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ACTA PÆDIATRICA NURTURING THE CHILD WILEY

BRIEF REPORT

# Digital media content and co-viewing amongst Swedish 4- to 6-year-olds during COVID-19 pandemic

COVID-19 restrictions have increased the use of digital media, and studies have suggested that children's screen time has increased by 10 h a week since the pandemic.[1] However, screen time is a very basic measure, and it is also important to consider the content and context of digital media. Digital media may have negative effects on behaviour, language and memory,[2,3] but this may be moderated by the positive effects of joint media engagement between children and their parents. Other digital media content, such as video chats, may have positive effects.[4] Video-chat word learning and play interactions are similar to face-to-face interactions and therefore may support child social development during social distancing.[5]

The study aimed to analyse the digital media that children aged 4–6 engaged in, such as television, digital games and video chats, and what role their parents' joint media engagement played in these activities. We also explored whether the COVID-19 pandemic had changed the content of children's digital media usage.

An online digital media questionnaire was completed by 240 Swedish parents (89% mothers), predominantly with university education (84%) and with a mean age of 36 ± 4.7 years. They had children aged 4–6 years and were anonymously recruited from 1 December 2020 to 2 January 2021, after the study was advertised on Facebook parent groups, by word of mouth and on the public social media channels of Linköping University, Sweden. This was during the second COVID-19 wave in Sweden. Although preschools were open, any child showing respiratory symptoms was sent home, which led to frequent unplanned times at home. The questionniare[5] explored the children's digital media habits, and how many hours they spent watching videos, playing digital games or on video chats, as well as reporting on their children's favourite programmes/digital games, which was then coded with regards to age- and child-appropriateness. Questions regarding joint media engagement, and if their child's screen habits had changed due to COVID-19, were also included.

The sample comprised the parents of 240 children (52% girls): 24% of the children were born in 2014, 40% in 2015 and 36% in 2016. All the children watched child-friendly age-appropriate television for a mean of 643 (range 25–1680) minutes a week. Just under two-thirds (65%) communicated through video chat, for a mean of 65 (range 0–1164) minutes a week, and 72% played child-friendly age-appropriate digital games for a mean of 205 (range 0–813) minutes a week. There were no differences between year of birth and watching videos or video chats, but the meantime spent on gaming rose with age, from 174 to 181 to 283 min. There was no gender difference with regards to the time spent by watching videos or video chatting. However, there was a significant difference in gaming, as the boys played more digital games than the girls, with a mean of 240 vs. 171 min per week.

Parents' use of joint media engagement changed with the digital content (Figure 1). Only 30% of the parents were engaged when the children played digital games, for instance, talking about whether the information in the game was true or about what was happening in the game. Joint media engagement was more likely when the children watched videos. For example, 61% of the parents said that they often, or sometimes, explained what was happening on the screen or highlighted bad behaviour by the actors. Finally, the parents estimated how much their children's digital media content had changed due to COVID-19: 77% estimated that video chat had increased, 27% that gaming had increased, and 39% that video content had increased. Less than 2% reported that any digital media content had decreased during the pandemic.

Our findings emphasise the importance of analysing both the content and context of digital media use and not just the total screen time. COVID-19 increased the use of digital media. COVID-19 was associated with a 77% increase of video chat in this study, and this activity has previously been associated with positive developmental outcomes. The children watched 39% more video content, which has previously been related to negative outcomes. However, the fact that more than half of the parents interacted with their children during this activity might have led to the positive outcomes, such as helping the children to learn from the videos. On the other hand, gaming increased for 27% of the children, but there were low levels of parental involvement in this activity. Although this was a moderate increase, it may have resulted in negative effects. The limitations of the current study included selections bias, as it was an anonymous Internet survey, and it may have been difficult for parents to correctly assess if digital media had increased or not.

The study showed that media use by children aged 4–6 increased during the COVID-19 pandemic, particularly the use of video chat,

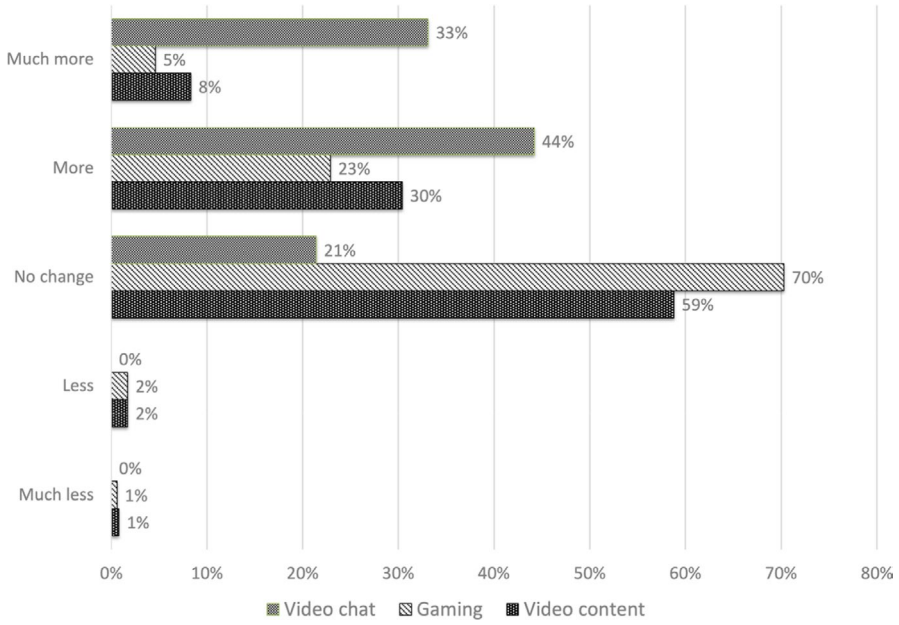


**FIGURE 1** Change in 4–6-year-old children's use of different digital media content due to COVID-19.

but that the greatest duration was made up of TV, which also had the most parent joint media engagement. These results suggest that watching TV together may have been easier for parents to managing the stress of the pandemic, rather than engaging in digital games with children.

## CONFLICT OF INTEREST

None.

## FUNDING INFORMATION

None.

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## REFERENCES

1. McArthur BA, Racine N, Browne D, et al. Recreational screen time before and during COVID-19 in school aged children. Acta Paediatr. 2021. https://doi.org/10.1111/apa.15966
2. Heimann M, Hedendahl L, Ottmer E, et al. 2-year-olds learning from 2D media with and without parental support: comparing two forms of joint media engagement with passive viewing and learning from 3D. Front Psychol. 2021;11:4081.
3. Sundqvist A, Heimann M, Koch FS. Relationship between family technoference and behavior problems in children aged 4–5 years. Cyberpsychol Behav Soc Netw. 2020;23(6):371-376.
4. Sundqvist A, Koch FS, Birberg Thornberg U, et al. Growing up in a digital world Digital media and the impact of the child's language development at two years of age. Front Psychol. 2021;12:443.
5. Barr R, Kirkorian H, Radesky J, et al. Beyond Screen Time: a synergistic approach to a more comprehensive assessment of family media exposure during early childhood. Front Psychol. 2020;11:1283.