian rhythm, inhibiting the nocturnal secretion of melatonin, the hormone essential for falling asleep. Insufficient sleep in adolescents, both in terms of quantity and quality, leads to daytime sleepiness, irritability and unhappiness. Factors such as age, gender and pre-existing anxiety and depression, as well as rule-setting by parents, influence the impact of social media use on sleep. It is important to remember that a chronic reduction in sleep time increases the risk of developing chronic physical and mental disorders. Sleep and mental health are closely interrelated. Sleep disruption is therefore not only a health effect in itself, but also a key mediator between the use of social media and mental health problems such as anxiety and depressive symptoms.

[24] IAT: Internet addiction test.
[25] SMDS: Social media disorder scale.

3.4.3. Social media and body image

Analysis of the scientific literature indicated that certain practices on social media, particularly those focusing on image and physical appearance (publication and retouching of selfies, exposure to idealised content), are correlated with the internalisation of body ideals, self-objectification[26] and upward social comparison[27], which are intermediate factors in eating disorders. Frequent or prolonged viewing of this content, along with the manipulation of photos, reinforces body dissatisfaction and excessive surveillance of one's own body appearance, particularly among girls. This phenomenon is reinforced by social demands to conform to body ideals. In adolescents at risk or suffering from pre-existing eating disorders, content that promotes thinness – and more recently body muscles – constitutes an additional risk factor, justifying or exacerbating harmful behaviour.

3.4.4.Social media and anxiety and depressive disorders

There are complex dynamics at play in the link between social media use and anxiety and depressive symptoms. Anxiety and depressive symptoms result from interactions between psychological vulnerabilities and family, social and environmental contexts, as well as adolescents' activities on social media. A number of studies have shown that two groups are particularly vulnerable: girls, and adolescents who initially show depressive or anxiety symptoms. Although it cannot be isolated as the sole cause, social media use is a contributory factor in anxiety and depressive disorders. This relationship is mediated by a number of intermediate factors such as impaired sleep, cyberbullying, social comparison and FoMO (defined as the fear of missing out on social experiences, such as events or information).

The presence of cyberbullying appears to be an important factor in the link between the use of social media and anxiety and depressive symptoms. Cybervictimisation leads to an increase in depressive symptoms, and depressive symptoms, in turn, increase the likelihood of becoming a victim of cyberbullying, for example through an activity more strongly oriented towards social interaction and social media.

FoMO, fuelled by the desire to stay in touch with others, is intensifying due to the permanent connection enabled by social media. FoMO can therefore lead to a loss of control in digital technology use and foster the development of problematic social media use. This is regularly associated with poor sleep, anxiety and depressive disorders, and even behavioural problems. Not only can problematic social media use foster a deterioration in mental health, but conversely, an initial state of psychological malaise can lead to increased, sometimes compulsive, use of social media, thus creating a spiral of difficulties that is hard to break.

To explain these vicious circles, some authors have hypothesised that faced with negative emotions, certain young people adopt a stress management method that sees social media as a way out ("escapism"), in order to quickly relieve their negative emotions. However, this strategy is soon accompanied by conditioning mechanisms that foster a loss of control in the use of social media.

Some social media interfaces are deliberately designed to deceptively exploit these psychological mechanisms (FoMO, "escapism", etc.), with the aim of attracting and keeping

[26] Self-objectification refers to the psychological process by which an individual internalises an external view of their own body, perceiving and assessing themselves primarily as a visual object to be observed by others, rather than as an acting subject (see Chapter 11.1 of the expert appraisal report).
[27] Upward social comparison occurs when an individual compares themself to individuals perceived as having an appearance that is more desirable or more in line with beauty ideals (e.g. influencers, celebrities, models, or even peers with bodies deemed "perfect") (see Chapter 11.1 of the expert appraisal report).

users' attention. This is the case with infinite scroll and ephemeral content that exploits FoMO. Moreover, the platforms' content personalisation algorithms create a "silo" effect: the more a user interacts with content promoting beauty ideals, for example, the more that content is suggested to them, thus reinforcing its influence. This phenomenon of algorithmic reinforcement may concern not only content on eating disorders, but also that relating to suicide, self-harm and addictive behaviour. This content encourages the trivialisation of these behaviours, and even their imitation by young people already in distress. For example, adolescents seeking information on mental suffering will be increasingly exposed via social media to testimonials or content likely to reinforce or provoke malaise and suicidal thoughts.

In addition, social media, like other media, can also contribute to the Werther effect[28] – a concept also referred to as copycat suicides or suicide contagion – by accelerating the widespread distribution of content relating to the suicides of celebrities or peers (see Chapter 10 of the expert appraisal report).

3.4.5. Social media and risky behaviour

- **Substance use and "challenges"**

Social media is a vector for exposure to risky behaviour, particularly with regard to the consumption of psychoactive substances such as alcohol, tobacco and cannabis. By amplifying certain social norms and highlighting content that promotes these practices, social media actively contributes to the shaping of consumption patterns. For example, repeated exposure to content showing peers drinking alcohol contributes to a form of normalisation of such behaviour. This exposure influences individual representations through a process of reinforcing perceived social norms in the different groups to which the young person may belong, which can generate social pressure inciting them to conform in order to maintain a sense of belonging or recognition within their peer group.

Participation in "challenges" is a particular form of this phenomenon of social pressure, in which they are pushed to engage in risky behaviour, with social media sometimes conveying "viral" challenges, some of which can be dangerous. The pursuit of peer recognition, expressed through "likes" and comments under the publications associated with the challenge, is one of the reasons why adolescents get involved. Those with depressive traits or borderline personality disorder are more likely to take part.

