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SCREEN TIME AND (BELGIAN) TEENAGERS

Nicolas Zdanowicz, Christine Reynaert, Denis Jacques, Brice Lepiece & Thomas Dubois

Université Catholique de Louvain, Psychosomatic Department, Mont-Godinne University Hospital, Yvoir, Belgium

SUMMARY

Background: *Parental anxiety about young people's use of media has increased with the advent of Generation Alpha. Excessive consumption is assumed to lead to a sedentary lifestyle, psychiatric disorders, overconsumption of sexual content and suicidal behaviour. But are these assumptions valid?*

Methods: *We supplemented data from the 2014 Health Behaviour in School-aged Children Study for Belgium with a bibliographical search of online databases (Medline, Scopus, PsycArticles, PsycInfo, PubMed) with the keywords 'adolescent' - 'internet' and 'sedentarity' or 'suicide' or 'family' or 'sex*' or 'porno*' for articles published between 2014 and 2019. We selected 27 original research articles and/ or quantitative or qualitative meta-analyses.*

Results: *Total consumption of different media (television, video games, internet) remained stable until 2010, and significantly increased in 2014. No parallel increase in sedentarity was reported. Controversy continues to surround the quantification of overconsumption, and the definition of 'problematic use'. Nevertheless, it appears that 5% of young people have unusual internet use, and 97.5% of these meet the criteria for a mental disorder. The risk of overconsumption is related to four factors: familial, personality, peer influence and supply. These general factors are supplemented by specific factors related to the abuse of sexual content and suicidal behaviour. For the latter, specific risk factors are the same as for suicidal young people who are not influenced by social media.*

Conclusion: *Even if screen time is higher for Generation Alpha, these young people are no more at risk unless they accumulate risk factors. They are also exposed to challenges that researchers have not yet studied in any depth. One question relates to how they can manage their privacy if their parents published, without their consent, photographs of them as children? Another issue is their relationship to knowledge, given that everything they need to know can easily be found online.*

Key words: *teenagers – internet – risk factor – Screen Time*

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INTRODUCTION

Screens and the web have invaded daily life, to such an extent that the definition of Generation Alpha is based on screen time and internet use. These young people were born at the same time as the iPad and Instagram were launched in 2010, and have been exposed to screens since their early childhood. The ongoing invasion of their lives – from birth (the production of the first ultrasound images) to beyond death (post-mortem web pages) – is a consequence of, like any other consumable, the law of supply and demand. Even the supply of what we used to call 'television' has adapted, as producers seek to reach a maximum of users. At the same time, content is diversifying: whole television series are easily accessible, and the interactive series is on its way; there are games for every demographic, off or online; some websites provide sex education while others supply porn; and both pro- and anti-suicide sites are part of the landscape (Biddle et al. 2008).

A similar story can be told about hardware – the tablet has morphed into the phablet, and then the smartphone. Wherever we look, we see a screen: while we are walking in the street, with our Google glasses and GPS, while we are in the bath with our waterproof smartphone, while we are eating in a restaurant when the person we are with has nothing to say, or while we are working on our tan on the beach. Clearly, screen penetration varies as a function of the individual's socio-economic environment but, in 2017, 83% of young people aged 12 to 15 had a smartphone and were online 21 hours a week (Asam & al 2019). Social media platforms have multiplied: we now have Snapchat, Instagram, Facebook, etc. But being online does not mean being in relation. While using Messenger can decrease the feeling of loneliness, the passive use of a social network can increase it. Facebook can be used to chat to friends – or it can develop into an obsessive Fear of Missing Out (FOMO), and anxiety about losing control over one's image.

A Google search with the words 'adolescents', 'screen' and 'risk' generates 43.200.000 results that describe the worst horrors that young people can encounter. Screens have become a source of anxiety for parents. Young people's consumption is said to be not only excessive, but also growing exponentially. It is said to lead to psychiatric disorders, sedentarity with the accompanying physical disorders, the overuse of pornography and suicidal behaviour. But are these concerns valid?

