

Media Use and its Developmental Effects

Dr Serena Tung
Consultant Paediatrician
Child Developmental Unit
National University Hospital
28 May 2016

Outline of Talk

1. Influences on Early Brain Development
2. Trends of usage of screen media
3. The effects of using screen media
4. Strategies to help guide screen media usage in children

Influences on Early Brain Development

Brain Growth

Why early experiences matter



Newborn Brain

Average weight
333 grams

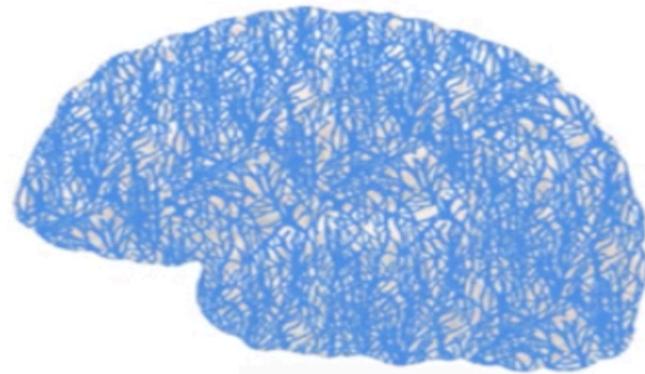


2 Year Old's Brain

Average weight
999 grams



Birth



3 Years

A child's brain undergoes an amazing period of development from birth to three—producing 700 new synapses every second

Positive Influences on the Young Brain

Positive Influences on a Young Brain

- Face-to-face interaction with other human beings
- Manipulating their physical world
- Unstructured free play





CLINICAL REPORT

The Importance of Play in Promoting Healthy Child Development and Maintaining Strong Parent-Child Bonds

Guidance for the Clinician in Rendering Pediatric Care

Kenneth R. Ginsburg, MD, MEd, and the Committee on Communications
and the Committee on Psychosocial Aspects of Child and Family Health

Play is essential to development because it contributes to the cognitive, physical, social, and emotional well-being of children and youth. Play also offers an ideal opportunity for parents to engage fully with their children. Despite the benefits derived from play for both children and parents, time for free play has been markedly reduced for some children. This report addresses a variety of factors that

Factors Impeding Brain Development

- Limited exposure to language, touch or social interactions
- Adverse social circumstances
 - Parental Mental Health Problem
 - Marital discord
 - Financial difficulties
 - Neglect
 - Abuse

Trends in use of Screen Media in Children

Technology Usage in Singapore

- 87% of population own smartphones
- 100% household broadband penetration
- 31 hrs spent online per week

Media Usage in Children

- Over the course of childhood, children spend more time watching screen media than they spend in school
- Average screen time 6 hours/day
- By age of 7, a child will have spent one full year watching screen media
- At this rate, by age of 80 years, they will have spent 17.6 years glued to media screens

SINGAPORE

Kids accessing social media tools 'even before P1'

Children are going online and accessing social media platforms even before they reach primary school age, a study has found.

Pearl Lee

THE STRAITS TIMES

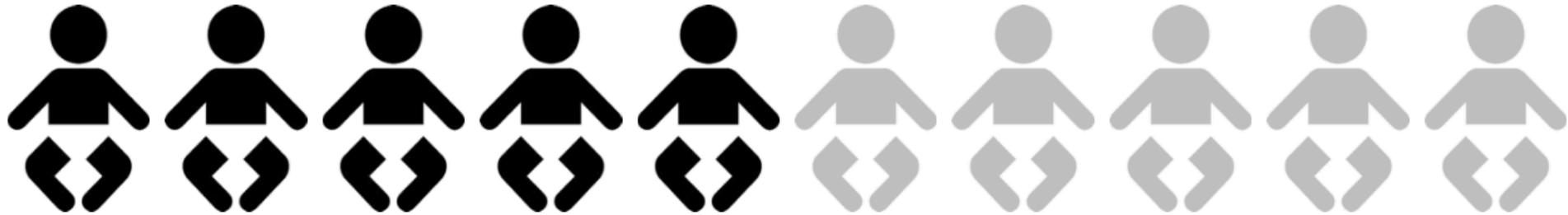
Monday, Aug 3, 2015

The Media Development Authority (MDA) conducted face-to-face surveys with 1,200 Singaporeans and permanent residents aged 14 and below last year to study their media consumption habits.

