



Soedjatmiko

- 2018 Professor in Pediatrics, FKUI
- 2015 Doctor in Pediatrics, FKUI
- 2003 Master of Science in Developmental Psychology, FPsyUI
- 2002 Consultant in Pediatrics Growth, Development & Behavior
- 2000 Growth & Nutrition Course, Santiago, Chile, 2000
- 1999 Bayley Scale Infant Developmental Course
- 1997 Epidemiology & Surveillance Course, Kumamoto, Fukuoka & Tokyo
- 1993 - Growth & Development Div., Dept. of Child Health, FKUI-RSCM
- 1992 Pediatrician, FKUI
- 1981–1986 Head of Primary Health Care Centers in Lampung Province
- 1980 Medical Doctor from FKUI





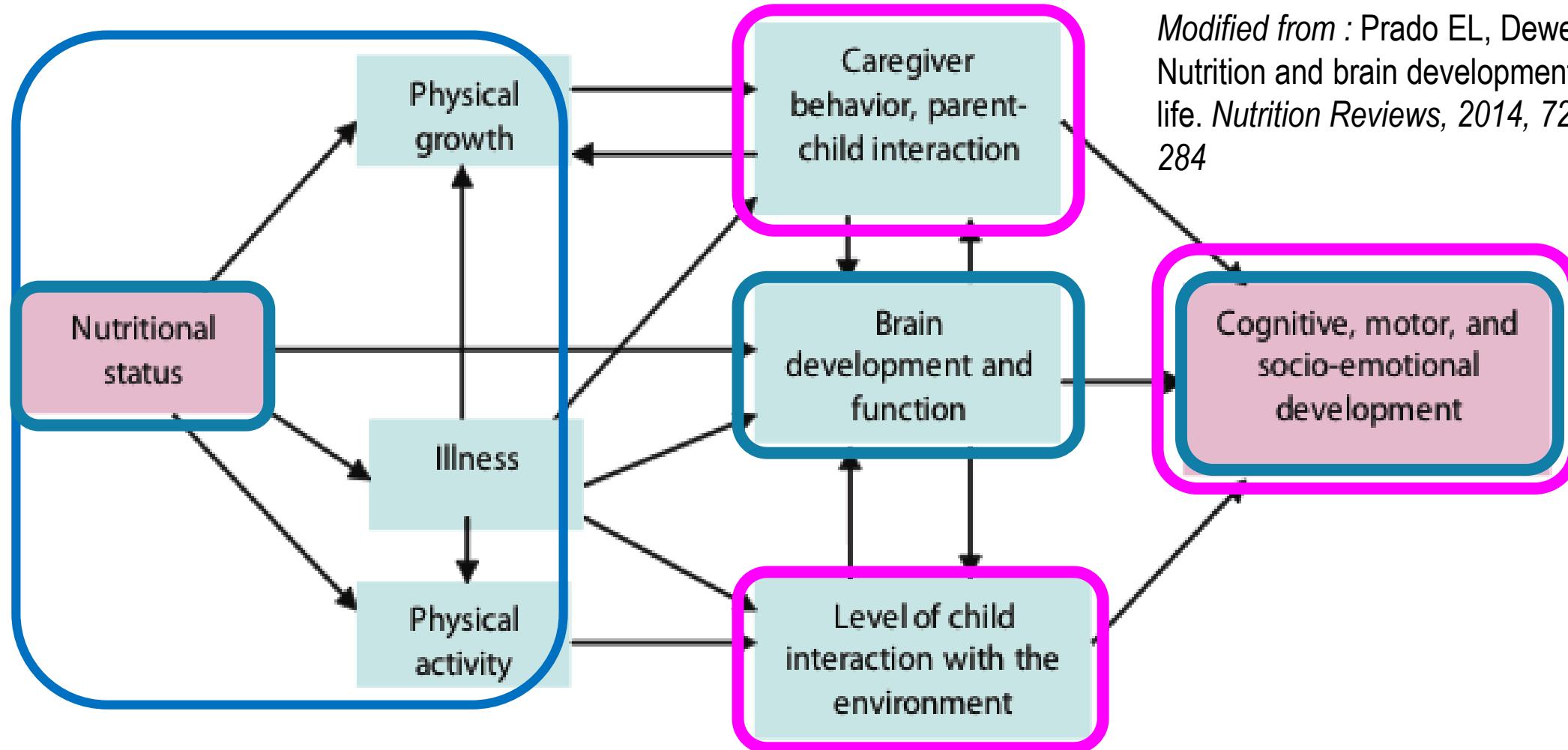
The Importance of Nutrition and Early Stimulation for Better Cognitive, Communication, Motor and Emotional Development.

How about : ECD (*PAUD*) and gadget
for child development ?

Soedjatmiko

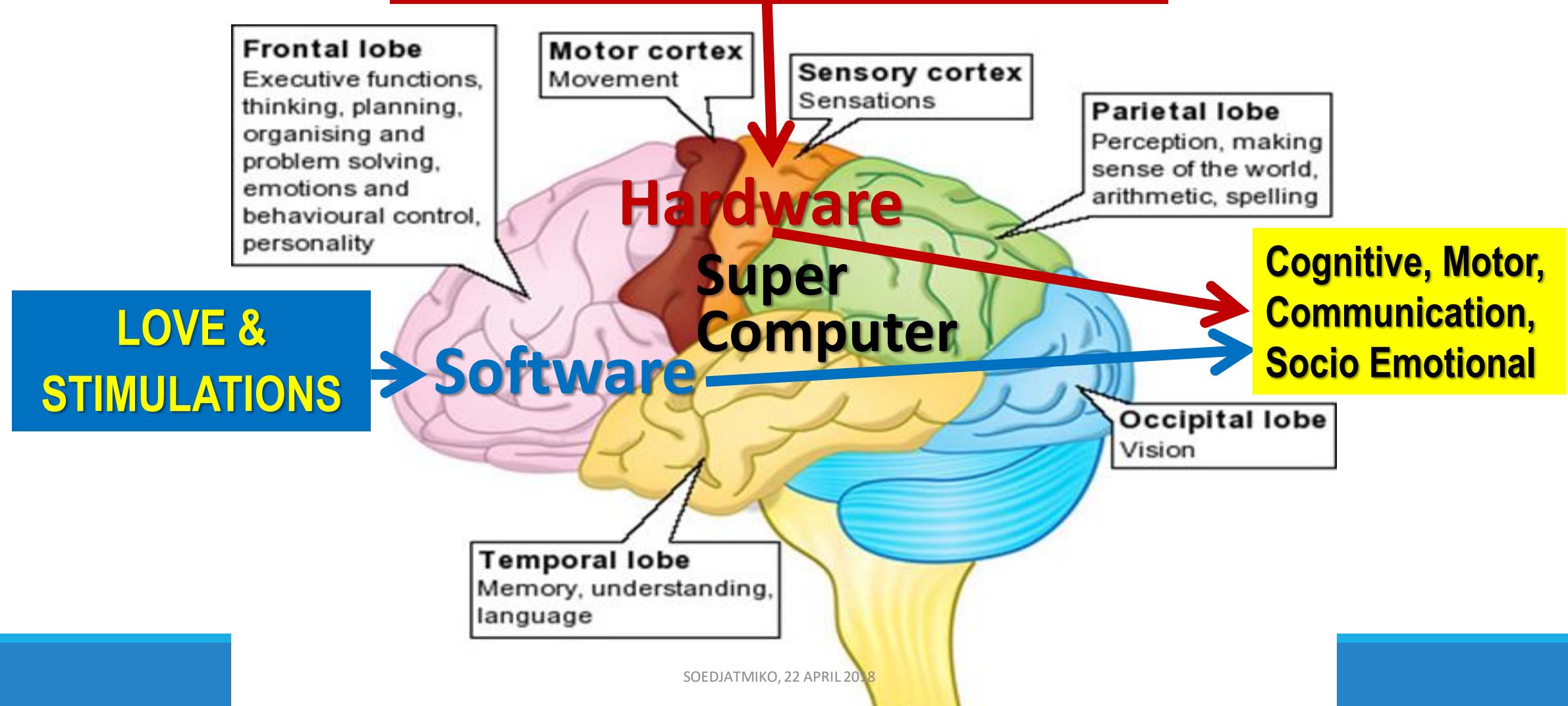
Pediatrician, Master of Science in Developmental Psychology
Department of Child Health, Medical Faculty of Universitas Indonesia, Jakarta

