

Children's Mental Health & Screen Time

SUMMARY KEYWORDS

Children's mental health, screen time, COVID-19 impact, executive functions, brain development, screen time guidelines, mental health, social development, physical activity, digital literacy, ADHD, self-regulation, family support, educational strategies, community collaboration.

SPEAKERS

Tiffany Wood-Lycett, Kaitlyn Chau, Lucas Andersen, Emma Duerden

Tiffany 00:00

What I'd like to do is start by extending a warm welcome and thank you for joining our presentation today. My name is Tiffany Wood-Lycett, and I'm a school social worker with the Safe Schools and wellbeing portfolio. You see a number of folks with their cameras on currently, and the first I'm going to ask to introduce themselves is Kaitlyn, and she'll introduce herself now.

Kaitlyn 00:40

Hello everybody and welcome. Thank you for joining us. Those of you who are new, or those of us, I see some returning names as well, which always brings us some joy. As Tiffany mentioned, my name is Kaitlyn Chau. I have the opportunity to work with the Thames Valley District School Board as part of the Safe Schools and well being portfolio. My role involves this sort of project, as well as supporting a number of schools to help create safe learning environments.

Tiffany 01:05

So Kaitlyn and I are both very excited to be a part of this collaboration between local school boards and community partner agencies to host these Family Well Being workshop presentations throughout the year with varying topics and presenters. And so the slide that you can see before you just refers to a link for you that is clickable to our website, where you can find the list of upcoming presentations. And before the conclusion of today's talk, we will provide more key information about contacts before we let you go. So just before we introduce our speakers, the other thing you can see on this slide is the way in which we encourage our audience to communicate with us. We are in the teams webinar version, and so that might be a little different than something you've experienced before. Along the top toolbar, and you can see a picture of it here in your slide, there is, there is two speech bubbles, and below them, it says Q, ampersand a in the English alphabet. Should you have a question throughout the presentation or throughout the discussion? Today, we encourage you to use that function, and when you click on it, it will open an opportunity for you to type a question and submit it to us. We will hold those till the question answer period of the seminar today, and if you find difficulty with that, depending on the version of teams that you're joining us with, there will be an opportunity where Kaitlyn will release the microphones for participants, and they can indicate their interest in raising their hand and asking a question. So we hope that you stay with us during that time, or until that time. If you have difficulty

sending us a question before then, the other thing that we want to make you aware of is that this session is being recorded, and as such, we ask that you do not share your name or identifiers to protect your privacy. If you do flip on your mic to ask a question. In addition, if you have questions that are really specific to your family's unique needs. We want to let you know that we will provide you with contact information during the during the kind of conclusion of the presentation for private follow up, if that feels like it might be better suited to you. And so these are contacts and things that you can take a look at. And now I have the pleasure of beginning by introducing my colleague and manager, Lucas Andersen, who will then provide you an introduction to our speaker for today. Lucas Andersen is the manager of student mental health at the Thames Valley District School Board, and actually also a part time faculty member at King's University College within the social work department, together with a team of passionate and brilliant minded colleagues. I love it when he describes our team that way, Lucas supports schools on their journey to creating a safe and inclusive environment that promotes well being and equity for all students. Lucas is really passionate about using utilizing performance art to advocate for social justice, as well as finding innovative ways to engage students and families into transformative discussions surrounding mental health, well being and stigma reduction, Lucas is exceptionally grateful to have the opportunity to be with everyone this evening to discuss this meaningful topic that impacts all of our lives. So I would like to turn things over to Lucas and welcome you.

Lucas 04:21

Hello, everybody. Can everyone hear me? All right. Can you hear me? All right? Wonderful. That's great. Thank you so much, Tiffany for that introduction. As always, very interesting hearing your own bio read back to you. So I appreciate that good evening. Everyone very happy to be here, and I'm excited to be a part of this webinar with all of our parents, our care caregivers, our community members, our educators who are participating during the live event, and also those of you who are watching the recording. So as Tiffany had shared, my name is Lucas Andersen. I am a social worker, and I am at the TV DSP, and I am the manager of student mental health. We. We are so fortunate to work in such a collaborative community. I'm very grateful for that, and the TV DSB greatly values our partnerships with brains can to offer this learning opportunity so brains can is a neuroscience research initiative located at Western University that aims to transform the way brain diseases and disorders are understood, diagnosed and treated. This event is part of an ongoing series to support bridging research practices, which into the research into practice. So that's really exciting, and it is really my pleasure to have a conversation with Dr Emma Duerden, who is a Canada Research Chair in neuroscience and learning disorders. So I just want to take a moment to welcome Emma, and Emma, I'm going to pass it over to you. Great.

Emma 05:47

Thank you so much, Lucas and big thank you to Tiffany and Kaitlyn and to Laura for inviting me to present. It's a great pleasure to be here tonight.

Lucas 05:59

All right, so we have all experienced and observed how covid has negatively impacted the mental health and well being of children and youth. Understanding its impact has been a focus of Emma's recent research, and today, we will specifically be discussing the impact covid has had on the amount

of screen time for children and how this may be impacting their development. So we're going to get started with some questions, and I'm really excited to hear what you have to say, Emma. So question number one here for us is what is considered screen time?

Emma 06:36

Well, screen time is considered any time an individual is interacting with an electronic device. So this can include just watching television using a smartphone, using a video game console. So probably a lot of the things that I'm talking about, people will think about how this is so integrated into our everyday lives. Screens are really everywhere, right? They're at work, they're oftentimes, they're used in classrooms. We even see them at the Children's pediatrician office. So screens are really everywhere. What I'd note is that for screen time is that it's not all the same. So there are different types of screen time. So of course, the one of the first things that we think of when we hear about screen time, we think, Oh, watching television. And that's what we would think about more passive screen time, where you're just looking at a screen and not really doing anything else. Or we can also think about active screen time. So this is more for playing video games, playing with other friends in a group, but also using a screen then there's also communication, social media, using Facebook, Instagram, and this is really a form of communication, even though it could be one sided, there's also screen time related to of course e learning or productivity. So going online to take a course, learn a new skill, even, you know, I think many of us did that during during the pandemic, you know, using YouTube to take guitar lessons, for example. And then, really, the last type of screen time would be using it for like, things like creativity, drawing, you know, creating art by using digital means. So it's important to note that there are these different types of screen times, and we also have to think about the context that it's being accessed. So for example, if you are watching television at the gym while you're exercising, this is, you know, very different from just sitting more sedentary on a couch. The other thing that I wanted to note is that screen time is often used to talk about, you know, children and adolescents. When we think, Oh, screen time. You know, using screens we often think immediately of children, but we also have to think for our own screen time as adults, and particularly for older adults as they're becoming increasing awareness about screen time and how it's being used.