iBaby

- Screen Viewing in Children up to the Age of 2 in Singapore
- Prevalence of regular and heavy screen viewing
 - Regular: any daily screen viewing
 - Heavy: 2 or more hours of daily viewing

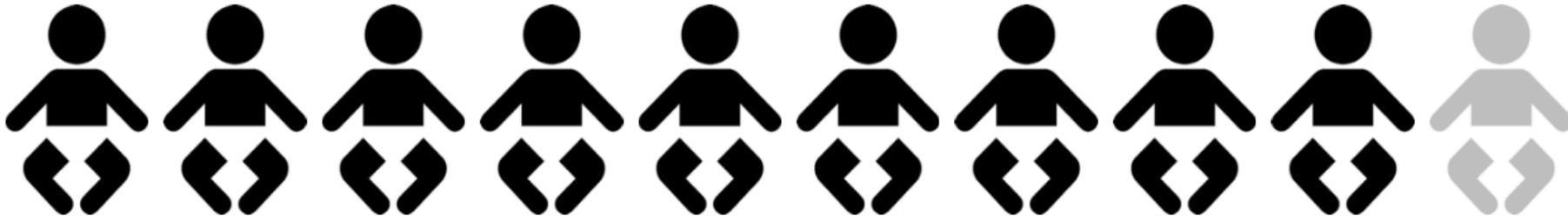
Prevalence of screen time?



Almost 1 in 2 children are exposed to screen devices

52.8% have screen time exposure

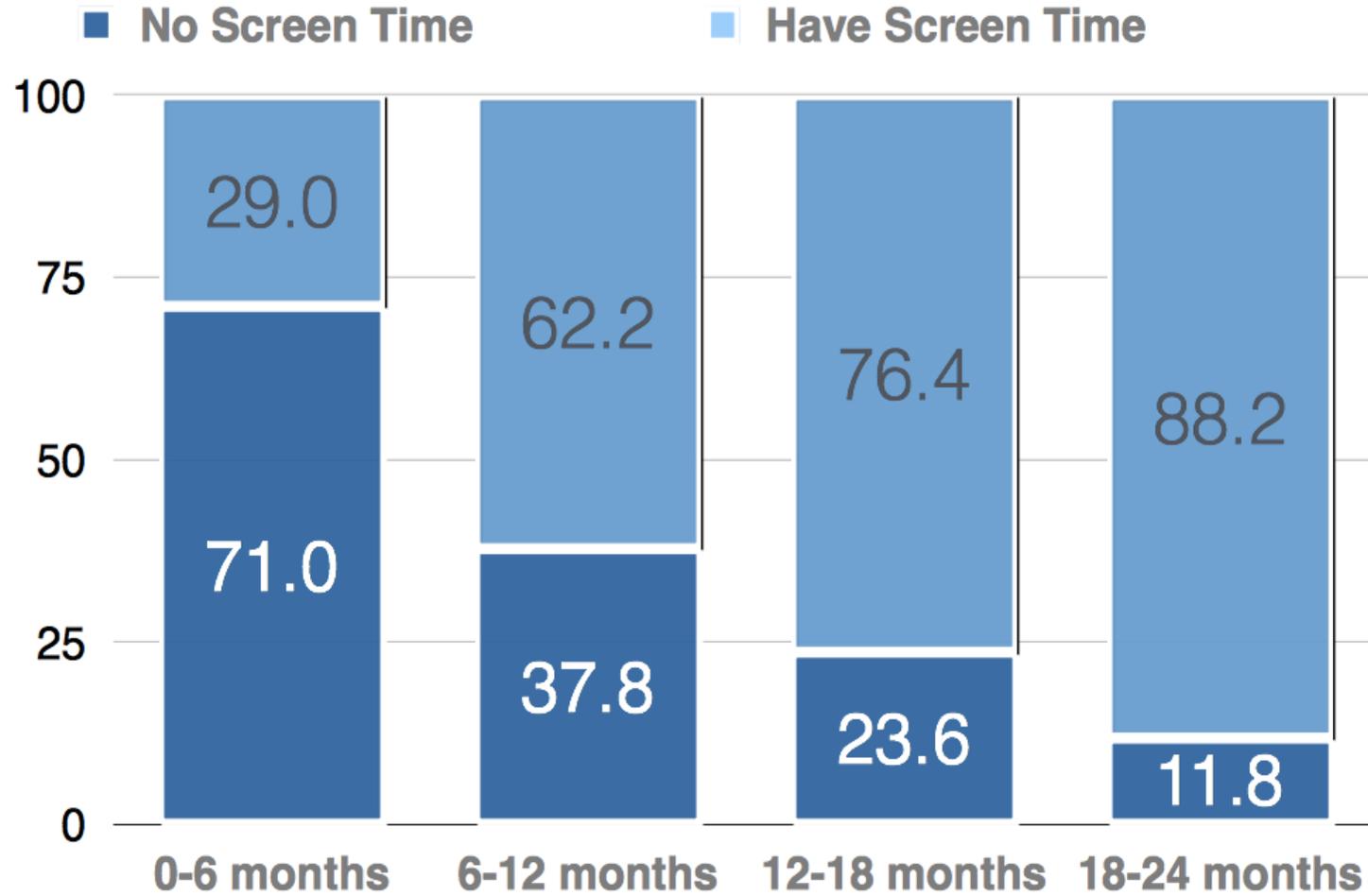
Prevalence of screen time?