Social media can also facilitate access to many substances, thanks in particular to the geolocation tools provided by certain platforms, making it easy to get in touch with drug dealers.

- **Cyberviolence and cyberbullying**

Social media use creates the conditions for exposure to cyberviolence and cyberbullying, which have repercussions on mental health. Cyberviolence encompasses various forms of online violence, including insults, spreading of rumours, digital exclusion and blackmail. The concept of cyberbullying brings together these various forms of online violence, while adding the criteria of repetition over time and duration. It can partly be seen as an extension, through electronic means, of the peer bullying and abuse that takes place in the school environment, in particular, because there is a continuity between online activities and social life in the family, school and out-of-school environment. Added to this is the possibility of encounters and solicitations from people outside these settings, which can lead to situations of

[28] The Werther effect refers to the increase in the number of suicides following media coverage of an emblematic case.

cyberaggression and cyberbullying by strangers with no connection to the victim's physical environment.

Moreover, cybervictimisation and cyberbullying form a dangerous spiral in that they are mutually predictive: being a cybervictim increases the likelihood of engaging in acts of cyberbullying, while being a cyberbully is associated with being or becoming a cybervictim. Adolescents may be involved in a number of roles that potentially change over time (victim, bully, passive witness, active supporter of the victim or the aggressor) according to dynamics that are still poorly understood. There are also strong links between cyberbullying and offline bullying.

The prevalence of cybervictimisation is higher among girls than boys, while boys are proportionately more involved as cyberbullies. Certain psychiatric disorders (depression, developmental disorders) are associated with greater vulnerability to cyberbullying. Belonging to an LGBTQIA+ community is also associated with a higher likelihood of being a cybervictim, and also of committing acts of cyberbullying.

The expert appraisal showed that cybervictimisation leads to an increase in depressive symptoms. In turn, experiencing anxiety and depressive symptoms increases the risk of being cyberbullied. Moreover, cybervictimisation leads to impaired quality of life and well-being, an increase in psychological distress and stress symptoms, an increased risk of self-harm, suicidal thoughts and suicide attempts, and an increase in problematic social media use.

Certain other effects, despite being probable, have yet to be fully documented. In particular, cybervictimisation could lead to an increase in post-traumatic stress symptoms. Correlations have also been reported between cybervictimisation and certain risky behaviours (e.g. use of psychoactive substances), as well as anxiety levels.

The health effects of cyberbullying are therefore partly similar to those of offline bullying, while being characterised by specific factors that have an amplifying effect:

- anonymity or pseudonymity (which gives a feeling of anonymity);
- the omnipresence of threats or malicious remarks and their persistence on the Internet;
- the scale of their dissemination (their public and re-transferable nature).

With a view to prevention, the literature also identifies a number of risk and protective factors focused on the adolescent, their family and social environment, or the school environment.

Lastly, just like physical violence, cyberviolence can also have a sexual aspect. While the exchange of sexual content between adolescent partners (consensual sexting) can be seen as a form of expression of the emerging teenage sexuality, this practice entails risks, particularly when the images are distributed without consent, i.e. non-consensual sexting (see Chapter 16.2 of the expert appraisal report). Social media facilitates forms of digital coercion, where adolescents, particularly girls, may feel compelled to send sexually explicit content as a result of social pressure. Non-consensual sexting and digital coercion are new expressions of sexism. This cyberviolence has consequences for mental health (depression, suicide attempts, self-harm) and can lead to the risk of sexual assault, both online (sextortion, sexual grooming) and offline.

3.4.6.Social media, school results and digital multitasking

The expert appraisal found a weak negative association between time spent on social media and school results among adolescents. However, due to major methodological limitations in the studies (small samples, cross-sectional studies, insufficient quality of the measurements used, lack of control for family socio-demographic factors) it was not possible to conclude

whether or not there is a causal link between social media use and school results. Moreover, these results varied according to the age and/or sex of the individuals involved, and the research carried out. The highlighted association between the use of social media and lower academic results could be explained by tasks being performed simultaneously (digital multitasking). Sleep could also play an important role, in that the time spent on social media leads to a reduction in the duration and quality of adolescents' sleep, and then daytime sleepiness and less attention in class.

3.4.7. Protective factors identified

Support and supervision of social media practices by parents, in cooperation with adolescents, play a key role (e.g. discussions between parents and adolescents about content, stopping the use of social media in the evening before going to bed, etc.). Similarly, feeling good at school, having good self-esteem and being less inclined to compare oneself with others are essential protective factors. Education about social media (on how algorithms work and how they can be reset) and the introduction of specific cyberviolence prevention and information measures are some of the actions enabling adolescents to protect themselves from the harmful effects of social media.

3.5. Additional points highlighted by the CES

In addition to the analysis carried out by the Working Group, the CES wished to emphasise the consistency of these results with those of other ANSES expert appraisals, and to highlight the health relevance of certain themes that were outside the scope of this expert appraisal or had already been examined in other specific expert appraisals.