Lucas 09:27

I really appreciate that very thorough definition. I guess I'm curious, within the context of this topic, how much screen time is too much?

Emma 09:38

Well, it may be surprising for the people who are joining on the call today that there are guidelines that have been provided by the Canadian Pediatric Society, and those guidelines are very comparable to its American counterpart, to the international guidelines, even though set by the World Health Organization and. And in fact, it's for infants and children. For infants and toddlers, rather so really under the age of two years, it's recommended that they have no screen time at all, apart from video chatting, for example, with with a family member. Then for preschool aged children two to five, it's recommended that those children get about one hour a day, and then from five to 18 years, it's recommended that children have two hours a day of screen time. So probably for most people here, that information may be a little surprising that there are these guidelines, and people may also think that they're they may be thinking that, Oh, potentially their their teen at home, or their child at home, may be getting more than

that. And of course, screen time is is very difficult to monitor, so these guidelines were developed by the Canadian Pediatric Society some time ago, and really more in the time of the 2000s when we didn't really have access to anything beyond, you know, television, essentially. And so they were revised recently, but really kind of staying in the same limits. And so like none under two, one hour between two to five, and then two hours for five and over. But there's been certain changes about the context in which screen time is being accessed. So for example, if you're sitting down with your child and watching a program together that's that's really considered to be like, more of like a positive, a positive aspect of screen time. I'd also like to note that, just as I said that there, as there's different types of screen time, is that the quality and the content of screen time, of course, varies. So for example, Sesame Street. So I don't know how many children was Sesame Street today, but I grew up with Sesame Street. And I mean, it won't be a shock to most people here is that that that was associated with learning, like children did learn numbers and letters and, you know, spelling and that sort of thing. So high quality content of that is directed towards children can have benefits, but there should be, there should be limits on screen time because for interacting with screens, despite how they are everywhere, it's just it can impact how it can limit children to do other healthy positive behaviors that we know are essential for for healthy development, so not just in terms of their physical health, but their cognitive health, their social health, in terms of how they interact and make friends with others, and their mental health.

Lucas 12:59

I really appreciate you sharing that. And you know, I know you shared that it is that can be surprising for some folks to hear, because you're right. Screen time is so integrated into so many parts of our daily life. It's really interesting to hear about the specific guidelines that are impacting people. And you know, it makes me think we just been through a couple of very strange years in the middle of covid. And I'm I'm curious. I'm curious to hear your perspective on how you feel covid has impacted the amount of time children and youth are spending on screens.

Emma 13:33

Well, with the covid 19 pandemic. So for for most of us here who are living in Ontario during the initial lockdown phases. During that time when schools were closed, there was a change to remote learning for for some children, where they schools them, their educational curriculum went online, of course, for entertainment, you know, watching movies, even recreation, right? You know, for some families who were, you know, maybe they were in a smaller apartment, for example, or living in, you know, more of like an urban setting in a city, you know, it wouldn't really be possible to kind of leave the house and, you know, go to a park, even at that time then, you know, the the playgrounds were closed. So in turn, even doing online, you know, recreation became very popular. Of course, we all stayed in touch through using using different platforms to communicate, and we often relied, you know, so much on screens. And then, you know, overall, I mean, it's not a big surprise that, you know, it was a massive amount of an increase in in using and using screens. So for for our group, and we wanted to study this in children and families, so our group actually made. Does brain imaging studies, studying cognitive ability in children, children with neurodevelopmental disorders, and during the pandemic, we couldn't do those studies, so we still wanted to connect with with families. And we actually did kind of a broad survey, and we were asking, you know, various different questions. But what we were most surprised about finding was the responses that the parents had to screen time. So we asked them, How much

time does your child spend on screens, like watching television, watching movies, playing video games, YouTube? How much time did they spend on screens before the pandemic, and how much time are they spending on it right now? So because we released the study, it was right at the beginning of the initial 2020, lockdown, and we were quite shocked to find out. So this was school aged children, so six to 12. So we were quite shocked to find out that the children's screen time had nearly tripled during that time period. So before the pandemic, most children were following the original guidelines of about two hours a day. But in the pandemic period, it had gone up to almost six hours per day, and that was the average that they were reporting. Looking at the individual reports, some children were on screens for over 13 hours a day, and that was not including online learning that was in addition to online learning. So in turn, these, although that was not the original focus of the survey, it was one of, you know, many questions we became very interested in answering the answering this question, and other groups around the world had also reported similar, similar findings. And so during the pandemic, you know, obviously this was a crisis time, right? I mean, there, there was really, you know, limited access. And you know, though, you know, communicating by screens and spending, you know, so much time on screens was, you know, it was, you know, real, absolute necessity. And depending on where people were living, you know, they really didn't have, you know, they didn't have many choices. And so I would just also take the time to know that our group has since done a meta analysis of 37 countries around the world, and we looked at the scientific research studies that had been reported during this time, so studies very similar to ours, to really do kind of an environmental scan. So this included countries, include, of course, Canada, United States, countries in Africa, included India, Australia, really, all over the world, the Middle East. And what we found was, is that irrespective of any of the the setting they were in, high income, low income, high resource, low resource setting, the parents socio economic status. We found that the reports of screen time were also they were in every country they had exceeded the the screen time guidelines. And in particular, we found that for children under the age of two, who aren't supposed to be receiving really any screen time, that none of the studies had reported that they were meeting guidelines. All of the Very Young Children and Toddlers were were being exposed to screens. So this just really highlights that it's, it's not, it wasn't just, you know, an issue. It wasn't an issue. What for families here? It wasn't in Ontario, you know, not just for Canada. We're talking about a worldwide issue that is, and then understanding the the long term effects of this in terms of how we're seeing it in schools, how children are behaving, you know, in in the classroom, is now becoming a paramount.

Lucas 18:58

So I really appreciate you sharing that and, yeah, that's dribbling the amount, it sounds like quite a staggering amount of change. And I'm really curious to hear your perspective just on how, how is it that screen time affects children and youth?