METHODS

Data collection

Epidemiological data for Belgium were extracted from the 2014 Health Behaviour in School-aged Children Study, carried out by the Health Promotion Information

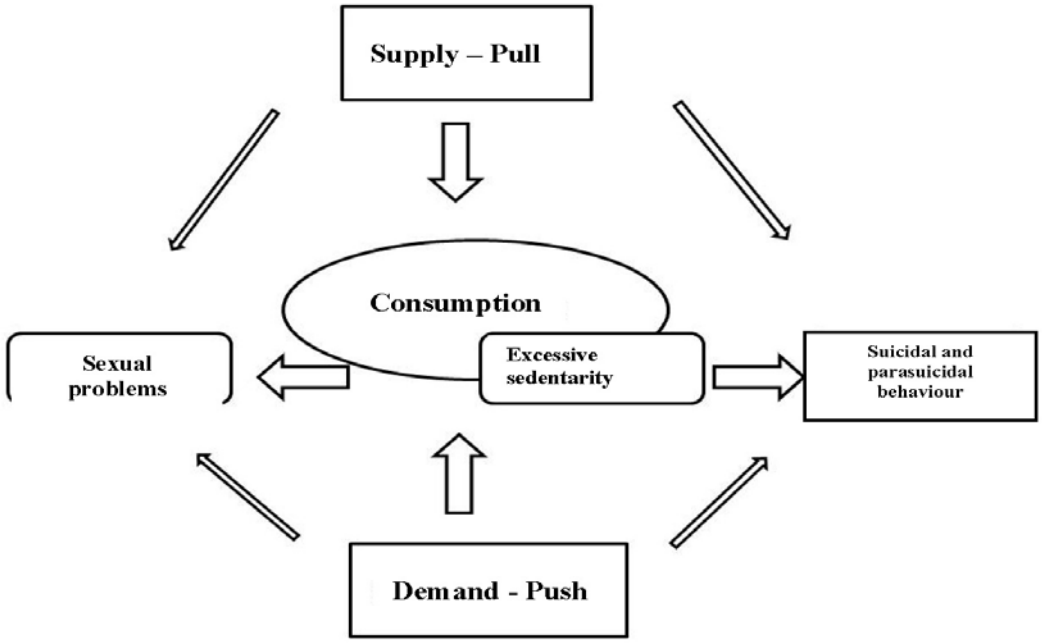

Figure 1. Research outline

Service of the Université Libre de Bruxelles (The Free University of Brussels) in collaboration with the World Health Organization. This was supplemented by a bibliographical search of Medline, Scopus, PsycArticles, PsycInfo and PubMed databases using the keywords 'adolescent' – 'internet' and 'sedentarity' or 'suicide' or 'family' or 'sex*' or 'porno*', for articles published between 2014 and 2019. We selected 27 original articles and/ or quantitative or qualitative meta-analyses. Figure 1 shows the method we adopted.

In particular, we considered the following questions:

- How much screen time do adolescents consume? What are the risk factors?
- Is their consumption excessive?
- Is overconsumption associated with increased sedentarity, and does it have health consequences?
- Is there any evidence of the overconsumption of pornography, and what are the risk factors?
- Is screen time associated with increased suicide risk?

RESULTS

Screen time consumption

Until 2002, 60% of young Belgians (aged 12–18) spent at least two hours per day in front of the television. Post-2002, television consumption decreased and was replaced first by video games then, from 2006, by the internet. Total cumulative screen time consumption remained stable until 2010. However, beginning in 2014, not only did hours spent in front of the television begin to increase again, but also internet consumption caught up with television consumption. At the same time, it is interesting to note that 2014 was the year in which smartphone sales exploded, before stabilising from 2016 onwards (Moreau et al. 2017). Although it is clear that overall consumption increased, it is, however, difficult to know how much total screen time consumption increased by, as 25% of young people often use two screens at the same time (television and internet).

Moreover, opportunities to use screens go beyond recreation, as computers are used to do homework, listen to music, or get directions (via GPS services). If we study the socio-familial factors related to consumption (television, video games and the internet), it appears that young people engaged in vocational studies are the biggest consumers, followed by those in technical education, then the general population. While adolescents in middle class families consume more video games and spend more time on the internet, those in more disadvantaged families watch more television. In general, boys consume more than girls, with the exception of internet use. Finally, consumption of both the internet and video games is higher in reconstituted families than in families with both parents of origin.