3.5.1. Sedentary behaviour and physical inactivity

Sedentary behaviour and physical inactivity were not addressed in this expert appraisal, as they were the subject of a specific expert appraisal by ANSES in 2020. In this expert appraisal to assess the risks associated with levels of physical activity and sedentary behaviour in children and adolescents, ANSES defined sedentary behaviour as time spent sitting or lying down in front of a screen for recreation (television, computer, video game console, etc.), outside school hours (ANSES, 2020[29]). It stated that this sedentary time can constitute a health risk (overweight, obesity, eating disorders and impaired sleep quality) when it exceeds 2 hours per day. This expert appraisal focused on general "screen time" (television, computer, console) and did not quantify the extent to which social media contributed to sedentary time among children and adolescents. Social media is now mainly accessed on mobile devices (mobile phones, tablets), so it is not possible to directly deduce sedentary time. However, given the current average time spent using social media, the CES stresses that it is highly likely that social media is contributing to an increase in sedentary time among adolescents, along with the associated health risks.

3.5.2. Blue light

The CES also wished to draw attention to the conclusions of ANSES's expert appraisal on the effects on human health and the environment (flora and fauna) of light-emitting diodes (LEDs) (ANSES, 2019). The LED screens used to access social media emit particularly "blue-rich"

[29] French Agency for Food, Environmental and Occupational Health & Safety. 2020. Opinion on the assessment of the risks associated with levels of physical activity and sedentary behaviour in children and adolescents. ANSES. https://www.anses.fr/system/files/NUT2017SA0064-a.pdf?download=1.

light, to which children and adolescents are physiologically more sensitive because their crystalline lenses are more transparent. This sensitivity increases the risk of phototoxicity to the retina, but also the disruption of their biological rhythms, in particular circadian rhythms. ANSES stresses that even moderate exposure to blue light, in the evening or at night, is likely to lead to impaired quality and duration of sleep. In the longer term, these chronobiological imbalances are associated with proven health effects such as metabolic disorders, increased risk of cardiovascular disease and certain types of cancer (particularly breast cancer), as well as mental health disorders.

3.5.3.Environmental impacts

In addition to its direct health and social effects, the CES points out that social media also has a major impact on the environment, which in turn has economic, health and social consequences. Its operation relies on energy-intensive infrastructure (telecommunications networks, data centres, servers). Added to this is the environmental impact of the manufacture, use and regular renewal of the terminals (smartphones, tablets, computers) needed to access social media, which take up scarce resources and generate a growing quantity of electronic waste. According to the Green IT association[30], digital technologies now account for almost 4% of global greenhouse gas emissions, a figure that is constantly rising. In its report entitled *Climate crisis: the unsustainable use of online video* (2019), the Shift Project warned of the growing contribution of video consumption – particularly on social media – and the carbon footprint of digital technologies, pointing out that streaming (online video) alone accounts for more than 60% of global data traffic. In their joint report of 2022[31], ADEME and ARCEP also pointed out that viewing online content – particularly in high definition and while on the move – is one of the most energy-intensive types of use. By encouraging continuous connection, social media increases the energy consumption of digital infrastructure, thereby worsening its environmental impact.

3.5.4.Ethical and democratic issues

Social media also raises major issues for democracy, given its growing role in structuring the public arena, disseminating information and shaping opinion. Adolescence is a key period for the construction of identity and opinions. While social media offers new opportunities for expression and engagement, it also helps to maintain existing biases, polarise viewpoints and disseminate misleading content, thereby influencing the way in which adolescents build their identities and perceive society. The dominant business model of the platforms uses algorithms that govern the visibility of publications, often favouring the amplification of divisive discourse and making it harder to access pluralistic, verified information. Moreover, social media can become a vector for the rapid manipulation of information on a global scale, whether through coordinated disinformation campaigns, automated interactions ("bots"), or opaque targeted advertising for political ends. In addition, deceptive interfaces designed to capture users' attention or steer their behaviour in a non-transparent way exploit cognitive mechanisms that are often unconscious, and reduce users' ability to exercise informed and autonomous

[30] Bordage, F. (2019). *Empreinte environnementale du numérique mondial [Environmental footprint of worldwide digital technologies]*

[31] Etienne Lees Perasso (Bureau Veritas), Caroline Vateau (APL-Data Center), Firmin Domon (Bureau Veritas), with contributions from Yasmine Aiouch (Deloitte), Augustin Chanoine (Deloitte), Léo Corbet (Deloitte), Pierrick Drapeau (Deloitte), Louis Ollion (Deloitte), Valentine Vigneron (Deloitte), Damien Prunel (Bureau Veritas), Georges Ouffoué (APL-Data Center), Romain Mahasenga (APL-Data Center), Julie Orgelet (DDemain), Frédéric Bordage (GreenIT.fr) and Prune Esquerre (IDATE), (2022). *Évaluation environnementale des équipements et infrastructures numériques en France [Assessment of the environmental impact of digital equipment and infrastructure in France]* 262 pages.

consent. These questions are all the more important as they concern the construction of citizens.

3.6. Conclusion

Social media offers adolescents an ideal forum for socialising, spreading ideas, sharing knowledge and obtaining support. It facilitates large-scale development and exchanges within groups or communities formed around centres of interest. However, social media platforms are based on strategies that exploit adolescents' vulnerability, their need for social interaction and sensation-seeking.

In agreement with the Working Group, the CES notes the impact of social media use on the health of adolescents. Its multifactorial effects are reflected in increased risks of anxiety, depression, suicidal thoughts, self-image disorders and risky behaviour. The expert appraisal also clearly showed that girls are particularly at risk from all the health effects studied. Social media is part of the fabric of contemporary society, and not a separate space. It extends, transforms and sometimes amplifies social dynamics that are also at play offline. The problems associated with social media use highlighted in this expert appraisal – such as cyberbullying, body image disorders and impaired sleep – are part of wider social phenomena and can be triggered, amplified and/or transformed by the characteristics of digital technologies and the services they offer, as well as by changes in the way they are used.