Emma 19:14

Well, it's so it's a complex question, but so we know from studies that were conducted before the pandemic that screen time longitudinal brain imaging studies so they follow children over time with like repeated MRI scans and allowed them to look at their children's brains that this was associated with changes, particularly in a part of our brain that is responsible for kind of very broadly executive functions, so monitoring, planning, working like memory abilities, all the things that we really need to for for success at school. So in addition to that study before the pandemic, we know as well. Well, I mean,

it's not a surprise to say that it's associated with changes in physical health, right? So for the most part, if people are doing kind of passive screen time, or even even active screen time, you know, they're not going to be moving. They're, you know, they're sitting in a chair. So there can be great, great amounts of sedentary behaviors. This can impact cardiovascular health, body mass index, and then also it can significantly impact children's sleep. So it's really recommended that children avoid screens about one hour before bedtime, because it can impact their sleep. And of course, children don't sleep, then they're not going to be very happy. So in addition to the brain imaging study that I had mentioned about cognitive about the brain imaging study, and like the changes in brain regions responsible for, you know, monitoring, planning and memory, there's been other studies to demonstrate that it is associated, you know, with those changes in in behavior, in terms in terms of children's ability to attend. There's also studies in young children to suggest that excessive screen time can be associated with delayed language. So of course, language is something, it's a two way street, right? You know to have to learn language is important to have input as very young children are learning language. You know they're looking at, you know, they're looking at facial expressions and cues they're learning, you know, like their parents are pointing to, like, certain objects and like, telling them, oh, like, what, you know, the name of the these objects, right? This is, you know, so, so essential, so simple, right? For for early learning. But that really is not the same, if it's, you know, if it's coming from a screen, like children need to have, you know, the they need to have, their need to attend and need to be you know, have that that input additional concern is around children's social development and excessive amounts of screen time. In addition to the other studies that we conducted, we've also been following a group of 200 families since November of 2020 and so we actually just finished our eighth time point recently. So we've been following them for over two and a half years. And what we found was is that screen time has really remained unchanged in that it is not as high as it was in the initial periods, but is also it has continued to remain significantly high and double that of the of the guidelines that are by the Canadian set by the Canadian Pediatric Society. And for our study, we found that one of the significant changes over time was that for children who had been watching screens for more than seven hours a day, they didn't they where they saw the with the greatest amount of change was in their pro social behaviors. So they had less pro social behaviors towards others. And so we don't really, so we don't really, we can't say there's you know, causation here. So we can't say, oh, you know, if a child looks at a screen, it's going to impact their social ability, but it's the, it's really, it was the excessive screen time, so and so we know. We can just infer that, you know, if a child is spending over seven hours a day on a screen, then you know, chances are they're, you know, their social communication, interacting with others. You know, that's going to be limited. Interacting with others is a skill that we build. It's you have to practice it, right? So it's like, you know, learning a musical instrument. And another concern for children is in terms of their mental health. So there was studies conducted during the pandemic which focused on children's mental health and screens and unfortunately, children who were exposed to high levels of screen time also reported higher levels of depression and anxiety as well as lower self esteem. Outside of the pandemic, we know that exposure to things like social media can certainly impact self image, body image, and, in turn, children's self esteem. So this is something that children will build more in adolescence. But by having this, you know repeated you know exposure repeated imagery, especially in in high volumes. You know, certainly having it, you know, you know, you know, you know, a small, like regulated amount isn't really associated with these changes. But when we're seeing that children are on screens, you know, for you know more than you know, five hours a day, six hours a day, and if they're spending that time on social media, it can, it can certainly impact self image and embody image.

And then lastly, you know, more broadly, increased screen time is associated with behavioral issues. So I don't think that would be, you know, surprise maybe, to, you know, to this group in terms of, you know, seeing a lot of behavioral changes for things. Like video games, or even for YouTube videos, where they're very rapid, children are getting, like, high amounts of, kind of constant feedback and reward. And, you know, really, we're not designed so much, you know, for that as humans, right to kind of, like process all that reward and always be expecting change, you know, very, very quickly and so, and just as I said before, it's not, it's fine if it's, you know, if it's for small amounts, but if we're seeing, you know, excessive exposure to that, that's where we can see a number of different changes. And then it can, you know, be seen in children's behavior, so in terms of, you know, difficulties with attention, but then being impulsive or even aggressive behaviors?

Lucas 25:44

Well, I'm curious. So I'm curious if you have anything else that you want to share. I'm particularly interested just really related to the mental health and well being of children and youth. So is there any and any additional information that you happen? If not, I'm I am also really curious to hear about, you know, sort of, what are executive functioning skills? I hear about them in the context of this, when we're talking about screen time and we're talking when we're talking about building executive functioning skills for our students. I'm curious if you could share a little bit about

Emma 26:14

that. Yeah, so just for the first question about, you know, for mental health and anxiety. So clearly, during the pandemic period, you know, it was, there was many things that were going on, you know, more than just watching screens, right? I mean, it was, it was a very challenging time for for everyone you know, for for children, for their families, for their parents. So, so I'd also note in our studies that we had very high levels of parent stress and and in fact, high the higher stress levels of the parents actually predicted children's screen time. So those parents who are more stressed, their children were kind of more likely to spend time on screens. So we didn't ask exactly, you know what you know about that relationship. But you know, potentially parents who are stressed more, you know, they were had to, you know, work more work they you know, their job doubled. You know, the amount of work that they had to do was online, and in turn, it doubled for some people. That was the reality, not for everybody. And so, you know, maybe those, those children, they had to spend, you know, more time on screens because they didn't have, you know, their parents around. So we know, for whatever reason, just to say that, you know, that we can't, when we think about, you know, a children and a screen at home, it's, you know, it's, it's more than that, right? You know, it's also about the family as well. So the but it's important for us to, you know, to understand these associations and these relationships and to really be able to understand how screen time is affecting children's mental health and and ways to support it. For the the second part about executive functions. So executive functions are things like attention and focus. You know, being able to sit in the classroom, being able to, you know, sit like sit through their their school lessons, you know, for a considerable amount of time. Working memory is another aspect of executive function. So when I say working memory, this is more like short term memory. So very broadly in our brains, we have two memory systems. We have short term memory and long term memory. And short term memory is something like 30 seconds up to a couple of minutes, and then that information is then transferred to long term memory. So, you know, when we're very stressed, for example, it can be sometimes, you know, you can't remember things, right? And that's because we

have these, you know, these two different systems which can kind of operate separately. So for children, they can so for children, or when they're learning, they're taking information from working memory, and they're putting it into long term memory. Another aspect of executive functions is the ability to inhibit responses or to manage impulsivity, right? Like, you know, talking out of turn when I say inhibition, this is, you know, the ability to, kind of, like, stop a response. So let's say that you're really scared of snakes, for example, and then you see a toy, plastic snake on the floor, which can, you know, kind of look real. You're probably not going to, like, run out of the room, right? Because you're going to say, Wait a minute. Is that a real snake? Like, why am I seeing a snake here, right? Like, you know, in at home and, you know, in Canada, right? So you're gonna, and that's your frontal Yes, your prefrontal cortex. When I talked about before, that puts the brakes on the the rest of your, of your, of your brain that says, Wait a minute, wait a minute. Made it like, let's take a closer look here. Yeah. And so also, you know, when we're stressed, right? And if we think about in, you know, if you, you know the, if there's, like, an emergency or something like that, you think they're like, there, there's a fire, you know, you're immediately going to run out of the room, right? And then you can, often, people will ask you, like, well, you know, what did you do? You're like, oh, well, you know, I couldn't think. And that's actually because that's your, your when in a situation of, you know, high stress, high anxiety, your prefrontal cortex to list off the break. And then the other parts of like your like, your primordial brain, like the fight or flight, like run away, that is, like, ready to go, you know, all the time. That's also parts of, like our brain responsible for aggression. So, so that, you know, prefrontal cortex, that inhibition is, you know, really important to, you know, for that, like that, planning, the monitoring, the thinking, another key aspect of executive function includes problem solving and critical thinking. And then also just being kind of mentally flexible, being able to switch from, you know, one task to another. And, you know, being able to kind of start doing one thing, you know, like playing at recess, and then kind of stop that, and be able to, like, go and sit in in a classroom, or, you know, switch from, you know, two tasks from to switch quite quickly between two different tasks.

