



Review article

The impact of media on children during the COVID-19 pandemic: A narrative review[☆]M. Mesce^a, A. Ragona^a, S. Cimino^a, L. Cerniglia^{b,*}^a Sapienza, University of Rome, Department of Dynamic Clinical and Health Psychology, Via degli Apuli, 1, 00186, Rome, Italy^b International Telematic University Uninettuno, Faculty of Psychology, Corso Vittorio Emanuele II, 39, 00186, Rome, Italy

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ABSTRACT

Although mobile technologies are a fundamental part of daily life, several studies have shown increased use of electronic devices, TV, and gaming during childhood in conjunction with the COVID-19 pandemic. The virus affected almost every country, causing uncertainty about the future, social isolation, and distress. This narrative review has searched the scientific literature in the field focusing on children. A non-systematic literature review was conducted in May 2022. Various databases were employed to conduct the document research for this paper, such as "Google Scholar", "PubMed", "Web of Science". Keywords for the search included "screen time", "media", "digital use", "social media", "COVID-19", "pandemic", "lockdown", "children", "effect of media on children during COVID". It was found that both children and adolescents seem to have used technologies to confront struggles provoked by COVID-19, such as the onset or exacerbation of symptoms of anxiety, depression, and attention-deficit/hyperactivity disorder. However, moreover, other studies have suggested that increased media use can have positive effects on children depending on usage and monitoring by the parents.

1. Introduction

1.1. Background: children and media

Earlier literature has pointed out that media, particularly the Internet, affect individuals' health, interpersonal relationships, concerns and opinions, and sleep (Do et al., 2020; Tran et al., 2017, 2020; Zhang et al., 2017). Particularly for children, media contribute to daily life throughout development (Calvert and Valkenburg, 2013): today's children are born and grow involved in media, as brilliantly described by the expression "digital natives" (Prensky, 2001). Mobile technologies are a gateway to a wide range of information: their continued modernization, such as electronic tablets and smartphones, allows children and adolescents to be connected to media and move between them 24/7: youths can use their mobile phones to text or call one another, watch online television programs or movies, play online games, or use mobile apps (Calvert, 2015).

Digital progress has supplied more innovative educational opportunities and easier access to information and communication (Chauhan et al., 2021). Therefore, the digital age has fundamentally changed the lives of children, affecting their learning, social relationships, play, and overall development. At the same time, there are concerns about the

possible harm caused by the excessive use of digital technology (Huber et al., 2018; Przybylski et al., 2020) that could even result in a full-blown Internet addiction (Mak et al., 2014).

There is significant literature highlighting the various problems that may result from excessive exposure to digital media, and the concerns are specific to each age group, from infants to adolescents (Chonchaiya et al., 2011; Heffler et al., 2020; Srisinghasongkram et al., 2021).

Previous studies suggest that children's cognitive, behavioral, and emotional development might be impaired by exposure to digital media early in life, as it narrows their interests and limits areas of exploration and learning. This makes it difficult for kids to involve themselves in non-electronic tasks, decreases play time with other children, and thus impairs the development of imaginative skills, creativity, and social skills. Digital media also impairs children's maturation of language, attention, reading, and reasoning (Chonchaiya et al., 2011; Heffler et al., 2020), the latter of which is also hindered by the many behavioral problems that can develop, like hyperactivity and inattention, aggression and conduct problems (Srisinghasongkram et al., 2021). All of this has a huge negative effect and involves several areas of the individual: cognitive (intellectual) disorders, lack of attention, poor school performance, impulsivity, and poorer logical reasoning (Srisinghasongkram et al., 2021).

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There is ample evidence that screen overexposure (≥ 4 h per day) can be a prodrome for major depressive disorder and social phobia in children (Kim et al., 2020), emphasizing the need to restrict children's exposure to screens, regardless of their age (Hmidan, 2022). According to research by Kim et al. (2021), children gained weight during the blockade and engaged in less physical activity and more media use; the most used media was online educational content (97.2%); however, YouTube was found to be one of the most used contents (87.6%) immediately followed by online games (78.3%). This increased use of media and the Internet could lead not only to physical problems but also to internalizing and externalizing symptoms (Hmidan, 2022). In this study, the author noticed a positive correlation between screen time and internalizing behaviors and hypothesized that age-related factors may moderate the strength of the correlation (ibidem).

Another crucial point is that the school hiatus, and consequently the lockdown related to the pandemic, could have caused psychological distress in elementary school children (Chen et al., 2021), and the negative impact can be extended to the problematic use of social media and smartphones. Longitudinal research conducted by Chen et al. (2022) shows that the pandemic has worsened psychological health and increased problematic Internet use in a large sample of schoolchildren increasing digital media-related distress.