The Determinant Factors for Quality of Physical Growth and Cognitive, Motor, and Socio Emotional Development



Modified from : Prado EL, Dewey KG. Nutrition and brain development in early life. *Nutrition Reviews*, 2014, 72(4):267–284

NUTRIENTS : macro & micro



 Open Access

Special Article

Nutrition and brain development in early life

Elizabeth L Prado , Kathryn G Dewey

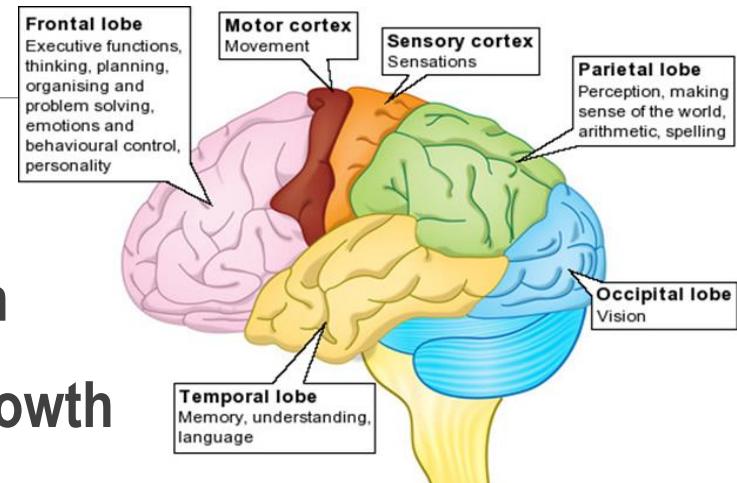
First published: 28 March 2014 [Full publication history](#)

the Role of NUTRIENTS in Neurodevelopmental Process



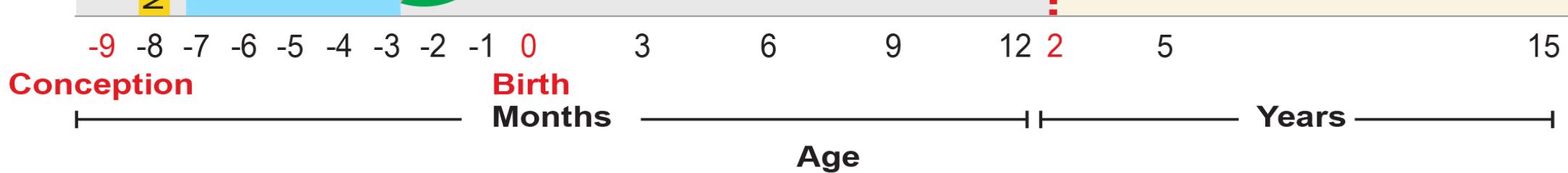
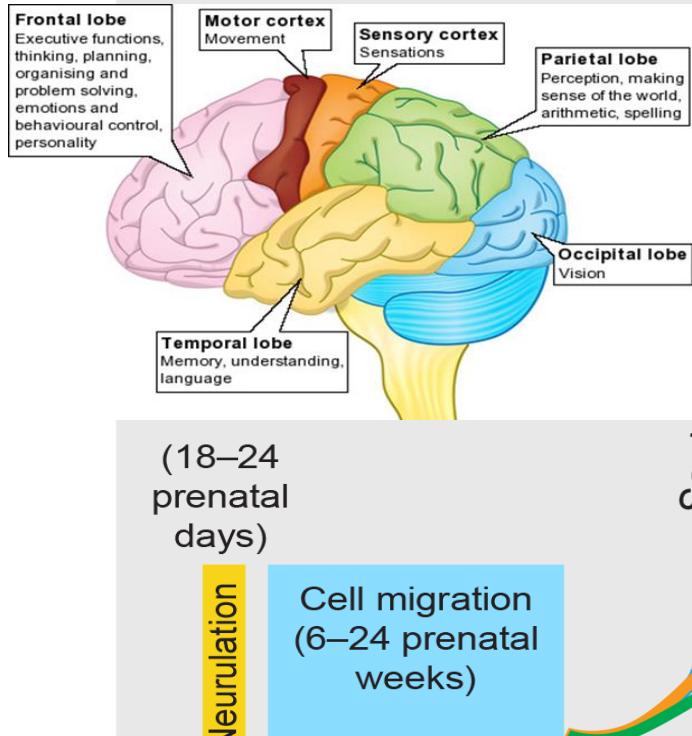
- Protein
- Energy
- Fatty acids
- Iron
- Iodine
- Zinc
- Choline
- B vitamin

1. Neuron proliferation
2. Axon & dendritic growth
3. Synapses formation & function
4. Neurotransmitter
5. Myelination



Prado EL, Dewey KG. Nutrition and brain development in early life. *Nutrition Reviews*, 2014, 72(4):267–284

First 1000 days of life

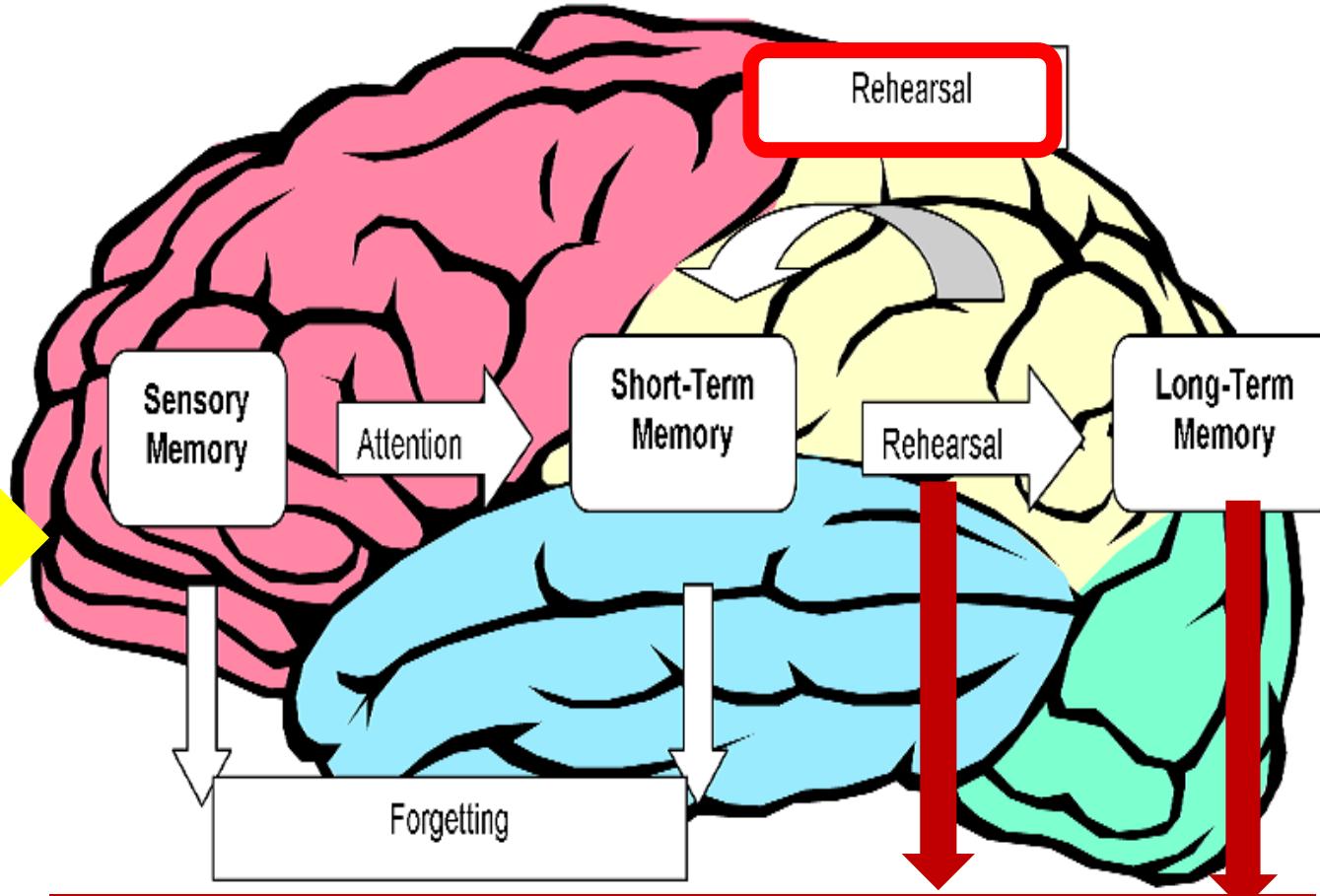


Experience-dependent synapse formation
Neurogenesis in the hippocampus

1. Thompson RA, Nelson CA. Am Psychol. 2001;56:5-15; 2. Martorell R, et al. J Nutr. 2010;140:348-54.

Peranan STIMULASI pada perkembangan BICARA, KOGNITIF, PERILAKU

**INPUT /
STIMULASI /
Pengalaman**
Dengar, Lihat
Rasa (emosi)
Hidu (cium)
Raih, Raba
Pegang, Tiru
Eksplorasi
Manipulasi
Keseimbangan
Koordinasi,
Gerak kasar
Gerak halus
)