The expert appraisal examined the specific role of social media as a vector, catalyst or amplifier of risks to the health of adolescents. Adolescence is a sensitive period in the development and construction of identity, making adolescents particularly vulnerable to the harmful effects of social media. The habits acquired during this period, whether beneficial or harmful to health, tend to persist into adulthood. For this reason, the CES is also making recommendations for good practice in the use of screens, sleep hygiene, physical activity and the fight against sedentary behaviour.

More generally, by entrenching behaviour and reconfiguring social norms from adolescence onwards, social media practices has a lasting influence on the way these individuals interact and perceive the world once they become adults.

3.7. Recommendations

The CES supports all of the Working Group's recommendations.

The CES stresses the importance of involving adolescents when drawing up rules for social media practices, in order to promote adherence, strengthen responsibility and ensure the credibility of such jointly developed guidelines (e.g. call on their experience regarding practices, benefit from their insights on rules for supervision, etc.). To be effective in regulating adolescents' social media practices, adults themselves will need to comply with the jointly promoted rules.

Close attention should be paid to developments in social media, particularly since it began incorporating artificial intelligence, in order to anticipate the impact of these developments on public health. The health risks associated with the use of artificial intelligence, which may add to the health risks of social media revealed in this expert appraisal, require a specific assessment.

With this in mind, the CES makes recommendations structured along the following courses of action:

- **regulate and secure the digital environment (platforms and media)**, in particular by obliging social media platforms to comply with specifications that address the public health issues;
- **develop education on media and its use** for children and adolescents, and include actions to support digital parenting;
- **strengthen prevention of the identified health effects** by acting on the key factors of individual vulnerability and protection;
- **support research** to improve the state of knowledge of social media, its effects and practices, in order to better guide these various actions.

3.7.1. Regulate and secure the digital environment

The companies that own social media platforms are the only ones capable of directly modifying the predatory mechanisms and features of their services, with a view to protecting the health of their users. However, such an action would run counter to their business model, which is based on maximising user engagement through deceptive mechanisms. It is therefore up to the public authorities to impose measures relating to the functioning of social media (design, business model, etc.) that are appropriate for protecting the health of users.

There is already a set of regulatory provisions, both at European level (such as the General Data Protection Regulation (GDPR) and the Digital Services Act (DSA), which came into force in February 2024) and at national level (such as the Act of 21 May 2024 on security and regulation of the digital space (SREN Act)). The DSA represents a major step forward in regulating use of the very large digital platforms and platforms accessible to minors, since the European Commission's guidelines based on Article 28 of the DSA were published. However, it needs to be implemented before its effectiveness can be assessed. In addition, certain texts[32] should be supplemented in order to specifically reinforce the protection of minors.

In this context, the CES recommends that only social media complying with appropriate technical specifications should be accessible to minors, with these specifications being based on the following conditions:

- implementation by the social media platforms of the provisions concerning age limits set out in the GDPR (registration only possible from the age of 13 years and parental validation required between the ages of 13 and 15 years). This action should be accompanied by reliable mechanisms for verifying age and obtaining parental consent, to be developed by the various stakeholders (social media platforms, public authorities, users);
- a legal framework for social media's use of persuasive interfaces and interface techniques, algorithms and personalised content, and in particular:
    - effective enforcement of the provisions of the DSA designed to prohibit persuasive interface techniques used for the purpose of misleading influence;
    - effective enforcement of the provisions of the DSA designed to prohibit the dissemination of harmful content (risky behaviour, gambling, extreme diets, violent, pornographic or hateful content, bullying, etc.);
    - limiting the amplification of content that is harmful to health (e.g. linked to mental health);

[32] The expert appraisal work drew on an analysis of the legal provisions relating to social media usage by minors, carried out by researchers from the Sorbonne Legal Research Institute (headed by C. Zolynski), who put forward recommendations for changes to legislation and public policy. The Working Group used this report as a reference and documentation source, albeit without endorsing its contents or recommendations. Where relevant, it mentions this and refers to this work to provide additional information.

  - regulation of features designed to increase, maintain or extend the use of the service by users[33];
- the introduction of protective default settings for all user accounts that can only be modified by the individual at the age of 18 years (e.g. to delete or limit notifications and features that increase online social pressure such as online activity indicators[34]) and simple, comprehensible access to social media features;
- the integration of tools enabling self-regulation of the use of social media;
- the introduction of simple reporting and moderation procedures, and measures for effectively blocking harmful content. The reporting system should make it easy for users and trusted flaggers[35] to report problematic content to social media platforms, and for victims or witnesses of aggression or bullying to report this to the platforms and relevant authorities.

The CES underlines the importance of:

- developing a method for assessing risks to the health of adolescents and a method for assessing the associated preventive measures, in application of Article 28 of the DSA. The effectiveness of the measures taken to manage these risks could be assessed by creating safety objectives and performance indicators for the measures put in place. The risks listed in the text include serious consequences for people's physical and mental well-being;
- extending the rules governing advertising in the area of television to cover social media.

3.7.2.Educate on digital media

Education on digital media appears to be crucial in combating the main effects of social media, such as mental health disorders (particularly among girls) and impaired sleep. In agreement with the Working Group, the CES stresses that the tools developed and the campaigns implemented will be all the more effective if adolescents are involved in shaping them, in particular to target the most relevant media, format(s), information content and emerging practices (challenges, types of use). It recommends a number of education and training measures, differentiated according to the groups for whom they are intended.