Lucas 31:28

I appreciate you sharing that, and definitely, you know, in our own our own schools and through the work that we do, we see, we see how important those executive functioning skills are for our children as they're developing through their through school, and we also have seen quite significantly, how, how the how our, how the pandemic, how covid, has really impacted and changed that as well, too, for a lot of our folks. And so I'm really curious, just from your perspective, you know, what are some of those signs for all of our, you know, all of our parents and caregivers out there. What are some of those signs that a child may be really struggling with executive functioning? What should we be watching out for?

Emma 32:12

Well, it's com it's complex. Because, you know, children like what you would say for a young child would be, you know, different for a teenager, right? So one thing, for example, is difficulties with managing times, or, you know, or schedules, so like not really kind of planning very well on how long something is going to take. It can also be, you know, running late, often not being, not being able to just to manage time. So in a young child, you know, that's, you know, that's pretty common, right? Like this is, you know, something that we learn when we get older. So it could be something more that we see for for older children in general, just being, you know, disorganized. You know, disorganized, misplacing things, misplacing belongings. Disorganization, in, you know, children's rooms, which, of

course, is probably, you know, across the board, but, but right they should get, they should be getting better, right at that, like as they get older. And then, you know, difficulties with difficulties with planning things, you know, putting, you know, having to get to put together their day, what they need to do and and how they have to organize them. Also, I had mentioned this before, just kind of difficulties with attention, being being distracted very easily, not being able to focus. And then difficulties with like that, you know, putting those brakes on. Difficulties with being, you know, impulsive, talking out of turn, and just overall acting without thinking, without, kind of like, you know, saying okay, just like taking a step and and then planning things, and then also just what I mentioned previously, just about like the being mentally flexible. So for some children, you can have difficulties with executive function. We can see this in, you know, being like, very rigid. Being like, unable to, unable to to change, unable to, you know, adapt to change, or schedule is becoming very irritated and and irritable.

Lucas 34:24

This has been, you know, just really valuable information, just sort of understanding how screen time has affected, you know, our children and our youth and adults as well, too and and also to some of the pieces that we should be looking out for. And I'm really curious at this point in time, if you might be able to focus the conversation for us on, you know, for all of our families out there, what can they do to support their child's development in this area? Well,

Emma 34:53

there's a number of things that families can do, and they probably already are doing. So, for example, just having room. Teens at home, like having predictable times for waking up, times for going to school, times for doing homework, you know, time bedtime, just having that predictable schedule for children, really for all children, this is extremely helpful, just so they can predict and then they can it can also, in turn, help them to manage their time. So in terms of, if a child is having difficulty with kind of like that planning and time management and that sort of thing, by having a little, you know, having a schedule laid out for them during the day, that can be great modeling behavior for parents to kind of to show them, like, oh, you know, when we have something very complex to plan. You can, you know, make a make a schedule. For children, you can have, you know, difficulty with organization and planning. It can be helpful to break things down into smaller tasks. So for adults, we can think of something, you know, very simple, you know, like putting school bags. Yes, everything that child needs for school into their into their school bag. People can, you know, think of this as being, you know, such a small task, right? But then it can be that there has to be many things that have to, you know, go in for, for the next day, for example, you know, for whatever activities they're going to be doing in addition to their schoolwork. So really, you know, breaking it down into very small components, and saying, you know, you know, can do this step, this step, this step, in this step, and that can often help, particularly for children who are having difficulties without working memory. Piece, right? So, if a child is having difficulties with executive functions and with working memory, then if you can ask them to do a long list of tasks, then they're not going to be able to remember, then they're going to be there, then they're going to be frustrated, and then, and then they can, then they can be angry. So breaking it down into into small tasks for young children in particular, having like little visual aids. And you know, we can see this in schools where, you know, you know what children have to do, you know, like, when they come in, especially in a winter time, they have all those different steps what they have to do, like, take off their mittens and, you know, there's no pants like, and that's to be done in a particular order. So having

those little visual aids at home that can also be very helpful, just to, you know, promote those, those planning skills, and to to kind of trigger working memory, and then just having, you know, any external, you know, external cues, you know, reminders that can help, you know, children Throughout the day, another thing that parents can really support is, you know, supporting children, you know, to have a break. You know, take, take time. You know, take, take a breather. They can also, you know, really promote self regulation skills. So the prefrontal cortex is, for example, really important for self regulation, and things like mindfulness meditation or other types of about, you know, breathing activities this, because this can actually really help to to promote self regulation. There's also lots of children's books about, you know about reporting about self regulation and really trying to encourage those skills in children. So if they start to, you know, get frustrated, they are starting to activate, like that fight or flight response, they they can, you know, they can, if they have the tools to be able to self regulate. And sometimes, you know, it's that's not going to be something that a child can do, you know, in one minute or 10 minutes. Sometimes it takes a long time for, you know, for children to cool down. It can be that they need to have a routine, you know, around that like to promote self regulation skills, like having some type of, like calming activity that they do that allows them to, kind of to calm down and to that's going to really promote that, you know, prefrontal cortex, you know, the planning and the monitoring. And I think another really important aspect, which is maybe underlooked, is promoting physical activity and exercise. So there is a wealth of information on how physical activity, even short bouts of physical activity, how this can promote activation in the brain, in the prefrontal cortex, and how it can be associated with improved attention and focus and children, and some in some schools, they they even really promote having regular physical activity during the day, because we know about about the benefits and and then also, of course, you know, families can just promote teaching their child problem solving. Skills, you know, practicing this, practicing scheduling, you know, practicing scheduling, even a small task like, you know, growing grocery shopping, breaking it down into small tasks, and then giving children those skills in terms of how to plan and monitor, opposed to taking children, and, you know, taking them on these types of tasks, but not engaging them. So I think all of those factors can really help to promote executive functions in children.