**OUTPUT : VERBAL, PEMECAHAN MASALAH
(KOGNITIF), EMOSI, PERILAKU,**

The Role of EXPERIENCES / ENRICHMENTS (STIMULATIONS) in brain development

- Enriched environments (visual and tactile stimulation, toys) :
 - greater brain weight and cortical thickness [39]
 - more synapses per neuron in visual & motor cortices [39]
 - more dendritic spines.[41]
 - More myelination of the corpus callosum.[44, 45]
- Higher levels of education : more **dendritic branching** in Wernicke's area, underlying language processing.[40]

39. Kolb B, Whishaw IQ. Brain plasticity and behavior. *Annu Rev Psychol.* 1998;49:43–64.

40. Jacobs B, Schall M, Scheibel AB. A quantitative dendritic analysis of Wernicke's area in humans. II. Gender, hemispheric, and environmental factors. *J Comp Neurol.* 1993;327:97–111.

41. Greenough WT, Black JE. Induction of brain structure by experience: substrates for cognitive development. In: Gunnar MR, Nelson CA, eds. *Developmental Behavioral Neuroscience*. Hillsdale, NJ: Erlbaum; 1992:155–200.

42. Eluvathingal TJ, Chugani HT, Behen ME, et al. Abnormal brain connectivity in children after early severe socioemotional deprivation: a diffusion tensor imaging study. *Pediatrics.* 2006;117:2093–2100.

43. Bengtsson SL, Nagy Z, Skare S, et al. Extensive piano practicing has regionally specific effects on white matter development. *Nat Neurosci.* 2005;8:1148–1150.

44. Juraska JM, Kopcik JR. Sex and environmental influences on the size and ultrastructure of the rat corpus callosum. *Brain Res.* 1988;450:1–8.

45. Sanchez MM, Hearn EF, Do D, et al. Differential rearing affects corpus callosum size and cognitive function of rhesus monkeys. *Brain Res.* 1998;812:38–49.

Causes of Developmental Delayed in Child in “NORMAL“ Newborn ?

Lack of

1. adequate nutrition
2. early learning / stimulation
3. responsiveness of caregiver in
 - nutrition,
 - love & play
 - protection from diseases

In the first
1000 day
of life

LOWER QUALITY of FUTURE LIFE

18. Engle PL, Fernald LC, Alderman H, Behrman J, O’Gara C, Yousafzai A, Mello CD, Hidrobo M, Ulkuer N, Ertem I, et al. Strategies for reducing inequalities and improving developmental outcomes for young children in low-income and middle-income countries. Lancet 2011;378: 1339–53.

20. Wachs TD, Georgieff M, Cusick S, McEwen BS. Issues in the timing of integrated early interventions: contributions from nutrition, neuroscience, and psychological research. Ann N Y Acad Sci 2014;1308:89–106.

21. Lake A, Chan M. Putting science into practice for early child development. Lancet 2015;385(9980):1816–7.

**ENRICHMENTS :
Daily Stimulations
INPUTS**

Nutrition +
Immunization

**OUTPUTS :^{1, 41-49}
Skills & Behaviors
/Performances**

Sensory

- Auditory ⁵⁶
- Visual ^{22,23}
- Tactile ³³
- Vestibular ³⁷⁻⁴⁰
- Olfactory ²⁹

Motor :

- Gross,
- Fine Motor

**Depend on :
Quality /Variability
Quantity /Intensity**



- Emotion
- Speech / verbal
- Learning / Cognitive
- Problem solving
- Art, Creativity
- Motor skills
- Productivity

**Multiple Intelligences,
Skills, Performances**

**The
Quality
of Life**



Singapore

Spike in number of measles cases in first 11 weeks of 2019



The number of measles cases in Singapore in the first 11 weeks of this year was more than double that of the same period last year, the Ministry of Health (MOH) said on Thursday (March 21).
Vanessa Lim reports.

By Vanessa Lim

21 Mar 2019 07:10PM

(Updated: 21 Mar 2019 11:53PM)

PUBLISHED MAR 21, 2019, 5:00 AM SGT



38 cases in first 11 weeks of 2019 the highest since 2015; MOH says no evidence of further spread

Felicia Choo



NEW
STRAITSTIMES

Measles cases in Pahang on the rise

MARCH 19, 2019 @ 12:57PM
BY SITI INSYIRAH TAJUDDIN



(File pix) Photo shows a baby suffering from measles. The number of measles cases in Pahang has alarmingly increased by 200 percent (21 cases) this year compared to only seven cases reported during the same period between Jan 1 and March 16 last year. Archive image for illustration purposes only.

KUANTAN: The number of measles cases in Pahang has a 200 percent (21 cases) increase this year compared to only seven cases reported during the same period between Jan 1 and March 16 last year.

Measles outbreak spreads to Australia, prompting renewed campaign to promote education and vaccination

- An estimated 93.5 per cent of two-year-olds in Australia have received two doses of measles vaccine



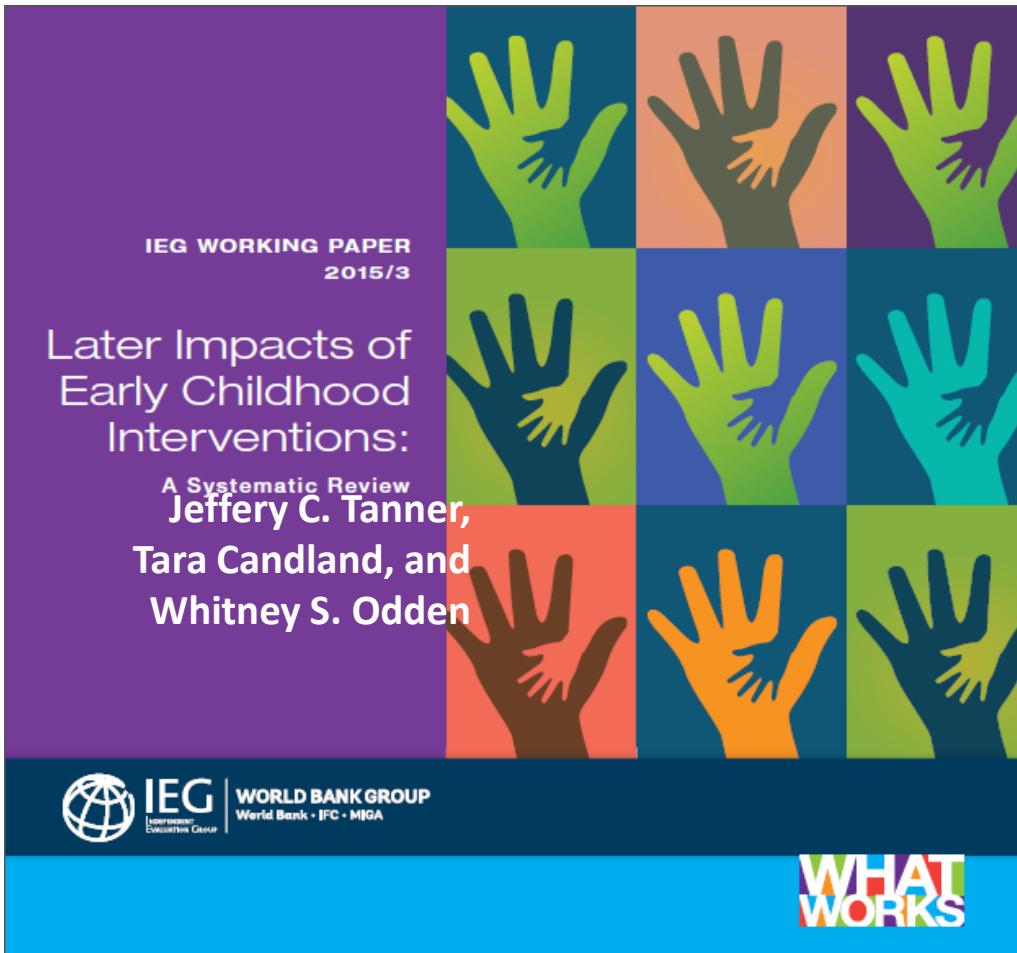
Agence France-Presse
UPDATED : Monday, 8 Apr 2019, 11:02PM