- **For parents and adolescents**
  the CES advises the public authorities and platforms to:
  - provide parents and adolescents with best practice guidelines for social media based on scientific data. The wording of these guidelines should be simple and clear, and developed jointly with adolescents, parents, associations and all the other stakeholders concerned. These guidelines should be communicated by various means (prevention and awareness-raising campaigns) and appropriate structures (schools, associations, doctors, etc.);
  - alert parents and adolescents to the online social pressures to which adolescents, particularly girls, are exposed, such as objectification and gender stereotypes, bullying and sexting;
  - alert parents and adolescents to the situations of social and psychological vulnerability that increase health risks.

[33] see EUR-Lex - 52025XC05519 - EN - EUR-Lex.
[34] *Ibid*.
[35] Trusted flaggers are entities recognised for their expertise in detecting, identifying and reporting illegal content in one or more specific areas. Their status is awarded by the digital services coordinator of the Member State in which they are established (i.e. Arcom in France).

- **In the school environment**
  The CES recommends that schoolchildren be given a digital education that enables them to develop critical, autonomous and responsible use of digital tools and environments, including the environmental effects of these tools. The CES therefore recommends:
    - strengthening application of the education programmes in information media and digital technologies, from pre-school (cycle 1) through to the final year of high school, by creating a dedicated module and training appropriate staff (digital mediators, teacher-librarians);
    - updating training programmes for qualified staff to keep pace with changes in digital practices;
    - strengthening actions designed to develop critical thinking and socio-emotional skills, together with preventive action on mental health, mainly with a view to reducing aggressive communication in online interactions (non-violent communication between peers, understanding emotions, encouraging empathy);
    - promoting the development of peer-to-peer discussion forums, school mediation and any type of initiative that enables adolescents to collectively consider their digital practices and develop their informational, relational and emotional autonomy.

3.7.3.Prevent the identified health effects

Social media is one of the factors in the living environment of adolescents that can have harmful effects on their health. A systemic prevention approach in public health, i.e. acting on multiple risk factors, including social media, seems particularly appropriate.

To this end, the CES recommends:

- **conducting public health campaigns to raise adolescents' awareness about the importance of a healthy lifestyle (with regard to sleep, sedentary behaviour, physical activity, diet, etc.) and promoting public health initiatives to improve it.** For example, these initiatives could raise awareness about the sleep disruption associated with the use of social media, which mainly occurs through emotional stimulation and the impact of light environments before bedtime. They could also underscore the importance of disconnecting from social media;

- **conducting public health campaigns to raise adolescents' awareness about their digital hygiene**, and in particular:
    - the risks of misuse associated with sending intimate images, particularly sexual images;
    - issues of social comparison and self-image on social media by conveying body ideals, including content generated by artificial intelligence;
    - the impact of advertising messages conveyed by social media;

- **strengthening initiatives on prevention, awareness-raising and de-stigmatisation of mental health disorders:**
    - through initial and ongoing training for professionals working with adolescents, to identify mental health disorder situations (e.g. widespread mental health first-aid training);
    - providing the school system with sufficient resources in terms of supervisory staff and school medical staff to ensure that schoolchildren receive appropriate support;

  - providing the healthcare system with sufficient resources to improve detection and early medical and psychological care through the establishment of a network of trained professionals (e.g. by setting up a national mental health plan for adolescents).

- **stepping up the fight against cyberviolence and various forms of discrimination (sexism, homophobia, "fat shaming", gender stereotypes, etc.)**, mainly through the following measures:
  - strengthening prevention campaigns aimed at adolescents against online risks (paedophilia, sextortion, deepfakes, etc.);
  - changing legislation to establish a legal definition of cyberbullying in order to take account of how it is understood and perceived by adolescents;
  - raising adolescents' awareness about issues of consent and respect for privacy in online exchanges, and in particular the risks of disseminating and transferring consensual or non-consensual sexual images;
  - combating objectification and gender stereotypes, for example by banning sexist advertising.

- **ensuring the availability of practical alternatives to activities on social media, in line with adolescents' appetites for social interaction between peers**. In view of the importance of peer interaction in adolescence to help them build their own identities, the CES:
  - recognises that social media offers a forum for socialisation;
  - reiterates the harmful health effects of social media use identified in this expert appraisal;
  - recommends strengthening the development, attractiveness and accessibility of sports, cultural and community facilities, as well as offline socialisation venues tailored to adolescents. Discussions between adolescents and field workers involved in these topics may be necessary to design and organise these spaces.

- **promoting the monitoring and study of social media, with the aim of:**
  - monitoring technological and functional developments in digital services (e.g. integration of artificial intelligence into new services), as well as the socio-economic aspects (e.g. identification of new players, changes in general terms and conditions of use) and the activities that are being developed here (e.g. emerging types of social media use);
  - collecting, analysing and disseminating summaries of data from social media platforms useful for public action, events reported during the year and the preventive measures and mechanisms put in place in response;
  - producing, assessing and disseminating recommendations on digital best practices;
  - setting up a funding structure that could be supplemented by contributions from industry to finance research into the impact of social media, while guaranteeing its independence;
  - monitoring and coordinating the actions of the various players on social media (medical sector, associations, institutions).

3.7.4.Support research

The Working Group's literature review revealed major gaps in the information available and limitations in the quality of certain studies.