Lucas 40:28

Really appreciate that that's a wide breadth of opportunities and things that families can be doing. And I'm thinking, you know, for all of our our parents and caregivers that are out there in our audience today, we are going to be shortly coming to a Q and A period where we're going to be able to hear from you. So I hope as you're hearing this from Emma, you can really start to think about, are there any questions that you have on how to be able to implement some of these, these skills, or any other questions you might have related to what Emma has been sharing? But as we're moving through I am really curious. I want to know, as educators, what can educators do to address this developmental gap for children and youth? So in our schools, what is it that we can be doing to support our youth?

Emma 41:15

Yeah, and I think this is an important issue, particularly in the post pandemic period, as children are returning to classrooms. So like those skills that I was talking about previously, like those executive skills, you know, teaching students, planning organization, the self regulation pieces for problem solving, goal setting, just as it can be done at home, it can also be done in classroom settings for children who may be struggling more than others, you know, by breaking down those tasks, providing,

you know, writing really clear instruction, getting, you know, any other types of visual supports, just like, just like at home, you know, getting doing things like with multi modal learning, learning in in a few different aspects, you know, to really promote retention. And I think it's also, it's also important in terms of, you know, breaking tasks down, Teaching study skills to children, and the things that I had mentioned about, you know, promoting self regulation, they know, this can often be done in classrooms as well. It's also, you know, working with the and then it won't be a surprise to educators, just the importance of working with families. Oftentimes, what they're seeing in the classroom is what people are seeing at home and working as a team together, you know, identifying what are the factors that are, you know happening, maybe at home or at school, that can be, you know, you know, to better understand children's behaviors, and then having a set plan for the for teachers and parents at home and how it can be implemented and carried out. And then just, you know, these, oftentimes, these changes, you know, they don't have an overnight, right? It can, you know, it takes. It can take a long time, oftentimes, for school based interventions, any type of school based interventions, you know, for whether it be for bullying or to promote self regulation. These, these skills you know can take. These are often implemented over the entire school year, so So months and months and months. So just to say that it can't be, it can't be just, it can't be just once, and it can't just be necessarily, you know, just at home or just at school in that it really takes, it really takes them, you know, a community, to be able to support children.

Lucas 43:46

Really appreciate that. I really hear this, this idea that it really takes an integrated approach, and that there is a role for families, and there's a role for schools to be playing and able to address some of the impacts of screen times for our children and youth. Really appreciate you sharing that I you know, I have many, many questions in my head that I would want to ask you, and I'm curious, as before, we are switching over to asking some of our audience members at all, what questions they may have and they may want to hear from you. Is there anything else that you felt it was important to share about screen time? And I'm sure there are, is a whole lot, but I just wanted to pass it to you one last time before we turn to our audience. Yeah.

Emma 44:40

So, you know, I would just wanted to reiterate that screen time is complex. It's not something we can study in a laboratory, right? Because screens are around us. They're everywhere, and they're not going away. So and in fact, for probably most children, was they get older, they're going. Be spending a lot of time in front of a screen if when they go to university or when, when they're working, it is part of our everyday lives. At the same time, it's important to be to be aware and to and really just to be monitoring children's screen time, especially if it can be related to if parents think that it might be related to behavioral issues, it's important to not only to monitor children's screen time, but a few different tips that can be very helpful. Is just at home to be have screen free zones. You know, there's parts, for example, in children's bedrooms, to not have the habit where children are watching screens alone, without any without them, you know, parental presence, and also to be able to, particularly monitor screen time before bed, and that children should be avoiding screens by about one hour before they go to sleep. And overall, we know that the pandemic has had so many effects on children and families, the screen time issue has become clearly increasingly important, which I highlighted with our meta analysis from studies well over 100 studies in 37 countries around the world that clearly, this is a global public health

issue. And in fact, for most, for most parents or grandparents that you speak to, you know they're they may be unaware that there, you know, there are these guidelines and that it is really, it is an important public health issue for children and for their families, particularly in the context where we know that it can be associated with alterations and brain development in how children are going to do later on at school and how they're going to be actually interacting socially.

Lucas 46:59

I really want to thank you for that and for providing that summary. And yeah, it gives you a lot to think about. You notice when you think about your daily life practices, both for children and youth. As a parent, I can definitely see that for myself as well too, but I also think for us as adults as well too, in our own practices. So I really appreciate you. I really appreciate you sharing. I want to take an opportunity to see if we have any questions coming from our audience here about things you might want to hear

Kaitlyn 47:33

about we don't at this time. So just a reminder to everybody that you are more than welcome to post questions in the Q amp, a function that helps us just to be able to work through them as they come in. And I can also, if Tiffany is okay with it, I can release the microphone. Should anyone not be able to access that? Is that okay?

Tiffany 47:52

Yeah, absolutely. Just to remind folks, especially if they prefer to use the Q and A, we know that a number of people joined when they could and it, you know, it's not lost on me that we're currently on a screen like that. That part's not lost on me in this in this presentation to our audience. And so if folks feel more comfortable communicating using the Q and A and you came a little later, it's just along the top toolbar, and then you could submit your question that way. However, we have a participant already who's put their hand up and knows how to use that piece, and so it looks like you've turned the mics on and go ahead.

48:26

Kaitlyn, go ahead for that first participant

48:40

getting their lunch.

Emma 48:43

So should I take the well, so I'm not with the school board, but I'm in the I'm so I'm in the Faculty of Education at Western University. So for the for the screen time, for whether it's, you know, sitting at a meal, or if it's you know, first thing in the morning, that sort of thing. So it's really about the amount of time that the children are spent on screens. So, so during the pandemic, I think, and children return to classrooms, for example, they were encouraged, like, not to get up and to move around, for example, like just to limit the spread of the infection. So potentially, there may be, you know, watching screens, you know, at lunchtime was really, you know, maybe necessary, particularly for very young children, right? It was very difficult to get them to sit. So, the So, if children are having a little bit of screen time, you know, at lunchtime, then, you know, that's it. That can really, that can count towards their their total,

essentially. So, so it's just important for, you know, for parents to be aware of that. Because they may, parents may think, Oh, they're not getting any screen time, you know, whatsoever, and then coming home having two hours, but they may have had, they may have had a small amount of exposure to, you know, to screens at school as well. So, so that's, you know, important. And information. Yeah, I think you know for, I think you know for like, for like, communicating that information, you know, for both like the schools, or for, you know, for parents, just, you know, asking about like them, like asking about their child's day when they get the opportunity at a parent teacher interview? Certainly, yeah. And I also wanted to note that in the pandemic that school communication was actually a really important contributing factor in terms of parents overall mental health and and well being so that any type but the school communication so not just like for like their child's day, but you know about the homework and that sort of thing, so So certainly everybody has a part to play.