Australia on Monday launched a major



A Systematic Review (2015): Later Impacts of Early Childhood Interventions

Tanner JC, Tara Candland T, Odden WS. IEG, World Bank Group, Working Paper 2015



55 Studies in 22 Countries on 21 Intervention Types

Physical Development

Cognitive Development

Language Development

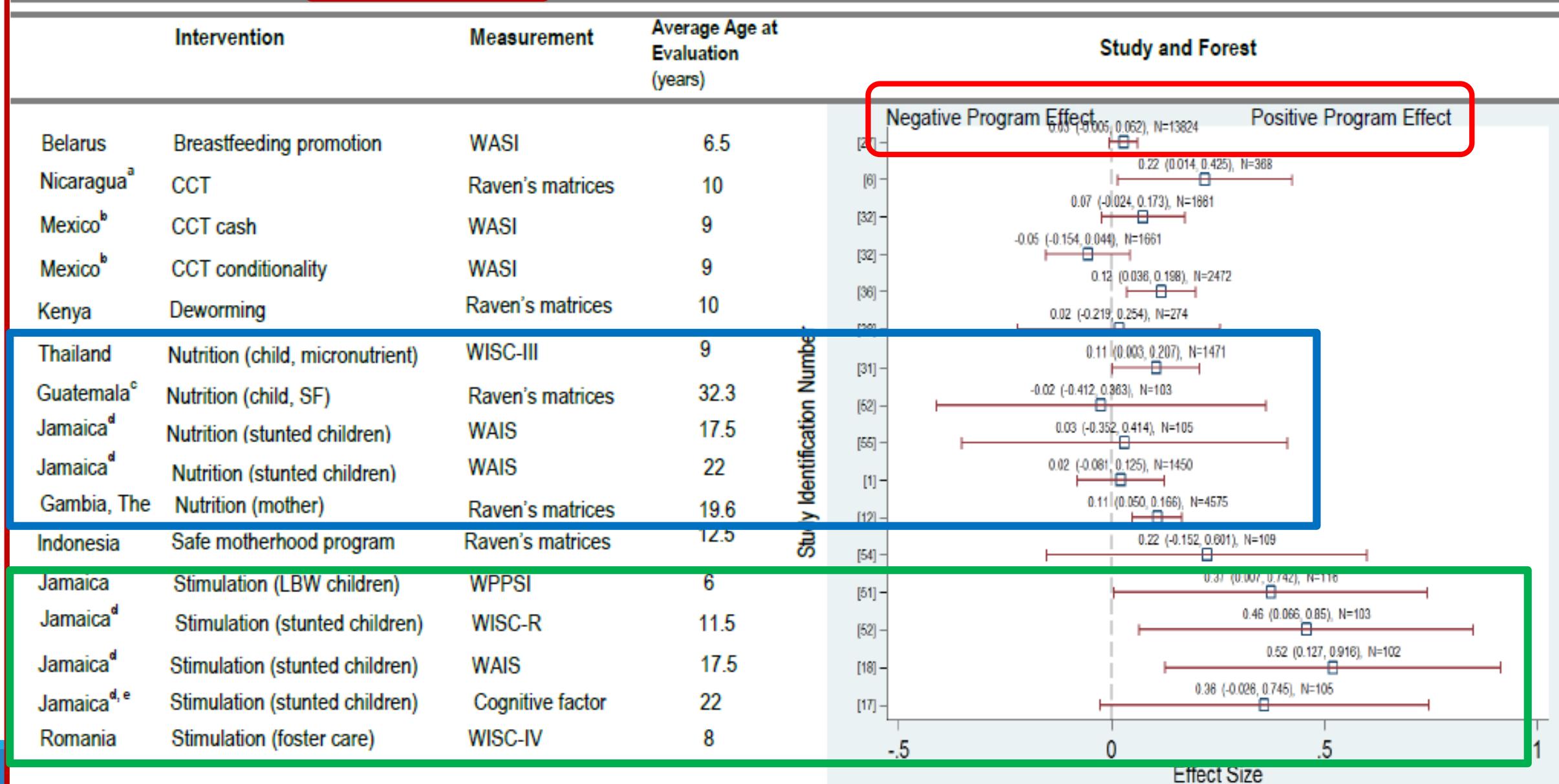
Socioemotional Development

Schooling Outcomes

Employment and Labor Market Outcomes..