The CES agrees with this analysis and recommends:

- **implementing the access to data for researchers provided for in Article 40 of the DSA**, in order to better determine the health risks to minors when using social media. Such an approach should be put in place while clarifying the conditions of access, the eligibility criteria for researchers and the data security protocols;

- **improving the methodology of scientific studies on social media**, in particular by:
  - diversifying study designs and improving the coordination of different approaches (case studies, clinical studies, epidemiological studies in general populations, qualitative studies, mechanistic studies, intervention studies, experimental studies, field studies, etc.);
  - improving the quality and validity of tools for measuring problematic social media use;
  - improving the quantitative aspect of how use and collection of activities are measured on social media (content, selfies, use of filters, etc.);
  - using indicators that distinguish between "screen time", time spent using social media and sedentary time;

- **mobilising research work to supplement knowledge of the health effects of social media, and more specifically**:
  - the links between psychosocial skills and social media use;
  - cyberbullying;
  - dark patterns;
  - the effects of types of parental mediation and the effectiveness of parental control;
  - digital uses and practices;
  - problematic practices, "fatigue", social media addiction;
  - the social determinants of digital practices (social inequalities, intercultural differences, etc.);
  - the effectiveness of the actions taken and the preventive measures implemented;
  - populations in situations of social and psychological vulnerability.

In addition, considering:

- the variety of scales and measurements of problematic social media use (see Chapter 7.3 of the expert appraisal report);
- the health effects identified in this expert appraisal associated with these problematic use;

the CES recommends studying whether it would be appropriate to classify "problematic social media use" as a behavioural addiction, in the same way as gambling (ICD-11, 2019).

4. AGENCY CONCLUSIONS AND RECOMMENDATIONS

Social media first appeared around 20 years ago and has grown very rapidly through developments in communication technologies, particularly mobile phones. Text, then images and video, and now artificial intelligence, have been integrated into social media, which is used by half the world's population. The mobile phone, the undisputed companion of daily life in many countries, is being used at an increasingly early age by children and adolescents. In France, almost 90% of 12–17-year-olds use a smartphone every day to access the Internet, and 58% of them use it to access social media.

Mindful of these societal developments and given the limitations of the available expert appraisals conducted in France and internationally in this field, the French Agency for Food, Environmental and Occupational Health Safety (ANSES) issued an internal request on 12 September 2019 to assess the health risks associated with digital communication tool use. Given the extremely rapid growth of social media and the particular sensitivity of adolescents, mainly in terms of mental health, ANSES focused its expert appraisal on the health issues surrounding social media use by adolescents. Because of its scope, the expert appraisal described the various types of social media practices but did not attempt to assess any of its positive effects.

A number of institutions have been working on the impact of screens on health, education and society in general (French High Council for Public Health in 2019 and 2021[36], call by the French Academies of Medicine, Sciences and Technologies in 2019[37], Expert commission's report on the impact of screens on children in 2024[38]). Others have taken a more specific interest in the impact of social media (National Assembly's Commission of Inquiry into the psychological effects of TikTok on minors, in 2024[39], Council of State[40]). This work, often based on hearings and interviews with stakeholders in the field, has helped bring the issue of the health and social impact of social media use fully into the public debate.

The scientific expert appraisal carried out by ANSES followed the methodological principles used by the Agency for its health risk assessments. It brought together epidemiologists, biologists, child psychiatrists and psychologists, and researchers in information and communication studies in a multi-disciplinary working group attached to its Expert Committee

[36] French High Council for Public Health. 2019. *Effets de l'exposition des enfants et des jeunes aux écrans [Effects of children's and young people's exposure to screens]*. https://www.hcsp.fr/Explore.cgi/avisrapportsdomaine?clefr=759.
French High Council for Public Health. 2021. *Effets de l'exposition des enfants et des jeunes aux écrans (seconde partie) : de l'usage excessif à la dépendance [Effects of children's and young people's exposure to screens (second part): from excessive usage to dependence]*. https://www.hcsp.fr/Explore.cgi/Telecharger?NomFichier=hcspa20210308_usaexcdelexpdesenfetdesjeuauxcra.pdf.

[37] French Academy of Sciences, National Academy of Medicine, National Academy of Technologies of France. 2019. *L'enfant, l'adolescent, la famille et les écrans : Appel à une vigilance raisonnée sur les technologies numériques [Children, adolescents, families and screens: A call for reasoned vigilance on digital technologies]*. French Academy of Sciences. https://www.academie-sciences.fr/pdf/rapport/appel_090419.pdf.

[38] Expert commission's report on the impact of screens on children. 2024. *Children and Screens: In Search of Lost Time*. French Republic. https://www.elysee.fr/admin/upload/default/0001/17/4069cfa0f4e11a7f00bc29bdc9501eebb671537d.pdf.

[39] National Assembly's Commission of Inquiry into the psychological effects of TikTok on minors, Arthur Delaporte and Laure Miller. 2025. *Rapport d'enquête : effets psychologiques de TikTok sur les mineurs, n° 1770 [Inquiry report: psychological effects of TikTok on minors, No. 1770]*. National Assembly. https://www.assemblee-nationale.fr/dyn/17/rapports/cetiktok/l17b1770-ti_rapport-enquete.pdf.

[40] Council of State. 2022. *Les réseaux sociaux : enjeux et opportunités pour la puissance publique [Social media: challenges and opportunities for public authorities]*. Council of State. https://www.conseil-etat.fr/Media/actualites/documents/2022/09-septembre/ea22_reseaux-sociaux_internet.pdf.

on "Physical agents and new technologies". They identified and analysed more than a thousand scientific studies on the health effects of social media.