50:56

Thank you. And then

Kaitlyn 50:59

our next participant, whose first letter starts with letter J.

Emma 51:13

Because I think for most educators here on the line, you know, they would notice that, let's say when children return to school, you know, in in September, after they've had the summer. There can be like that summer slide right, in terms of all the information that they seem to have from last year seems to be, you know, kind of, you know, out out the window and so, and it can take time, you know, to kind of, for relearning the other and when we first had our studies at the initial phases of the lockdown some so, you know, when speaking, you know, the media that promoted the studies, you know, sometimes people will say, Well, you know, it's just a crisis time, right? So we're just talking about, you know, screen time for, you know, couple of months, right? But for our for the studies. Now, we've been following families, you know, for almost three years, so we can see that this is not just, it's not just a couple of months or a couple of weeks, right? This is now years. So in terms of whether the changes, you know can can be reversible, we really, at this point, don't know, certainly for, you know, in times where children, for example, weren't able to attend school in the past and they were, you know, at home, this was, you know, in the case of no exposure to war or something, that actually it does, it can take a really long time for Children to kind of get back to where they were. So for three months lost of schooling, this can equate to almost a year and a half of needing to to get back to where they were after so in terms of, you know, the exposure, you know, to screens, in terms of, like, cutting back on screen time and promoting things like healthy brain development. We do know that that certain like and you know for taking up like exercise. We do know that this can have effects on the brain like, not immediately, but we do know that these types of interventions are very, very important and can lead to brain changes. The other thing that I wanted to note is that it was initially thought about, you know, 20 years ago, that children's brains developed, and then we became adults, that our brains were all fixed and done, and that didn't change. But that's not true at all. Our brains are always changing. They're always developing, even like 70s and 80 years of age, that our brains are highly plastic and they can change. So I wouldn't say that it would be certainly not an immediate change. It would be something that could be seen over months or over or over years.

53:58

Thank you. That was an excellent question as well.

54:02

Thank you.

Kaitlyn 54:06

I don't see anything in the Q and A I invite other people to come forward if you have questions. We have such wonderful knowledge and expertise in our hands here. I

54:23

Oh, and we have another participant Go ahead.

Tiffany 54:28

So just while we're waiting, Emma, would you be able to just explain? I posted this slide a little bit earlier on for a little while for folks, just as a opportunity to learn a little bit more about Western brain scan. So it's up there now, if you have a chance to just sort of describe, like, Who would they be contacting and how would this be relatable for the audience?

Emma 54:51

Yeah, so our brain scan, anybody can participate in research. Some of the studies are online, or some of the studies are at University. So if you wanted to do a brain imaging study and have an MRI scan, then you can sign up, you can put your name into a participant pool, and then if any studies that come up that are interesting, then you'll get an email. So you'll kind of be ahead of the game, so you won't have to always be searching for you know, where can you do a research study? So you can go to the website, you can sign up. You can see all the studies that are available. So you can sign up for specific studies or and you have the option to, kind of like, keep your name in the pool, and then you can, you can get signed up. So it's true for children as well. So we do studies with babies, children, adolescents, older adults, and these studies are going on all the time. So if you're interested, you can, you can sign up, and then if you're not interested to participate anymore, then you can, you know, remove your information, remove your name. But it's been really great opportunity for us. We recruit a lot of children from our studies using this, using our brain scan, and it's really been wonderful,

56:06

awesome. Thank you so much.

56:08

It's really cool.

Emma 56:16

Wow, we're waiting. Oh, go ahead. I was gonna say that people can my my email is up there as well. So people are welcome to email me as well. After, after this webinar,

Tiffany 56:25

wonderful. And the other thing that participants should know is that, in this version of teams, if they take their cursor and hover over your email or the website, it's actually a clickable link, it will open a window in another browser. So this is, this is a live slide that anyone can click on in order to access those contact those pieces of contact information right now. Just want to give space and time in case there's no other Q and A, there's no other hands up, I'm

57:08

Yeah, that's a question,

Emma 57:10

yeah, yeah, that's a great question, right? Because it's about, it's about managing, so, you know, developing, like having screen free times at home, you know, for like, the five to seven is a popular one, right? Like, for dinner time and where everyone is off screen. So, you know, modeling the behavior that you want to see in your children. So sometimes they can be do as I say, but not as I do, like they'll tell you to go play outside while, while you're on your phone. You know, the the you know, being able just to model the type of behavior that you want to see have may have times of day, maybe when there's no screens, you know, in the in the morning, or just limiting, limiting screen time to be at certain times, this can help to just as A gradual way. And then, you know, engaging, engaging children, you know, explaining about about screen time, monitoring their behaviors themselves and you know, and to monitor that screen time and to track it, yeah, well, for self regulation skills, there are programs for that are even been developed for children who are four years of age. So and this can focus on things like mindfulness. So just being, you know, being aware the present moment and these types of things are often quite easy for children to to understand. To, you know, when they when they're, they're eating, they're eating when they're if they're reading a book, then they're reading a book. They're not thinking about doing chores, or they're not thinking about playing soccer tomorrow, and just that kind of, it's about really the the everyday, in terms of, you know, promoting those kind of simple things that can really help to help children focus and attend, even it can only start out Just form, you know, as like a short amount of time, right? So for a six year old, 10 minutes would be an eternity, right? But even just the simple thing of, you know, just, you know, focus on eating, eating, eating, when you're eating, and not thinking about doing other things, kind of those, those simple things can really and promoting mindfulness and those kind of everyday practices can help children with their self regulation skills. Screen time, it's a great suggestion that you mentioned. And about the community supports as well, and going like attending the library Boys and Girls Clubs. You know many of these things, they can be they can be accessible for most in the community, for some families, they may not be able to access those resources, but certainly, those are all really fantastic suggestions. Thank you so much? Yeah, you know what? That's a really great question. And nobody, nobody did ask it before, yeah, like the part about like, watch, like, spending time and watching screens with your children, so you don't necessarily have to interact with them at the time, right? Like, let's say it was you know, something with the you know, with the a song, like something you could sing along with, but you could also just use it as an opportunity to have a conversation about it afterwards. Like, if you don't feel that it's you know, appropriate at the time. You know you at the end. You know, you can talk about, you know, what happened, you know, promoting that. You know, those, those memory skills, right? Like, Oh, what happened? And, you know, who was your favorite character, you know, those sorts of things can really

help just to, you know, you know, engage, like, engage in, like, the social discussion, you know, then they it can just it can be more than then in the show itself. Because, of course, you're right, it can be distracting for a young child. So you can watch the show together. You can talk about it in advance, watch the show, and then have the opportunity to talk about it after, and then maybe plan to watch it again together at another time.