Prevalence of exposure roughly doubles every 6 months

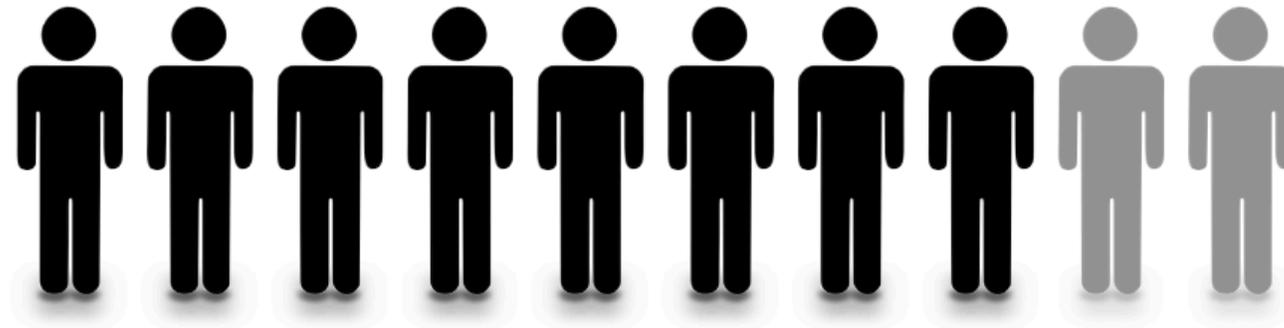
Reaching 87.6% between 18-24 months

Stratified by age group



Significant difference between age groups, $P < 0.001$

Awareness of Guidelines



8 in 10 parents are unaware of any professional guidelines

Effects of Media Exposure on Children

Effects of Excessive Screen Time on Children

- Language Delay
- Obesity
- Behavioural, Attention
- Low self esteem and Anxiety
- Impaired Academic performance
- Disruption of Sleep Patterns

Effect on Language Development

- Several studies have shown that the more TV young children watch the more likely they are to have language developmental delay
- The more TV a baby between 8-16 months watches, the fewer words he knows