The Agency endorses the conclusions and recommendations of its expert committees and believes that, given the huge volume of scientific literature studied, the analysis method and the wide diversity of views, covering the fields of life sciences and human and social sciences, this expert appraisal provides an unprecedented contribution to this public health issue.

To understand how social media affects health, it is essential to dissect the socio-economic environment in which it is developed and deployed. ANSES therefore examined the design of social media, which is directly linked to the business model of the host platforms. The aim of this business model is to monetise users' attention and data, either directly by selling advertising space, or indirectly by selling personal and behavioural data (on gender, age, household characteristics, uses, tastes, practices, etc.) to third parties which then use them for commercial purposes. The design of social media therefore calls on a variety of technical resources whose purpose is to maximise user engagement, via powerful incentive devices (persuasive interfaces, attention-getting mechanisms, infinite scroll, etc.).

These design principles exploit the specific vulnerabilities of adolescence, such as increased risk-taking, social comparison and the importance of peers. Attention-getting technologies lead to an increase in the amount of time spent on social media, which delays bedtime and thus reduces adolescents' sleep time, a phenomenon highlighted in other, more general studies on adolescents (HCSP, 2025[41]). Exchanges of flattering visual content on social media convey normative ideals. When these are subject to internalisation and social comparison, this can have a negative impact on self-image and well-being. In addition, content personalisation algorithms create a spiral effect, amplifying exposure to content that may relate to eating disorders, suicide, self-harm or drug use.

It therefore appears that social media use has negative effects on the health of adolescents through the following mechanisms:

- direct disruption of sleep, which is also a mediator of mental health problems;
- by causing body image disorders, through social comparison or the internalisation of body ideals, which are intermediate factors in eating disorders;
- as contributing factors in anxiety and depressive disorders, self-harm and suicidal thoughts;
- as a vector of exposure to risky behaviour: challenges, consumption of alcohol, tobacco, cannabis, etc.;
- by creating the conditions for exposure to cyberviolence and cyberbullying.

So while social media alone cannot explain the deterioration in adolescents' mental health[42], it does act as an unprecedented sounding board for certain social dynamics (reinforcement of stereotypes, promotion of risky behaviour, bullying, etc.). In addition, girls are significantly more affected than boys by all the health effects studied; this may be because they use social media more often, and attach more importance to it. They are subject to greater social pressure and are more exposed to cyberbullying.

Behaviours acquired during adolescence, whether beneficial or harmful to health, tend to persist into adulthood. It therefore seems imperative to adopt a set of measures without delay, as part of a comprehensive and coordinated approach, combining a regulatory framework,

[41] French High Council for Public Health. 2025. *Thirty years regarding adolescent health trends, changes and challenges*. No. 187. French High Council for Public Health. https://www.hcsp.fr/Explore.cgi/AvisRapportsDomaine?clefr=1460.
[42] *Ibid*.

campaigns aimed at prevention and raising awareness about public health and social media, and applied research to assess the effectiveness of these measures. In this respect, ANSES stresses the importance of effective implementation of the European Digital Service Act[43], applicable since 17 February 2024, together with robust control mechanisms and sufficient human and financial resources to guarantee their effectiveness.

ANSES recommends that only social media whose services (content personalisation algorithms, persuasive interface techniques, protective default settings) have been designed in such a way as to protect the health of adolescents (see 3.7) should be accessible to minors. Besides this recommendation, which stresses the platforms' responsibility for the public health consequences of the way in which their social media is designed, the Agency also calls for increased transparency requirements, a rigorous assessment of platform algorithms and commercial practices, and the implementation of appropriate measures to protect the health of their users.

With this in mind, it is important for adolescents to be involved in the organisation, and even the design, of these measures, as their active participation is essential to improving the relevance and efficacy of the solutions and their effective implementation.

Lastly, ANSES reiterates the value of promoting public health policies that encourage preventive mental health measures, sleep hygiene and the fight against sedentary behaviour.

These recommendations should be implemented while taking account of social media's extremely rapid evolution, as demonstrated for example by its integration of artificial intelligence (via AI companions, in particular). The risks inherent in artificial intelligence (loss of critical thinking, generation of stereotypes or dangerous advice, etc.) could add to and even amplify those already identified for social media. Moreover, the environmental impact of artificial intelligence (energy consumption, carbon footprint of servers and model training) far exceeds that of social media alone, and exacerbates the issue of digital sustainability.

The many negative effects of social media on the health of adolescents highlighted and documented by ANSES's expert appraisal need to be considered with great care. These negative effects are closely linked to the characteristics of the social media provided by the platforms that design and host it. Although support – particularly from parents – and the introduction of policies to promote digital education are needed to limit the impact already being felt by adolescents, these measures cannot replace the adoption of a social media governance framework that is capable of meeting the public health challenges.

Gilles SALVAT

[43] https://eur-lex.europa.eu/eli/reg/2022/2065/oj/eng.

KEY WORDS

Social media, adolescent, mental health, sleep, anxiety, depression, suicide, eating disorder, body image, risky behaviour.

SUGGESTED CITATION

ANSES. (2025). Effects of social media use on the health of adolescents. Internal Request No 2019-SA-0152. Maisons-Alfort: ANSES, 28 p.