1:01:43

Wonderful. Thank you.

Tiffany 1:01:46

You know dr Emma, as I hear other audience members self reflecting, I too, self reflect and think, oh goodness. You know it, it didn't take one single day to get to a place where my own children were consuming a lot more screen time than had ever before. And so that's the other thing that I would just encourage, like caregivers either live with here, with us here, or even into the future. Viewing this recording is that, you know, making a plan to return to a space and time where it you know, the routines are more consistent in line with the guidelines, and then taking small steps each each day or each week, back to a space where you feel that there is more balance. I heard you say clearly, a very hopeful statement, and that is, our brains are always changing. They're always growing. And so that's very hopeful that even if we find ourselves in a space after this last three years that is way in excess of what we have ever been used to before, that we can take those small steps and really be gentle and move back toward a space where things are more in balance, and we are getting to nature and we are getting active and we are doing those things. So hopefully that's also a message that our caregivers can take with us. But I'd love to hear your thoughts on those small steps and taking it slow and gentle to get us back to a place where we want to be. Yeah,

Emma 1:03:10

absolutely right. I mean, for, it's been a real gradual return, right? Like for, I think, for here, for us here in Ontario, I've been a gradual return back to, you know, children's field trips are happening again. You know, through the school, they're able to, you know, engage in sports. They're able to do, you know, things like that they, you know, they even last summer, you know, that's, there's still many things that weren't being offered for children. So we are, we slowly being these things, you know, starting to open up. And so there can be opportunities to start to, you know, change some habits. For, you know, the studies that we did and for Mike, my comments on screen time is really just more for awareness, about, about about screens, as you know, we often think of it being, you know, innocuous. We think of it as, you know, for myself, you know, growing up, I had television, but, you know, I grew up, you know, in Canada, so we didn't have, you know, we we just had, like, two television, like two channels, right, like growing up, we didn't have, you know, iPads and cell phones and smart watches and, you know, I mean, yeah, we had, we had video games, but there, you know, for television was, was really not seen or any screen time was when it when I was growing up, you know, it wasn't as much of a part of everyday life. So it has changed. It has changed so much from the generation today to them, our children's generation. So just the information, the you know to have, the awareness you know to think, well, you know, for these you know. Maybe difficulties at school, behavioral issues, you know, you know, could this be, you know, maybe related to something like screens, right? So, so, just the So, just really, it's the everyday, right? It's making those everyday changes about, you know, like small steps,

you know, maybe making new routines, and how that can really help. Just to, I mean, obviously we're not going to end screen time. It's not going to, you know, happen anytime soon, so, but just to, just to monitor it, and to be to and to be aware of the effects of screen time, I

1:05:46

you. And those

Emma 1:05:47

are both fantastic questions. So for the first question about you, about, you know, YouTube, so, you know, it is, it would be considered, you know, like watching a screen, like watching drawing. So it is kind of, it is kind of learning as well, but really about depending on the age of your child, just like, you know, trying to stay within those guidelines. And also, if you can, you know, be present at the time you know, to be engaged. Maybe there's something about the drawing that can be done offline, that can be done together, for example. So clearly, if it's something that is, you know, an interest of your child, then maybe it can be something that's, you know, promoted offline and to, you know, to do both right the question about the video games and whether there's benefits. This is a fantastic question, and it is a really active area of research and debate with some research demonstrating that video games are can be associated with improved motor abilities, like reflexes, and that it can be associated with improved abilities, like in terms of like those executive functioning skills that I was talking about, but there is other research to suggest the the opposite. So, so I think it's, it's a complex question, because obviously not all video games are the same, right? I mean, there's so many different video games, right? It's a multi billion dollar industry. So it's really kind of difficult to say, like, what would it be about, you know, a particular game that would be associated with, you know, like, a specific benefit? So it's, you know, it's very challenging to do and to study, because children will it's these the that you kind of ask, you ask about what games you know, children are playing, right? So it's, I'm not aware of any research that's like, you know, specifically focused on giving children access to a particular video game and then kind of, you know, tracking them over time. So, so it's, it's an interesting question. And I think the, you know, the the idea, you know, playing video games, like doing in a social setting with others, I think that that can also, you know, have a lot of benefit. And it's more of like an active screen time, you know, where you're actively participating and engaging with others. So there's, you know, there's a number of different benefits there that can have, you know, important trickle down effects into like children's, you know, working memory and how they're socializing with others. So, so it goes back to that not all screen time is, is created equal, but, but really? So the the answer is, is complex on the on the video game one,

1:08:47

thank you very appreciate. Thanks. Then

1:08:51

another participant has their hand up.

Emma 1:09:03

Brittany? That's an excellent question, and it has been a focus of research. So certainly investigators have, they have focused on on this to determine whether using violent video games is associated with

later violent behavior, and actually the so the short answer is, is that it's not so it's often. It's often seen that for individuals who commit violent acts, they can often ask, Oh, did they play video games? And you know, it's like, oh, we're playing video games. So. But if you look at like, on a population of like, the you know, 1000s of people who are playing video games, and the ones that you know, you know that they engage in these, like, very unfortunate, violent behaviors, there's actually, there's actually no association.

1:09:58

I have just. Oh yeah, go ahead. Kaitlyn, no, that's

Kaitlyn 1:10:02

okay, just since we're on this idea of Oh, and actually, I just got another question. So hold mine. We have someone asking during the screen time. Studies were steps taken to rule out other possible conditions that could lead to these results. Some of the symptoms described, for example, the inability to focus or pay attention, difficulty organizing or social challenge, challenges, etc, sound very similar to ADHD?

Emma 1:10:26

Yes, yes, no, that is, that's a really great, great question. So Attention Deficit Hyperactivity Disorder is very common. It's 5% of children. So this is at one in 20 children. So it's, it is very common. It can just be difficulties with attending. It can be difficulties with like that inhibition I was talking about earlier, so like not being able to kind of put the brakes down. So in our studies, we actually did collect information about about neurodevelopmental disorders, and we did ask questions about that. Certainly for the other studies that we, that we did, that we did, like looking at, looking at across studies, they may not have included that information so so they can also include typically developing children. But we know how common ADHD is, that some children can even be sub threshold, right? So, so it is possible, it's a great question, because it is possible that there was, like sub threshold ADHD children included, for example. But I would also say that despite that, we can really look at, you know, this, this very large body of literature, and you know, not just our studies, but studies published before the pandemic, and studies that have been published now. So you know, hundreds of studies which have which have shown this, that children can be at risk. And certainly children with neurodevelopmental disorders are also, you know, they're also at high risk as well. And some has done studies during the pandemic did focus specifically on those children as well, and and also, kind of reported, you know, similar results about difficulties with executive function, but also mental health. That's a great question. Thanks so much.