In addition to the multiplication of sources of supply (see introduction), which 'pushes' to consumption, various factors 'pull' it. We identified four: familial, parental, personality and school, notably peer influence.

Familial factors include the attachment of the young person (Cacioppo et al. 2019), the family's relational abilities, parental interest in internet use, and parental attention to young people. A young person with insecure attachment is statistically more likely to have poor interpersonal skills, and is more likely to have higher Facebook use. In the same vein, interpersonal skills within the family are correlated with the young person's interpersonal skills with their peers, and the risk of Problematic Internet Use (PIU). There is, therefore, a cumulative risk: the more the young person is invested in virtual external relations, the poorer real-life communication within the family and the more the young

person is pushed towards social networks (Karaer & Devrim 2019; Mullan & Chatzitheochari 2019). PIU is also a function of parental attitudes. Parents who are anxious about their children's internet use, or even forbid its use, are more likely to have children with PIU (Symons et al. 2019). Conversely, a lack of parental interest in the young person, in particular not knowing where they go, or with whom they spend their evenings is also correlated with a risk of PIU.

Unprotective, poorly-educated parents, who have a conflictual relationship or who are going through a divorce are another risk factor for a high level of screen consumption (Sorbring & Lundin 2012). Moreover, if the young person is in a school environment where their peers are deeply engaged in social networks and/ or online games, virtual relationships can provide a way out of isolation. Isolation, feelings of hopelessness, poor problem-solving skills, emotional dependence and mental illness are risk factors, while a pleasant and conscientious personality is a protective factor (Livingstone & Helsper 2009; Twenge & Campbell 2019).

Excessive consumption

There is no consensus on what constitutes excessive consumption. Figures from Belgium are based on two hours per day, while figures in the international literature suggest average daily use of seven hours (bearing in mind that consumption is higher at weekends). While 30% of young people spend fewer than seven hours in front of a screen, another 30% spend more than seven hours (Asam et al. 2019; Dufour et al. 2019). Among the highest consumers, problematic consumption accounts for 5% of the population. The definition of PIU is also controversial, but five criteria are more-or-less agreed upon (Assunção et al. 2017):

- Prefer virtual relationships to real ones.
- Being online regulates the mood.
- Not being online is a major concern.
- A compulsion to be connected.
- Intensive use of the internet has negative consequences on real life.

It should be noted that what social networks can supply perfectly meets the needs of users with PIU. They offer a symbiotic relationship with peers, the ability to be present and control interactions, and positive emotional reinforcement. The ability to create a profile means that users can present an ideal image of themselves, and compare and validate their image with that of others. And, last but not least, social networks offer an easy way to communicate (Casalo & Escario 2019).

Epidemiological data show that PIU is associated with a psychiatric disorder in 97.5% of cases (Fuchs et al. 2018). The latter authors consider that a psychiatric disorder leads to PIU, rather than the other way around. The exception is anxiety disorders, in particular social phobia, which becomes part of a positive feedback loop (Przpiorka et al. 2019) (Figure 2).

Overconsumption and sedentarity

The relationship between screen time consumption and sedentarity cannot be understood in terms of a linear causality. A sedentary lifestyle, in the context of young people, is evaluated in terms of two dimensions: daily physical activity and engaging in weekly sport. In Belgium, 70% of young people practice a sport several times a week. Young people from a supportive socio-economic background practice more sport than others. These figures have been stable since 2002, and did not decline with the increase in screen consumption in 2014. Moreover, 50% of physically-active young people watch television for at least two hours per day. The exception is reconstituted families, where young people watch less television, and are less physically active.

There seems to be a paradox among young people engaged in vocational studies. This group has highest screen consumption, but they are also the most physically active. The use of certain types of screens is more associated with sedentarity than others (Arundelland et al. 2019). For example, the use of solitary video games is more associated with sedentary lifestyles than PC use. Similarly, adolescents with a poor social life are statistically less active than their peers. Although these statistics are reassuring, an impressive number of studies associate screen consumption with a physical pathology (Lissak 2018); however, the reported results seem to be more anecdotal than a reflection of reality for the majority of young people (Table 1).