ANNEX 1

Decision no. 2019.09.247

INTERNAL REQUEST

The Director General of the French Agency for Food, Environmental and Occupational Health & Safety (ANSES),

Having regard to the Public Health Code, and in particular its Article L. 1313-3 giving ANSES the prerogative to issue an internal request on any question with a view to accomplishing its missions,

Has decided the following:

Article 1. The French Agency for Food, Environmental and Occupational Health & Safety is issuing an internal request to conduct an expert appraisal whose characteristics are listed below.

1.1 Themes and objectives of the expert appraisal

ANSES is issuing an internal request to assess the potential health effects associated with information and communication technology usage. The social and family consequences will be investigated as far as possible.

The terms "information and communication technologies" and "connected digital tools" refer broadly to all the technologies used to generate, process and transmit information, mainly in digital form, such as audiovisual communication networks, mobile telephones, the Internet, social media, etc.

1.2 Background of the internal request

5G communication infrastructure is currently being rolled out with the aim of improving communication technologies and developing innovative new services for the general public, as well as for professional applications, particularly in industry. From 2020, therefore, the technological innovations associated with 5G were expected to affect numerous industrial sectors such as transport, energy, telemedicine, agriculture, public safety, etc., with applications in both the professional and personal spheres. These applications will be made possible through the use of connected objects.

Mobile telephones, tablets and computers are currently the most widely used connected objects. This equipment, some of which has been around since the 1980s, provides access to the Internet and all web-based applications. Its use is extremely widespread in France, in both

the private and professional spheres. A vast amount of data is now available on how the French use digital media and their connected applications.

There are many opinions and concerns, some of them alarming, about the supposed health effects of using these digital tools: addiction, developmental disorders in children, etc. However, most of these views have rarely been documented, if at all. Indeed, up until now, there has been no expert appraisal based on an analysis of all the scientific, medical and societal knowledge of the health effects of digital and connected tool usage.

In 2016, in its expert appraisal on exposure to radiofrequencies and children's health, ANSES had identified certain studies showing a link between "problematic use of mobile phones[44]" and the onset of cognitive disorders or impaired well-being in children and adolescents. At the time, ANSES had concluded that "three large studies show an association between intensive and inappropriate phone use by adolescents or pre-adolescents and mental health problems. They investigated the consequences of 'the problematic use of the phone' and not of the radiofrequencies it emits. In light of this information, there may be an association worth exploring between such use of mobile telephones and changes in mental health."

Following the sharp growth in mobile phone usage, and with the impending ubiquity of digital technology usage at work and at home, ANSES proposes following up its own recommendation issued in its 2016 opinion on "exposure to radiofrequencies and children's health" and assessing the health risks associated with connected digital tool usage, excluding the effect of the radiofrequencies they may emit.

1.3 Questions on which the expert appraisal work will focus

In recent years, the usage and development of digital technologies has grown sharply, and many connected tools are widely used in the workplace and at home. Given the number of connected objects in use, the variety of types of usage and the user populations, ANSES's work will be divided into two phases:

1.1.1 Characterisation of digital tool usage

The aim of this first phase will be to map the landscape of current and future digital tools. Drawing on a literature review, it will consist in examining available surveys on the topic and possible interviews or consultations, in order to:

- describe the digital tools, the equipment and their applications;
- identify and describe the characteristics of these technologies on the market, whether they are used in the workplace or accessible to the general public;
- list the various applications already available or under development, and the ways in which these technologies can be used;
- describe the technologies, particularly how they work, the history of their development, etc.

This phase should also enable exposure to these digital tools to be characterised:

- collect data on new technology usage by the population at the moment;

[44] The notion of "problematic use" was put forward in the study by Bianchi and Phillips (2005). These authors developed a specific questionnaire, the Problematic Cellular Phone Use Questionnaire (PCPU-Q), comprising 12 items. The first seven questions ask participants whether they have experienced symptoms of problematic mobile phone use in the past year, and the next five questions investigate the consequences of problematic phone use on five real-life examples.

- reflect on the expected usage of current and future technologies;
- identify user profiles (age, population, etc.);

These data will be used to draw up a map of connected objects that currently exist or are under development, according to the populations concerned, the equipment used and the associated usage. If relevant, they could also provide input for a debate on the most appropriate exposure indicators for the health effects in question.

Quantifying and characterising the available data on both exposure to communication technologies and the associated health effects, depending on usage, technological equipment and populations, will determine the steps that are feasible in the health risk assessment process.

The CES on "Physical agents, new technologies and development areas" will help to define the populations, types of usage and, where appropriate, technological equipment that will be the focus of a health risk assessment (phase 2).

1.1.2 Expert appraisal for health risk assessment

The aim of this second phase will be to identify and characterise the possible health effects associated with usage of the connected tools previously selected with the help of the CES, and to assess the associated level of evidence. It will be carried out as a collective expert appraisal, with the help of experts recruited via a call for applications on the basis of their skills and after analysis of their declaration of interests.

This collective expert appraisal work may include hearings of stakeholders (such as consumer associations, trade unions or federations of the manufacturers responsible for these technologies) or of any scientists able to add to the field of available knowledge.

Lastly, this work could lead to the formulation of recommendations, if necessary:

- in terms of research into the potential effects of using these technologies;
- for the public authorities;
- concerning "exposure" to information technologies, with the aim of informing and protecting the general and occupational populations.

1.4 Estimated duration of the expert appraisal

The estimated duration of the expert appraisal, including definition of the scope, is 36 months.

Article 2: An opinion, along with an expert appraisal report, will be issued and published by the Agency following completion of the work.

Signed in Maisons-Alfort on 12 September 2019

Dr Roger Genet

Director General