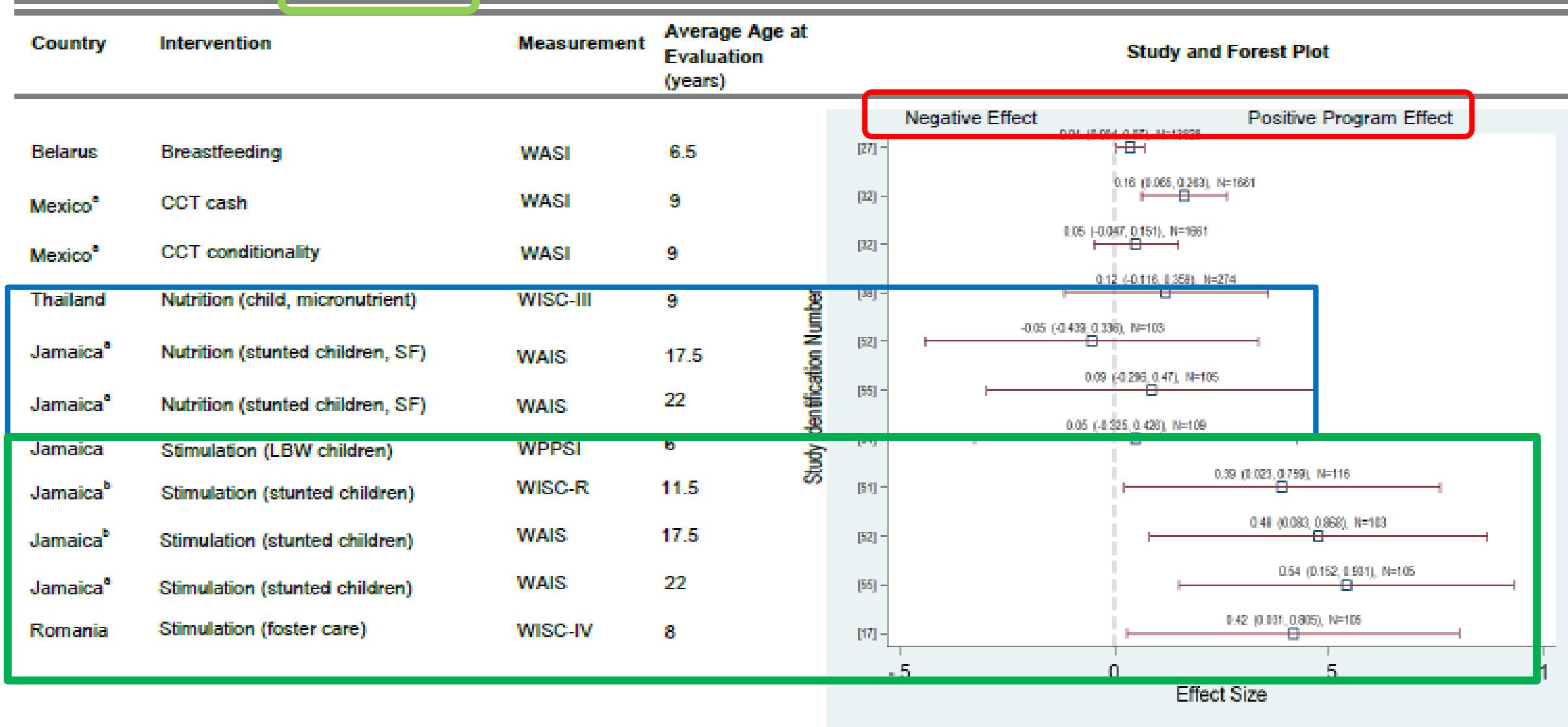
COGNITIVE DEVELOPMENT

Figure 2.1. Forest Plot for General Intelligence

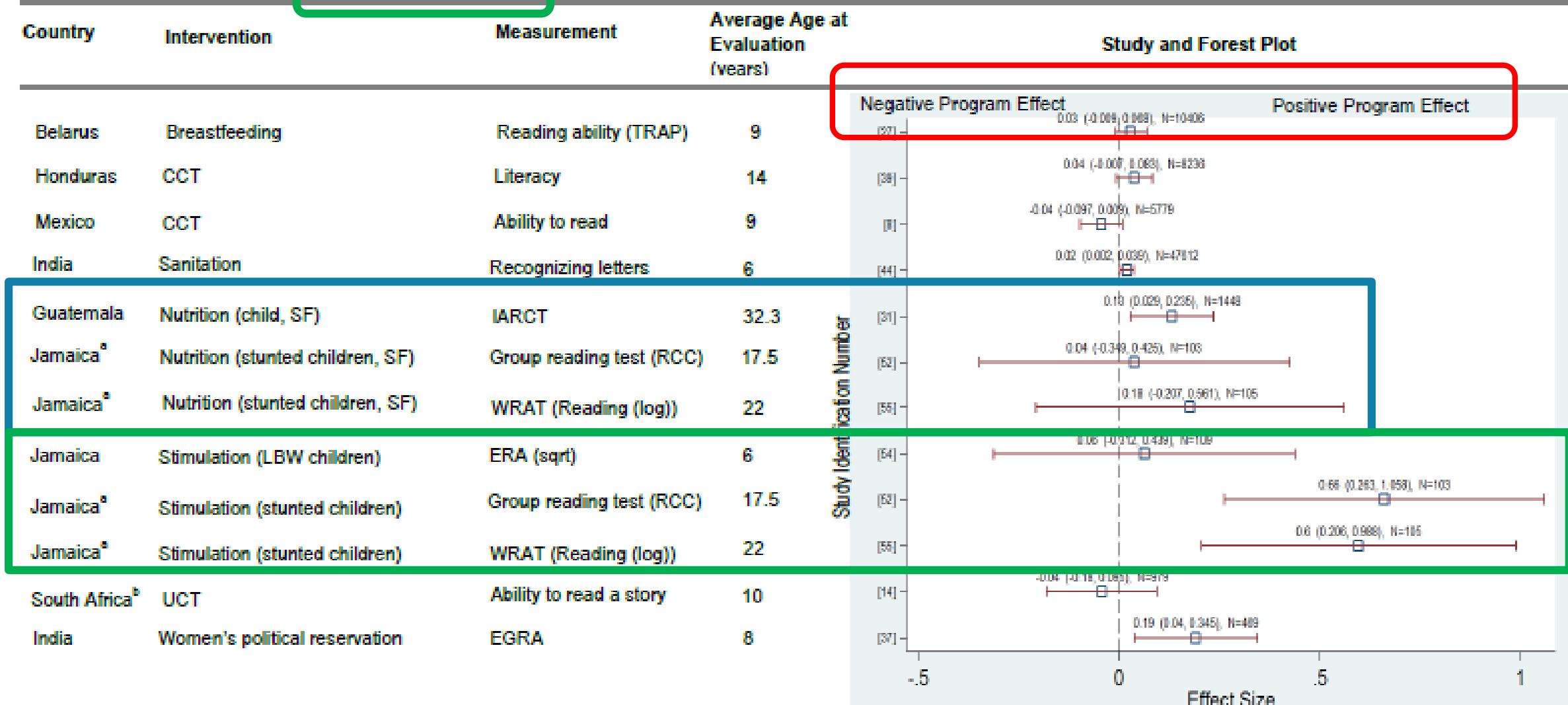


CHAPTER 3
LANGUAGE DEVELOPMENT

Figure 3.1. Forest Plot for Verbal Abilities

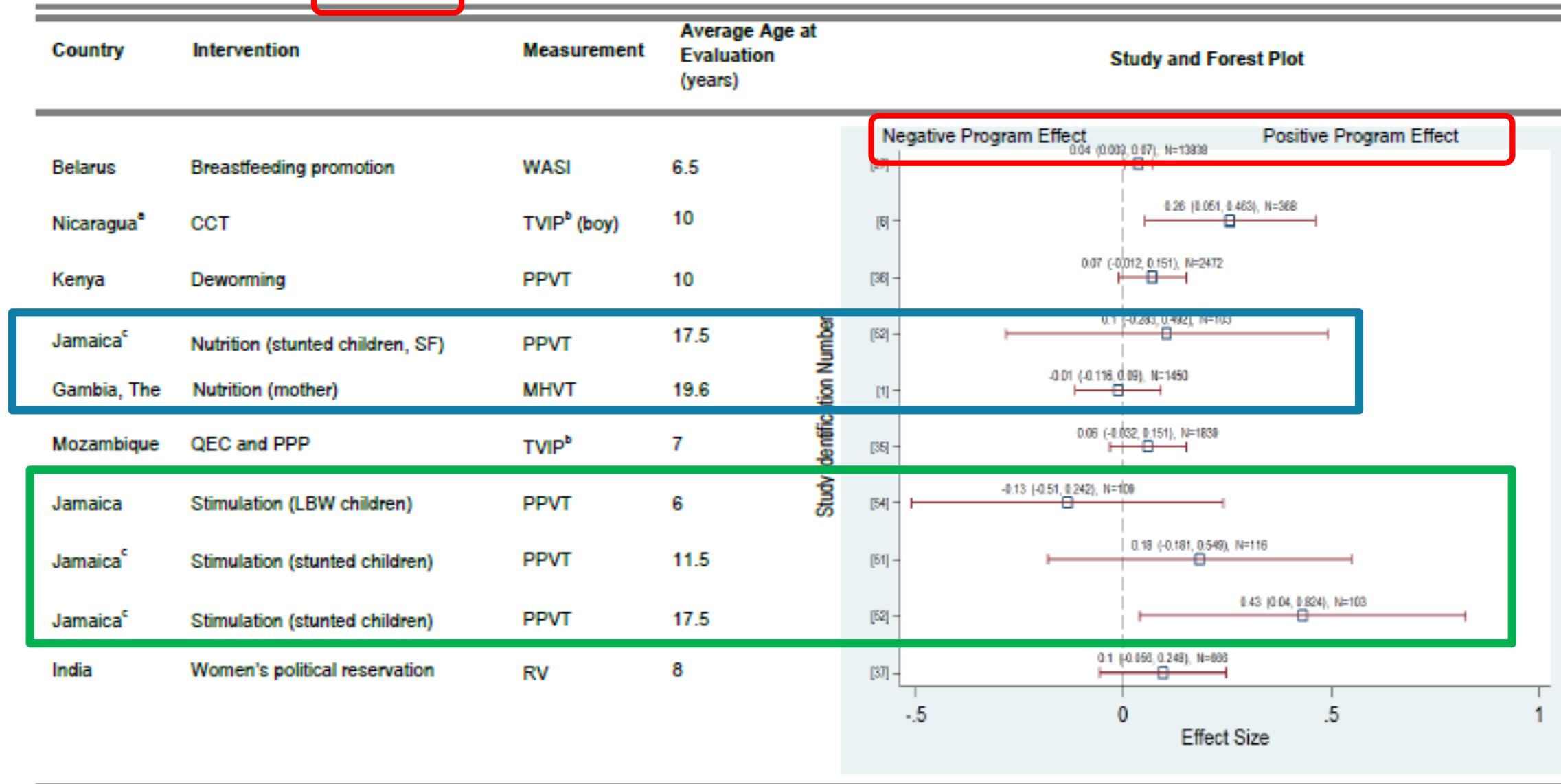


Note: The forest plot shows standard mean difference, 95 percent lower and upper bound confidence interval in parentheses, and sample size (N=number). The standard mean difference and 95 percent confidence interval are calculated using the mean and standard deviation of each study.