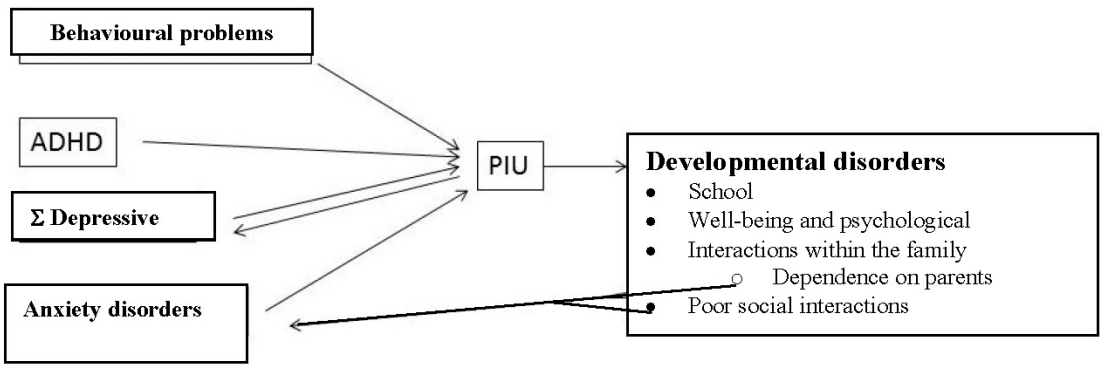

Figure 2. PIU and psychiatric disorders

Table 1. Consumption and Physical Illness

Leads to	Due to	Consequences
Obesity	Poor dietary choices Sleep disturbance Sedentary lifestyle Snacking	Cardiovascular risks
Hypertension	Sedentary lifestyle	Arteriosclerosis
Hypercholesterolemia	Sedentary lifestyle	< HDL
Stressability	Increase in ortho-sympathetic tone	Sleep disturbance
Abnormal cortisol production	Loss of circadian rhythm Increase in daytime cortisol	
Type II diabetes	Loss of insulin sensitivity	Obesity
Vision impairment	Eye fatigue Blurred vision Dry eyes	Myopia Decreased visual acuity Diplopia
Orthopaedic disorders	Musculoskeletal pain due to repetitive movements Bone demineralisation	
Lack of frontal stimulation	Cognitive control disorders leading to impulsivity	Decrease in grey matter Problems with socio-professional insertion
Violent behaviour	Desensitization leading to violence	
Irradiation	Infertility and tumours?	

Overconsumption of pornography

While it is difficult to estimate the number of young people with PIU, estimating the number who overuse pornography is even more problematic. Although difficult to observe, overconsumption is a reality. It is suspected to lead to various sexual disorders (Salmon & Zdanowicz 2006, Zdanowicz & Crochelet 2011) and, in particular, to a form of addiction. It should be noted, however, that an addiction to pornography is not recognised, as such, in DSM 5 (DSM 5.0, 2013). Some young people have shifted their consumption from magazines, the cinema and even televised films (based on anecdotal evidence) to internet content. The latter caters to all sexual preferences, which is clearly a factor driving consumption. Younger adolescents tend to consume soft porn, while the oldest have a preference for more dominant submissive material. The internet can provide a wide variety of content: online games, chat rooms, selfie sites, etc.

Apart from general factors leading to overconsumption (see above), there are specific risk factors. These include: family, personality and peer influence. Young people who overconsume sexual content tend to come from families where the members have little interaction with each other, and where parents pay little attention to their children (Wilson 2018). Personality factors include sensation-seeking, and adolescents who primarily consider sexual relations as a utilitarian, physical need. Conversely, young people who consider sexuality in relational and affective terms, and/ or those who are deeply religious, have little interest. Peer influence is a factor that reinforces the need for approval of content put online by high consumers (Alexandraki et al. 2018a). Two types of dynamics include positive feedback loops (Alexandraki et al. 2018b, Stanley et al. 2018). These involve boys who use pornography, and who use social networks to seek approval for their sexual behaviours. This approval encourages them to engage deeply in sexual experiences at an early age; these experiences then reinforce their consumption of pornography as they share their discoveries online, in the search for further approval, etc. Girls who use pornography extensively tend to have parents who are separated, they have been the victim of sexual abuse, and have a positive perception of pornography. They engage in multiple sexual experiences that reinforce their use of pornographic content.