In addition, in research conducted by Atia Marfua (2021), mothers noted various behavioral and health concerns in their sons and daughters during COVID-19 related to the prolonged use of screens and technological devices. Other researchers (Li et al., 2021b) found that increased screen use was related to greater rates of psychological health symptoms in children and adolescents during COVID-19, consistent with findings in the pre-pandemic literature (Stiglic and Viner, 2019; Hoare et al., 2016; Suchert, Hanewinkel & Isensee, 2015). In particular, in young children, increased time spent on TV or digital media has proven to be related to conduct issues and hyperactivity/disattention (Cost et al., 2022; Patterson et al., 2002). Television has had a significant impact during this period of isolation because everyone has it in the home: greater and more constant access to information regarding the pandemic has been positively related to symptoms of anxiety and depression as well as PTSD (Wang et al., 2020b; Xiong et al., 2020). Such negative consequences can strike especially hard with children: in fact, it has been shown that watching television before age 3 can negatively affect children's cognitive functions (Zimmerman and Christakis, 2005).

Gaming has also played a significant role in entertaining children during isolation, even bringing in some cases positive, and non-negative, effects such as improving mental health and helping combat isolation (Barr and Copeland-Stewart, 2022). In fact, video games are functional stress-relieving tools for both children and adults: they are believed to reduce both anxiety and depression and increase other abilities (Bowman et al., 2022; Limone, 2021; Yee and Sng, 2022).

However, Werling et al. (2021) found that although most of the effects due to dysfunctional media use seemed reversible, this was not the case in a clinical champion of young males with psychiatric disorders. It is, therefore, possible to conclude, based on the earlier research cited above, that excessive media use was only temporary in most individuals, however, for those who were already at risk for technological dependence, the lockdown may have exacerbated the problem.

In addition, our investigation shows that children who engaged more in activities involving screens during the pandemic are more likely to develop higher levels of anxiety and psychosomatic symptoms (Camerini et al., 2022), thus confirming previously observed findings (Ho et al., 2014; Mohan et al., 2021).

A very interesting point to consider is that during COVID-19 infants experienced different age-related challenges (Eales et al., 2021): in particular, while younger children may not need media to stay in virtual contact with peers, older children may have contacts outside the family to maintain (Masten and Motti-Stefanidi, 2020). These researchers, in line with others, cited so far, have also found that in general an improve in children's media use was observed and that older children, in

particular, are often left alone with technological devices as they are considered more independent.

Regarding mental health during COVID-19, some studies have found a correlation not only between device ownership and depression in school-aged children (Adachi et al., 2022), but also between maternal symptomatology and excessive use of handheld Internet devices, particularly smartphones, among children (Guo et al., 2021), and this association varies according to the age of the children. This is a crucial point because we need to consider that children's social isolation and the activities, they engage in during the shutdown also affect parents' mental health. Maternal mental state can affect the child in several ways: for example, mothers with internalizing disorders might make excessive use of electronic devices, act as role models for children, or use screen time to replace insufficient maternal companionship (Bjelland et al., 2015; Faltýnková et al., 2020; Wu, 2016) or children may take relief from portable internet devices when the mother is unable to provide emotional support.

However, it is worth noting that the media can further have a beneficial impact: it has been shown that children and adolescents can benefit because social media helps increase communication skills and develop technical skills (Tartari, 2015). During the lockdown, social media shares allowed for similar feelings to be shared: in fact, it was observed that those who perceived they had more support on social media had a better level of mental health (Kaya, 2020; Canale et al., 2022).

Further, COVID-19 allowed new intervention methods for chronic disease management that proved to be extremely useful in that they allowed essential services needed during isolation not to be interrupted (Shamsabadi et al., 2022).

Psychotherapy has also had to adapt to the period of isolation, resorting to the use of virtual platforms. Regarding the treatment of symptoms due to the pandemic, it has been found that cognitive-behavioral therapy via the Internet is the most effective therapy (Ho et al., 2020; Zhang and Ho, 2017).

Overall, therefore, digital technologies can be useful resources in addressing issues posed by COVID-19.

Ultimately, the increased reliance on technology during COVID-19 has a complex impact. Technological devices have indeed provided an escape from loneliness but, at the same time, maybe a prodrome for the development of depression, anxiety, irritability, and sleep problems. This review has some limitations explained below. First, we only included papers published in English; we chose to follow this line due to lack of time and unavailability of language resources, which, as suggested by Neimann Rasmussen and Montgomery (2018), are among the most common reasons for not including languages other than English. Another limitation may be related to the survey methods of the articles included in this manuscript; in fact, in most cases, they are based on parental observation. Since the results of the studies considered refer to a potentially frightening and depressing period for the children, likely, the time spent with the parents, which was greatly increased due to the closure, and the quality of the relationship may also have been affected; this situation could therefore have influenced the parents' ability to observe and, consequently, the results obtained. A controlled type of data collection would be useful to try to isolate possible causal agents.

5. Conclusions

We are aware that COVID-19 sets a unique issue and raises the need to find innovative solutions to the latest problems. We suggest that emphasis and attention be placed on children's psychological health during the pandemic because it is important to limit the negative impact of restrictions on their health to avoid long-term consequences. The family atmosphere plays a key role in promoting dialogue and a protective environment, especially in this period. Parents have a key role in this context and should check their children for negative outcomes of increased technology and media use. An effective strategy might be to limit screen time in favor of more interactive, creative, and in-person