Figure 3.2. Forest Plot for Reading and Literacy

Note: The forest plot describes standard mean difference, 95 percent lower and upper bound confidence interval in parentheses, and sample size (N = number). The standard mean difference and confidence interval were calculated by Comprehensive Meta-Analysis software. Bracketed numbers correspond to the numbered studies in References. CCT = conditional cash transfer; UCT =

Figure 3.3. Forest Plot for Vocabulary

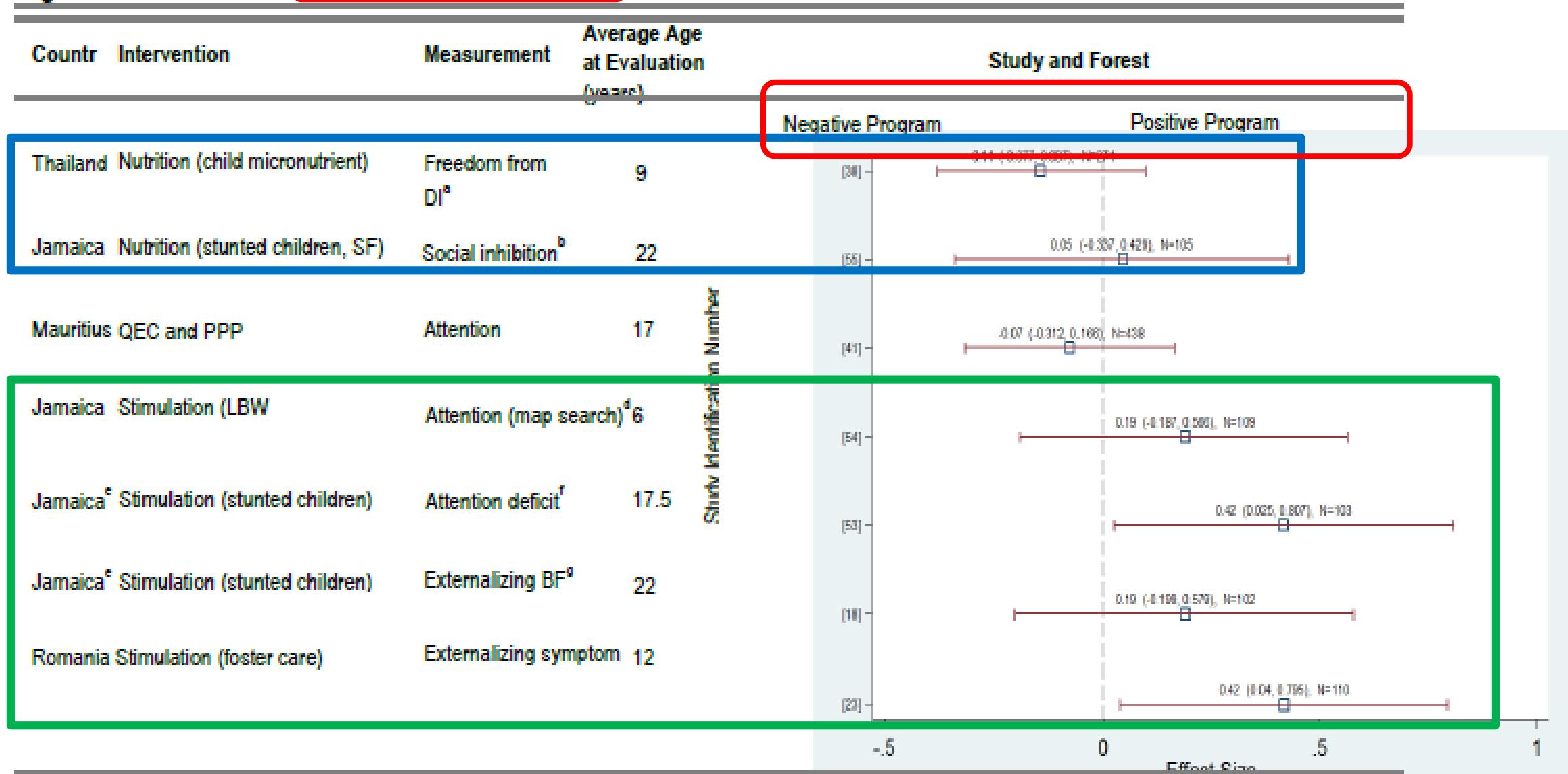


Note: The forest plot describes standard mean difference, 95 percent lower and upper bound confidence interval in parentheses, and sample size (N = number). The standard mean difference and confidence interval were calculated by Comprehensive Meta-Analysis software. Study numbers in brackets correspond to the numbered studies in References. CCT = conditional cash transfer; PPVT = Peabody Picture Vocabulary Test; TVIP = Test de Vocabulario en Imagenes Peabody; WASI = Wechsler abbreviated scale of intelligence. SF = supplementary feeding. LBW = Low birthweight. MHVT = Mill Hill Vocabulary Test. RV = Receptive vocabulary. QEC = Quality early childhood. PPP = Pre-primary program.

CHAPTER 4

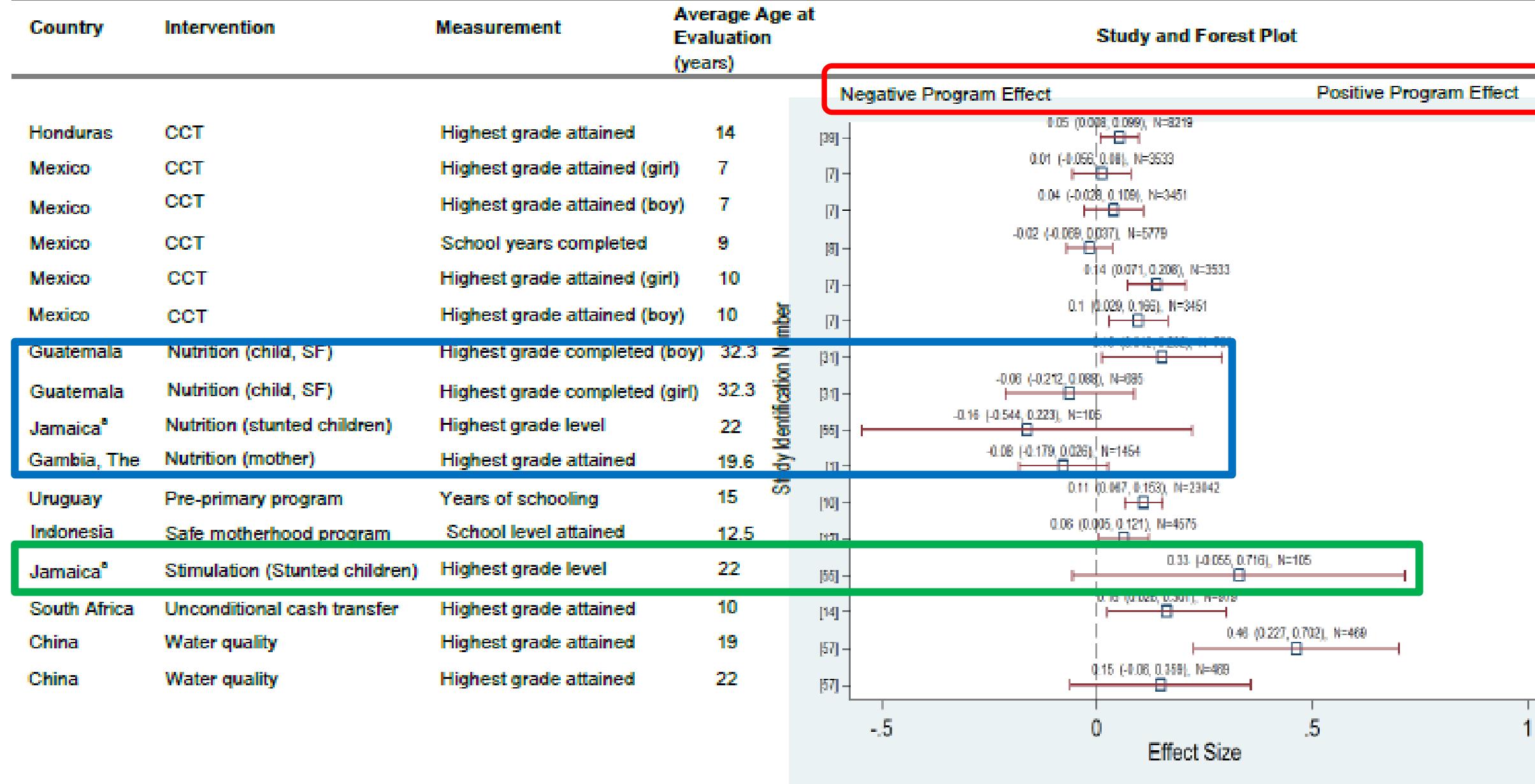
SOCIOEMOTIONAL DEVELOPMENT

Figure 4.1. Forest Plot for Socioemotional Outcomes



Note: The forest plot describes standard mean difference and 95 percent lower and upper bound confidence interval in parentheses (calculated by Comprehensive Meta-Analysis software) as well as sample size (N). Abbreviations: DI = developmental impairment; SF = stunting; BF = behavior problems.