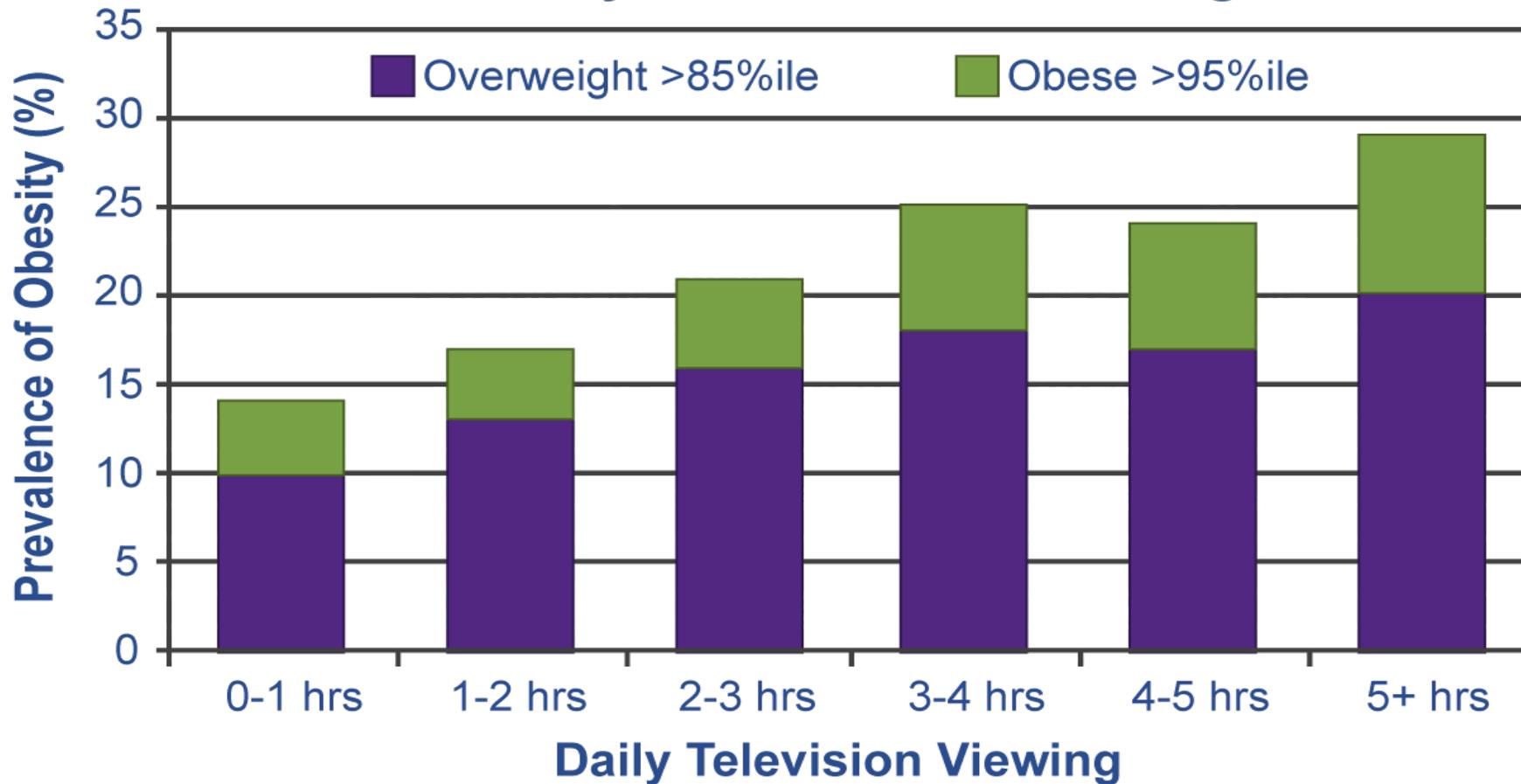
Christakis, D.A., et al (2004). Early Television Exposure and Subsequent Attentional Problems in Children. *American Academy of Pediatrics*. 113;708-713.