Screen time and suicide risk

Aside from the problem of harassment, which we have already addressed (Khatcherian & Zdanowicz 2018), screen time overconsumption and, in particular, the internet is accused of being the source of suicide risk. The first limiting factor with respect to this assertion is the change in the number of suicides among young people in recent years - this number has changed very little, and has even fallen in Europe (Kolves & De Leo 2014). Risk factor studies show that young people who engage in suicidal actions, and who use the internet, are the same as those who use the internet very little, or not at all.

The key difference between suicidal behaviour in real life compared to cases where the internet has been found to have had an influence relates to contagion. In real life, when a young person commits suicide (for example in the school environment), preventive actions can easily be taken with other pupils; however, on the internet, this is more difficult to implement. For exam-

ple, how do you know which young people have consulted the blog of someone who has committed suicide, and how do you reach out to them? Moreover, this type of content, along with other 'pro-suicide' content, can be found on various media: among them, Facebook, Instagram, Snapchat and Twitter (Lee & Kwon 2018).

Here again, how these social media are used is an important consideration when talking about a risk factor. If passive media use acts as a 'push' to suicide, active engagement with a young person can reduce the risk (Belfort & Miller 2018). In the same vein, young people who have been caught up in an obsessive, FOMO-type dynamic are at greater risk. It should also be noted that the internet does not only contain pro-suicide sites; for each pro-suicide site, there is almost one suicide prevention site (Biddle et al. 2008). Finally, sites dedicated to Blue Whale-style challenges are visited by young people who, above all, are already at risk of suicide and, in particular, those who self-harm (Lupariello et al. 219).

DISCUSSION

There seems to be a world of difference between the fears of adults, and the reality that has been uncovered by most academic studies. Although the abuse of all kinds of screen is clearly dangerous, the main danger is a projection of adult fear. It is obviously tempting to think that it is adults with poor communication skills or/ and those who fear the internet that are at the origin of these projections. Furthermore, it is ironic to think that, for Generation Alpha, it was these same adults who posted the first pictures of their children growing up, before these children were ever able to consent to their publication. It becomes difficult for such parents to lecture their youngsters on the dangers of publishing material on social media. Similarly, it is amusing to note that some studies have correlated the recent reduction in alcohol, tobacco and hashish consumption among young people with the rise in popularity of video games. Although a systematic correlation has yet to be found, it is usually claimed that it is difficult to perform well when under the influence of mind-altering substances (Larms et al. 2018).

Finally, the school environment clearly has an influence on the use of social media. There are already schools that support home learning, where interactions with teachers in the classroom are dedicated to addressing difficulties and the completion of homework. The authors of this study work in a university that is pushing for the expansion of online courses that include entertaining applications to test knowledge. Young people growing up today acquire knowledge differently, all the more so as someone who knows where to find knowledge, rather than someone who's head is filled with knowledge, increasingly reflects the idea of what it is to be a scholar in modern times.

CONCLUSION

Although they spend more time looking at screens, members of Generation Alpha are no more at risk than anyone other group – unless they accumulate risk factors. At the same time, there are other challenges that remain to be studied. These young people must address the issue of privacy if their parents published, without their consent, photographs of them as children. They must also develop a new relationship with knowledge, given that everything they need to know is available online, everywhere, at any time.

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Contribution of individual authors:

All authors made a substantial contribution to the design, and/ or acquisition, and/or analysis and interpretation of data.

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Correspondence:
Nicolas Zdanowicz, MD, PhD
Université Catholique de Louvain, Psychosomatic Department,
Mont-Godinne University Hospital
Avenue Dr G. Therasse, 1, B-5530 Yvoir, Belgium
E-mail: nicolas.zdanowicz@uclouvain.be