Figure 5.1. Forest Plot for School Years Completed



Note: The forest plot describes standardized mean difference, 95 percent lower and upper bound confidence interval in parentheses, and sample size (N = number). The

Later Impacts of
Early Childhood
Interventions:
A Systematic Review

20 years after the intervention

Stimulation group had significantly higher earnings.

- Average monthly earnings
 - **30 percent higher** for all jobs and
 - **39 percent higher** for full-time permanent jobs.[19]



Lesson learn from : Italy (2012) and India (2015)

Normal Birthweight and Fulterm Infants : Have Risks for Lower Quality of Life?

Risk of Developmental Disorders in NORMAL BIRTHWEIGHT Infants at 8 years age

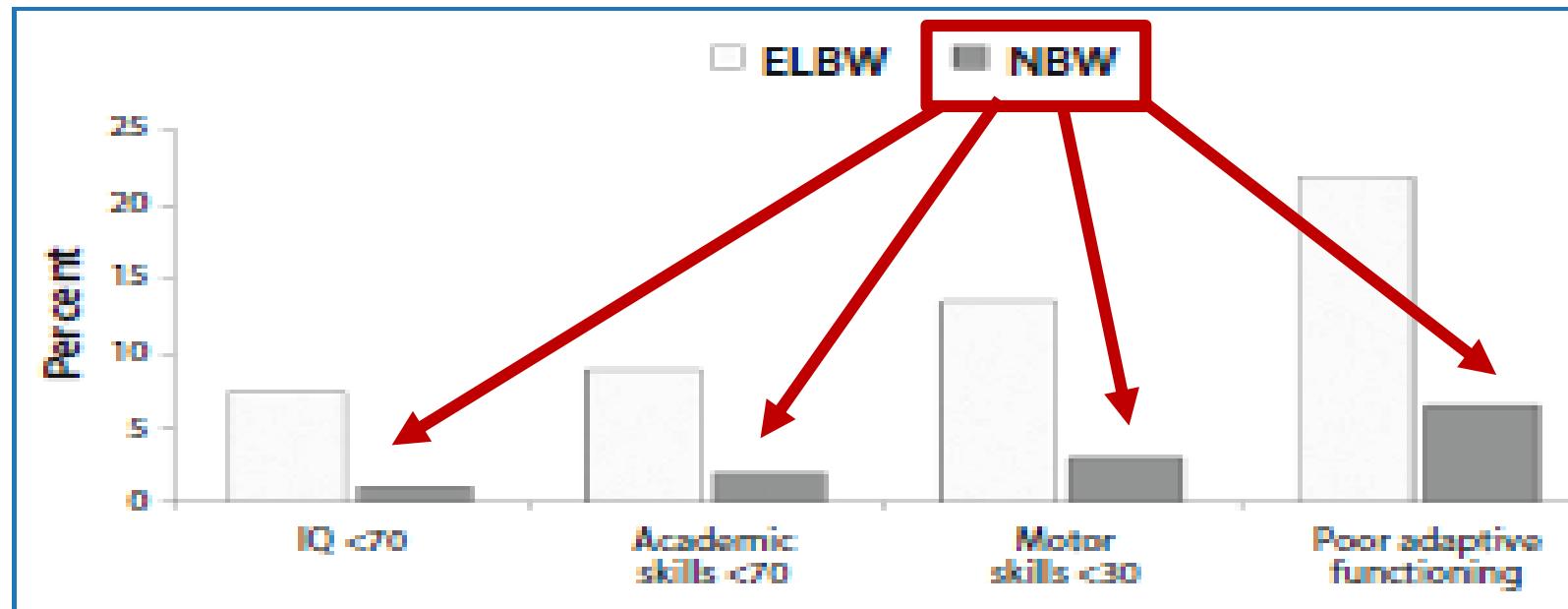


Fig. 18.4 Rates of subnormal IQ, academic skills, motor skills and poor adaptive functioning of extremely low birth weight infants (ELBW, <1kg birth weight) compared to normal birth weight (NBW) children at age 8 years. Data from [32]

G. Buonocore et al. (eds.), *Neonatology. A Practical Approach to Neonatal Diseases*.
© Springer-Verlag Italia 2012

Risk of Developmental Disorder in NORMAL BIRTHWEIGHT Infants in 8 years of age

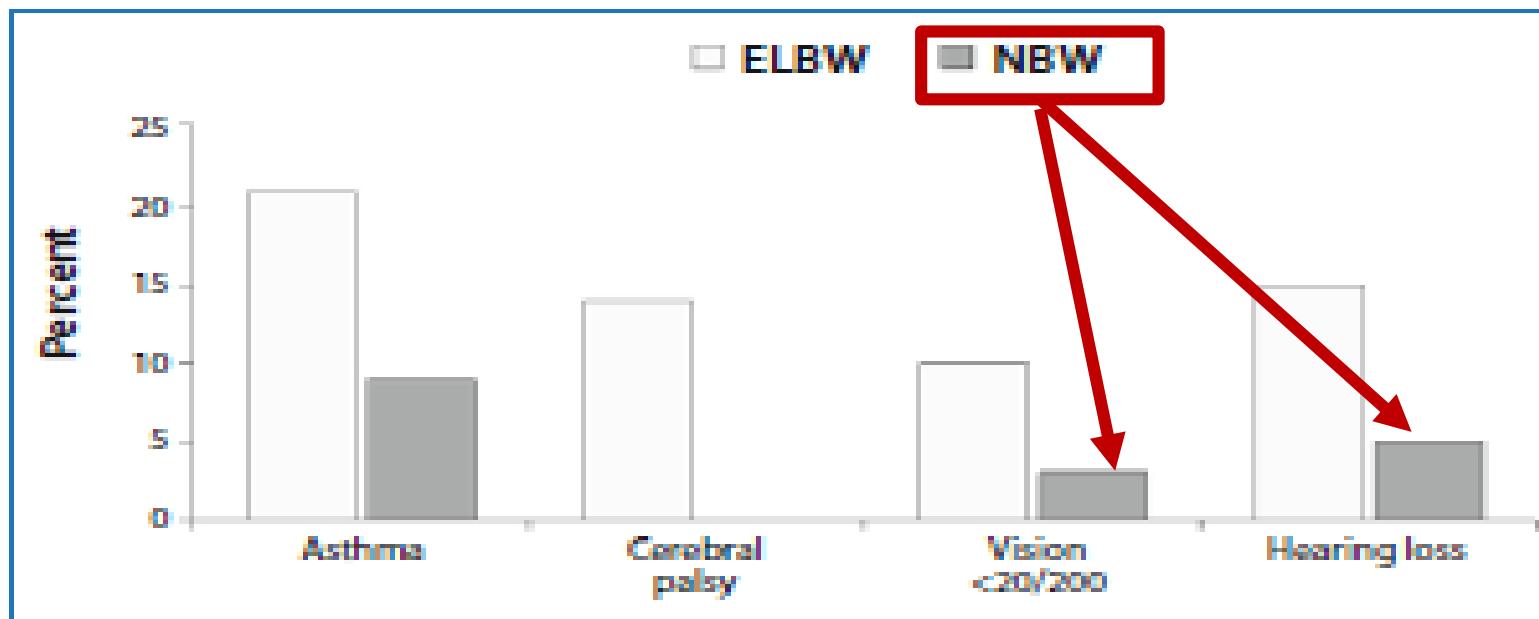


Fig. 18.3 Rates of asthma, cerebral palsy, vision < 20/200 and mild hearing loss (unilateral or bilateral hearing loss of more than 25 dB in at least 2 frequencies) of extremely low birth weight (ELBW, < 1 kg birth weight compared to normal birth weight (NBW) children at age 8 years. Data from [32]

Neurodevelopmental Outcome of Newborns

Discharged from Special Care Baby Units in a Rural District in India

Nandita Chattopadhyay¹ and Kaninika Mitra²

Table 2. Developmental outcome in relation to low birth weight and gestational age.