Zimmerman, F.J. et al. (2005). Children's Television Viewing and Cognitive Outcomes. *Archives of Pediatrics and Adolescent Medicine*. 159:619-625

Zimmerman, F.J. et al. (2007). Associations between media viewing and language development in children under age 2 years. *The Journal of Pediatrics*.(151). 364-368

Obesity

Obesity and Television Viewing



How Screen Time Could Contribute to Obesity

1. Reduction in Physical Activity
2. Unhealthy eating due to advertisements
3. Increase snack activity during screen time



Behavioural Problems

- Students who spend > 2 hrs/day watching TV or using a computer are more likely to have emotional, social and attention problems
- Aggressive Behaviour
- Each hour of TV watched daily at the age of 3 equated to a 10% increased chance of attention problems by age 7 yrs

Prolonged exposure to rapid image change during critical brain development

Precondition mind to expect high level of stimulation

Inattention later in life



Low Self Esteem and Anxiety

Children who spend more time on computers, watching TV and playing video games



lower sense of self-worth and self-esteem and even depression

higher levels of emotional distress, anxiety



Impact on Academics

A study done by the California Department of Education of a half-million school children:

Regardless of the child's social and economic background, study habits, lifestyle and IQ,

higher time spent watching television was directly proportional to lower test scores.

Sleep



Screen time causes:

- Late sleep onset
- Less sleep duration

Sleep Duration, Restfulness, and Screens in the Sleep Environment. AAP. Jan 2015 Falbe et Al

Screen Time and Sleep in Children with Developmental Disabilities

Review of children seen at Child Development Unit and Learning Behavioural Clinic NUHS (Dec 2014- Mar 2015)

- Mean weekday sleep time 8 hr 2mins (SD 48.7min)
- Mean weekday screen time 2 hrs 30 mins (SD 107.9 mins)

More screen time per day was significantly associated with lower sleep duration in children

Causes of Reduced Sleep

- **Timing**
- **Content**
- **Light emissions**



POLICY STATEMENT

Media Use by Children Younger Than 2 Years

Recommendations for Parents

- AAP discourages media use by children younger than 2 years
- They further recommended that children older than two should restrict usage to one hour per day if they have any physical, mental or social problems, and two hours per day maximum if they don't



Can You Carbo-Load Your Way to Good Health?



The Beer That Made America



Jewelry's New Love for an Ancient Stone



LIFE | HEALTH | YOUR HEALTH

Pediatricians Rethink Screen Time Policy for Children

A medical group considers revising its recommendation of no screens under age 2 and no more than two hours a day for older children

By **SUMATHI REDDY**

Oct. 12, 2015 1:40 p.m. ET



Not enough Scientific Evidence

- Research is simply unable to keep up with the pace of technological advances
- If you're watching the equivalent of a TV on a tablet, then the effects would be the same.
- However, if they are interactive with educational component, then this may be more beneficial
- Needs to be managed and is probably not damaging at appropriate dosing.
- Still the need the experience of being in the 3D world

The challenge we face for our children

- Technology is not going to go away
- These technologies are revolutionizing the world our children will live in
- Need to strike a balance

What can parents do?



Monitor Screen Time

Ideal Discretionary Screen Time Limits:

- 0-2 years: none
- 2-7 years : 0.5-1h/day
- 7-12 years : 1 h
- 12-15 year: 1.5 h
- 16+ years: 2h



Monitor Screen Content



Keep TVs, computers, devices out of the bedroom



Eliminate Background TV



Watch with your child



Be a Good Role Model



Talk to other caregivers



Encourage Playtime



Encourage Alone Time



In Summary

Media and digital devices are an integral part of our world today

But there are serious detrimental effects if our children use them excessively, particularly at an early age. These include language delay, obesity, attention and sleep difficulties.

Face-to-face time with family and friends, plays a pivotal and even more important role in promoting children's learning and healthy development

Ask about screen time, and educate parents.



24-hrs Children's Emergency: 6772 2555

Children's Specialist Clinic: 6772 2002

www.nuhkids.com.sg

Thank You!