Kaitlyn 1:12:25

Thank you for that. I'm curious there, when you mentioned that idea of certain neurodevelopmental components like ADHD, perhaps, and having students or children be more at risk, what do you talk about that? Dr Emma, was it in relation to So, for example, if there's a child or a student who has ADHD, would you say that the screen time has a higher impact on them, like it does it lead to more difficulties for a child who has ADHD versus one

Emma 1:12:52

who doesn't, you know what? That's an excellent question. I really, I don't know of research that has, you know, specifically compared children with neurodevelopmental disorders and relative to children who you know don't have ADHD. So when you know, when thinking about it, though, I mean if we're, if we're, if we're, if we're thinking that you know, screen time can impact children's brain development. And, for example, children with ADHD, they can often have delayed development of the prefrontal cortex, so the region of the brain that's, you know, those breaks. And for many children, they're so they're they're delayed, you know, they can be delayed about two years. So ADHD is prevalent in 5% of the general child population, but it's in 2% in adults. So children, as their brain is maturing, they have kind of, maybe a two year lag where their prefrontal cortex needs extra time to develop, and they, you know, they can, you know, develop those skills. So, so already we kind of know that children with ADHD have a little they can have a slight delay in the development of their frontal lobes, and if prefrontal if the screen time is impacting the prefrontal cortex, which we know in children without ADHD, then to you know, infer that they could be at greater Risk. I think is is probable, but I really don't know of any research that you know that has done that, but it could be likely that they would be at greater risk. Thank you. And

1:14:30

then I think we've got time for this last participant question.

Emma 1:14:42

Yeah, you know, that's a really good point about reading online, reading in in digital books, for example, on like a Kindle reader, for example, or on looking at at, you know, a book on an iPad. And for oftentimes, these books, they can be, they can be a little more captivating, right, like with colors or with the images. And also it can be sometimes, like, you know, a little more engaging for children in that they, you know, they can touch them the screens, for example. So, so reading, you know, reading from books, you know, having, like, from from paper books, and spending time for parents, you know, reading to their children, this, you know, is, you know, you know, is associated with improved reading skills. You know, we you know, we know that's having that also that that time together, you know, that's often at the time, at bedtime, when, you know when we want to avoid, avoid the exposure to screens as well. So, so having those, those paper books and to kind of, you know, to to have it at a time, you know, Reading together is important in the future, you know, I think whether you know, whether or not, in the future, we're going to have more and more digital books. I mean, it's in one, in some ways, it's becoming, you know, just kind of part of the, you know, of the the future, right? And we, you know, we need to, you know, be, you know, be aware of this and that, you know, having, you know, having access to books and digital books is is possible, I think, for, you know, for some families, they may not have access, you know, to to go to the library, books can also be expensive, you know, difficult to obtain. Of course, there's, most schools have libraries, and that's, you know, a fantastic program. So some parents may need to rely more on on digital books, or, you know, digital types of screens than others. And just to say that, you know, even if that is happening, that you know, to do it in the context of reading together, right? And it's an opportunity to be able to comment on the material. And do you know all of those things that you would do, even if it was a regular book?

1:17:08

Thank you for that. And that's

Kaitlyn 1:17:09

I will also just, yeah, absolutely. And I will also just add in the context of like, the education world, when we talk about digital literacy, sometimes that can especially the word literacy, we often associate with books and readings and things like that. In terms of digital literacy in the curriculum, we're also looking at that understanding of how to use technology, technology wisely. So it's not just this idea that all sudden we're only going to be on technology, but it's giving skills to children and to students to be able to know when I'm on the Internet, what is safe, what isn't, when I'm using my phone or social media, what's safe and what isn't? So digital literacy can take on a really broad range of skills beyond just reading in a digital format. So just a little piece there, and we will take that last question, and then we will wrap up.

Emma 1:18:08

Question. So the short answer is no. So ADHD is a spectrum. It's a complex disorder. It is it's partially genetic. So we know from studies that it can run in families, for example, and we know it is associated with delayed brain development. So so which is, which is complex? So given that it is due to a number of different factors, it is unlikely to be due to something like excessive screen time. Screen Time is an environmental factor, and maybe it can, you know what we said before about it? Could, you know children who have ADHD, you know, could be at greater risk, you know, for the you know, difficulties with, you know, the cognitive ability, academic performance. You know who, who are exposed, but it is not a risk factor for developing ADHD, or any other type of neurodevelopmental disorders, although the behaviors can seem the same, it would be a different disorder. But thank you so much for that great question.

Kaitlyn 1:19:12

Thank you everybody for participating.

Lucas 1:19:18

This has been really wonderful. I have learned so much. It has been so nice having you here. And I just want to express a lot of gratitude for your willingness to be here, to be interviewed, to be able to speak about this topic. We really appreciate it. And I will also pass it off to Tiffany here to close us off as well. Too

Tiffany 1:19:38

absolutely and Dr Jordan, thank you so much for lending your knowledge and expertise to our audience today. The amount of clarity you just provided in some of those questions and answers was so helpful and so valuable to help caregivers make informed decisions. So thank you so much for kind of being willing to join us share your research and your information and also be. Into those Audience Question and Answers which have proven to be really rich and really interested in invested caregivers. So we are also so very grateful to the UW o team and brain scan team for your collaboration to bring this discussion to our community as well. And just before we finish up, we also want to give a shout out and a big thank you to our audience who has joined us today. If you take a look at this slide with contact information, the other thing we would like you to know is that in the coming weeks, we will complete a recording, an edited recording, and share that back and be able to post that on our website. But do you

know, just to remind the audience, should you wish to contact Dr Emma or take a look at the website that's listed on the slide, or even if you'd like to send more specific or particular questions to myself or to Kaitlyn, who's been here on the call, we really encourage you to do so. And if you have questions about our project overall, with these family, well being caregiver series of webinars, then there is a link at the very bottom of this slide for you to sign up, either for our mailing list, to contact us through the website, to take a look at previous recordings or upcoming webinars and presentations, and if we could graciously ask our audience, who's been with us for a while at this point, to take a look at the slide as well, and if you have a couple of minutes to provide your feedback to us using the link that's listed there about this presentation, this is really valuable and helps us be able to just continue to improve and develop kind of responses that meet the needs of our community. So if you could do that for us, we'd really, really appreciate it. And again, if you'd like to visit our website where you can find more information, then we encourage you to do so and to conclude, thank you to everyone again, we wish you well on the rest of your travels today. Have a great day. Have a great night, and take care.

1:22:02

Bye, everyone. Bye.