**Jenny Radesky, MD**
**University of Michigan Medical School**
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Thank you Chairwoman Eshoo, Ranking Member Guthrie, and members of the Subcommittee on Health of the Committee on Energy and Commerce, for the invitation to speak today. I am a practicing Developmental Behavioral Pediatrician at the University of Michigan Medical School, where my clinical work focuses on psychosocial determinants of child development. I am also an NIH-funded researcher who focuses on modern digital media like smartphones and tablets, apps and platforms, and their relevance for parenting and child social-emotional development. My testimony today in support of the Children and Media Research Advancement Act (CAMRA) represents my knowledge and views as a pediatrician and researcher, not the University of Michigan.

I first want to preface my remarks by emphasizing that caring about children's relationships with digital media is not sentimental, precious, or panicky, it is highly practical and is good public health.[1] Children spend more time with media on a given day – whether learning, socializing, or relaxing – then they might spend face-to-face with their parents.[2, 3] Digital media are often designed by adults who are not trained on the unique ways children experience the world – in fact, these platforms are often designed with assumptions that they will be used by typical, average adults, resulting in unintended consequences for children.[4, 5] Children's explorative, curious, and impulsive ways of being in the world are adaptive traits that help them build foundations of knowledge, develop a sense of self, and learn to flexibly solve problems. These traits, and their dependence on adults to create healthy environments for them, also make them more vulnerable to being forgotten or invisible, or being taken advantage of.

We saw clearly during the pandemic how much children rely on digital experiences to support their wellbeing[6] but are also are a target of advertising and monetization,[7] so it is crucial to understand how digital design can support, not undermine, child wellbeing. With new digital products being adopted at an increasingly rapid pace (for example, Pokemon Go reached 50 million users in less than 3 weeks), the need for new funding mechanisms to support rigorous research on children and media is even more pressing.

My research program at the University of Michigan has benefited from support from the National Institutes of Health. Over the past 4 years, I have been the principal investigator on 5 different grants from the Eunice Kennedy Shriver National Institute of Child Health and Development examining parent and early childhood media use. I had the honor of working with the American Academy of Pediatrics (AAP) on their media use guidelines published in 2016,[8] so I have surveyed the research literature on children and media thoroughly. I therefore aim to give you a lay of the land regarding the gaps in our knowledge and new areas that urgently need funding.

1) <u>We need a more nuanced understanding of day-to-day relationships between media and wellbeing</u>: Research studies on children and media have often relied on global ratings of how much children use media (i.e., "screen time") and have correlated this with measures of health and wellbeing.[9] While this has been sufficient for building understanding of

media use and sleep, for example, it has made it difficult to tease apart more complex outcomes like mental health.[10] In fact, media use and emotional and psychological states vary together second to second, minute to minute throughout the day, and new methods are needed that can really track these types of complex relationships throughout children's days. It is worth mentioning that the social media company Facebook has already claimed that it could target advertisement to teens based on their in-the-moment expressions of depressed mood, so we know this is measurable; it just needs to be done under ethical oversight of experienced and independent research teams.

2) <u>New measurement tools are needed</u>. Having parents recall children's "screen time" is no longer as relevant or accurate a measurement when usage occurs in brief bursts,[11] is immersive and frictionless (and therefore harder to recall),[12] or is brief but interrupts important interactions.[13] In fact, when my research team tracked the smartphones and tablets of 350 preschool-aged children, only about 30% of their parents could accurately estimate their child's daily use.[14] There is an incredible amount of usage data that flows from mobile devices and platforms and could be collected with adequate privacy considerations, from how many times a teen checks Instagram on their iPhone every night, to which YouTube, TikTok or Netflix videos are recommended to young viewers. Researchers need to be able to easily harness that type of data – which could be collected through platform APIs (application programming interfaces) – to truly know what children are being offered, and are consuming and creating, in online spaces.

3) <u>We need to know more about children's differential susceptibility to media</u>. Research has largely examined children as a homogenous population, but we know that children have remarkable variability in strengths and challenges.[15, 16] Some children's temperaments are anxious and socially inhibited, while others are impulsive and reactive. Some teens will be more sensitive to body image issues on social media, while others may have very balanced relationships with media. We need to know more about how children with different abilities – from emotion dysregulation, to autism spectrum disorder, to learning difficulties – may differentially respond to different types of media. This will help us give parents more relevant guidance and help technology companies design for the amazing range of child experiences. CAMRA specifically calls for this type of research focusing on individual differences and media use over time. This is especially important in the post-COVID context, given the higher numbers of vulnerable youth who have struggled with loss, mental health, or family stress during this pandemic.

4) <u>We need to understand the interplay between psychosocial stress and media use</u>. There are deep socioeconomic inequities in our country, and this is rarely addressed head-on in media research. Instead, it is treated as a confounder, something to be controlled for statistically. But as we saw during COVID-19, child opportunities and structural factors play a very strong role in how much media children use,[17] and we need more research directly informed by communities whose perspectives haven't historically been included in media research.[18]

5) <u>The explosion of new digital products needs to be reflected in large-scale study methods</u>. Until recently, much of the research on this topic, including the literature reviewed in the

AAP's 2016 guidelines, has focused on TV and video games—but children now have a vast menu of apps, games, online videos, and interactive virtual assistants. Before 2007, no one walked around with a tiny computer in their pockets. Children did not have handheld device with endless video content that could be taken into their bedrooms, car rides, or any moment of boredom or emotional discomfort. Mobile and interactive media have persuasive[19] and immersive design, and run on advertising[20] and data collection[21, 22] as business models. They therefore have the potential to have much stronger impacts on child outcomes, because they can understand a child's unique traits, and tailor content to nudge their online behavior in certain directions.

Although researchers are trying to measure these varied types of media experiences and design affordances, these measurement approaches are not yet systematically integrated into the population studies tracking children's health and development. Dedicated NIH funding would help make sure that the most up-to-date measurement approaches are used in large-scale studies and would help train a new generation of scientists to use updated methods and translate their findings for parents and policymakers.

6) <u>Finally, CAMRA is unique in that it envisions a sustained commitment to this field, which needs to keep up with the rapidly evolving technology around us</u>. It will be critical for Congress to provide funding for the research authorized by CAMRA to make good on this vision. In this climate of concern about the impact of media experiences on youth, and with technology companies committing millions of dollars towards marketing and data analyses to engage child and teen users, an updated, robust, and neutrally-funded evidence base about children and media use needed. Through its rigorous review process, the NIH would be able to fill gaps in scientific knowledge about new and emerging tech, such as artificial intelligence and the algorithms that determine children's recommendation feeds. We would be able to anticipate the effects of relatively unexplored areas of the digital world that attract youth, such as their safety in virtual reality; their financial wellbeing in sports betting or cryptocurrency exchanges; or understanding what data brokers have done with their profile data.

This is a crucial moment for funding research on children and media. There is a growing consensus that it is time to shift the scientific framework from only asking what the child or parents need to do better, to also asking what the technology designers, business models, and companies could be doing better. Parents have seen first-hand the way digital design can either support or frustrate their family's needs during the COVID-19 pandemic – whether their child is distracted from remote learning with online videos or truly learned new coding skills through a well-designed educational app; whether their family feels connected through videochat or pulled apart by polarized and extreme social media posts accelerated by algorithms. This digital ecosystem is relatively young, and there is so much that can be done to redesign it based, in part, on solid, independent evidence generated through NIH grants. I am very grateful for your time today and appreciate your consideration of the CAMRA bill.

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