Characteristics	Total no. of children (n=387), n (%)	Developmental delay (n=118), n (%)	Normal development (n=269), n (%)	P value	OR (95% CI)
Birth weight					
Low birth weight (<2.5 kg)	206 (53.2)	80 (67.8)	126 (46.8)	$\chi^2=14.47$	
Normal (≥ 2.5 kg)	181 (46.8)	38 (32.2)	143 (53.2)	$P=0.00014$	2.39 (1.51-3.76)
Gestational age at birth					
Term (37 weeks and above)	244 (60.7)	61 (49.6)	183 (65.6)	$\chi^2=14.6$	
Preterm (less than 37 weeks)	158 (39.3)	62 (50.4)	96 (34.4)	$P=0.002$	1.94 (1.26-2.98)

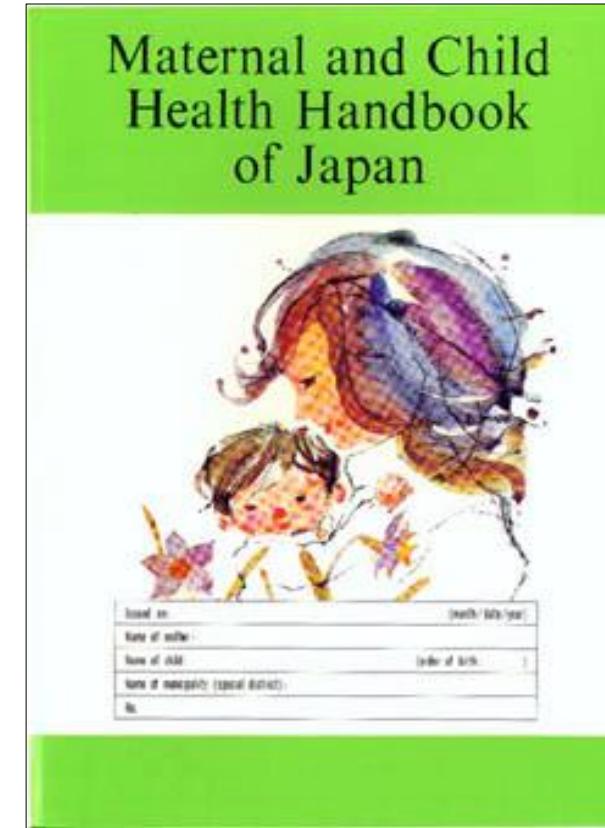
Birth weight was not available in 40 infants, of which 21 had normal development while 19 had developmental delay. In the present study, Low birth Weight (LBW) was recorded amongst 206(53.2%). 67.8% LBW babies had developmental delay which differed significantly from the normally developing group ($P=0.00014$) LBW babies had more than twice the risk for developmental delay than normal birth weight children (OR 2.39 with 95% CI 1.51-3.76) Gestational age could not be recorded in 25 infants, of which 11 had normal development and 14 had developmental delay. 39.3% of children had preterm birth. More than half (50.4%) of preterm had developmental delay which differed significantly from children with normal development ($P=0.002$). Preterm children had almost twice the risk of developmental delay than those born at term (OR 1.94 with 95% CI 1.26-2.98).

J Public Health Res. 2015 Feb 20; 4(1): 318.

Published online 2015 Feb 19. doi: [10.4081/jphr.2015.318](https://doi.org/10.4081/jphr.2015.318)

How to do the stimulation ?

- Just modeling by parent / care giver ?



Approved by 6 Indonesia health professional organisations



EARLY STIMULATION / LEARNING, Caregiver responsiveness (0-3 mo, 3-6 mo)

Stimulasi bayi usia 0 – 3 bulan



Dilakukan Oleh Keluarga:

- Sering memeluk dan menimang bayi dengan penuh kasih sayang.
- Gantung benda berwarna cerah yang bergerak dan bisa dilihat bayi.
- Tatap mata bayi dan ajak tersenyum, bicara dan bernyanyi.
- Perdengarkan musik/suara kepada bayi.
- Mulai 3 bulan, bawa bayi ke luar rumah memperkenalkan lingkungan sekitar.

Stimulasi bayi usia 3 – 6 bulan



Orangtua dan anggota keluarga lainnya perlu melakukan hal berikut:

- Sering telungkukan bayi.
- Gerakkan benda ke kiri dan kanan, di depan matanya.
- Perdengarkan berbagai bunyi-bunyian.
- Beri mainan benda yang besar dan berwarna.



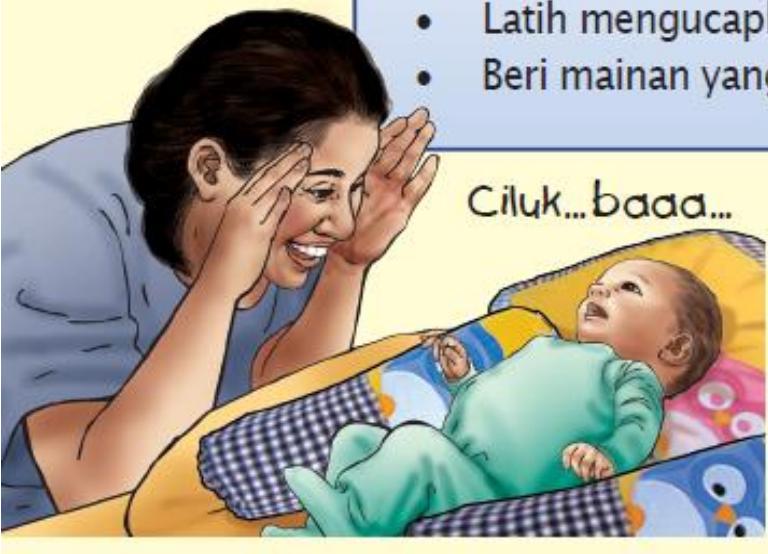
EARLY STIMULATION / LEARNING, Caregiver responsiveness (6 – 12 mo)

Stimulasi bayi usia 6-12 bulan

ma..., ma...
pa..., pa....



- Ajari bayi duduk.
- Ajak main CI-LUK-BA.
- Ajari memegang dan makan biskuit.
- Ajari memegang benda kecil dengan 2 jari.
- Ajari berdiri dan berjalan dengan berpegangan.
- Ajak bicara sesering mungkin.
- Latih mengucapkan ma.. ma.., pa.. pa..
- Beri mainan yang aman dipukul-pukul.



Ciluk...baaa...



EARLY STIMULATION / LEARNING, Caregiver responsiveness (1 – 2 y)

Stimulasi anak usia 1–2 tahun



Dilakukan Oleh Ibu/Ayah/anggota keluarga lainnya:

- Ajari berjalan diundakan/tangga
- Ajak membersihkan meja dan menyapu
- Ajak membereskan mainan
- Ajari mencoret-coret dikertas
- Ajari menyebut bagian tubuhnya
- Bacakan cerita anak
- Ajak bernyanyi
- Ajak bermain dengan teman
- Berikan pujian kalau ia berhasil melakukan sesuatu
- Ajari anak untuk bergerak bebas dalam pengawasan
- Orang tua membimbing agar anak mematuhi aturan permainan
- Biasakan menggunakan perkataan santun

EARLY STIMULATION / LEARNING, Caregiver responsiveness (2 – 3 y)

Stimulasi anak usia 2-3 tahun



Dilakukan oleh Ibu, Ayah dan anggota keluarga lainnya

- Ajari berpakaian sendiri
- Ajak melihat buku bergambar
- Bacakan cerita anak
- Ajari makan dipiring sendiri
- Ajari cuci tangan
- Ajari buang air besar dan kecil di tempatnya
- Ajari anak untuk menghormati orang lain
- Ajari anak untuk beribadah
- Bawa anak ke PAUD

EARLY STIMULATION / LEARNING, Caregiver responsiveness (3 – 5 y)

Stimulasi anak usia 3–5 tahun

Dilakukan oleh Ibu, Ayah dan anggota keluarga lainnya:

- Minta anak menceritakan apa yang dilakukan
 - Dengarkan anak ketika bicara
 - Jika anak gagap, ajari bicara pelan-pelan
 - Awasi anak ketika bermain
- Ajak anak mulai melibatkan diri dalam kegiatan bersama.
 - Ajarkan anak tentang perbedaan jenis kelamin.
 - Ajarkan anak menjaga alat kelaminnya.
 - Latih anak tidur terpisah dari orang tua dan anak yang berbeda jenis kelamin.
 - Biasakan anak untuk berkata jujur, berterima kasih dan meminta maaf
 - Figur ayah sebagai contoh bagi anak laki-laki, dan figur ibu sebagai contoh bagi anak perempuan.
 - Kembangkan kreativitas anak dan kemampuan bergaul.



EARLY STIMULATION / LEARNING, Caregiver responsiveness (5 – 6 y)

Stimulasi anak usia 5–6 tahun

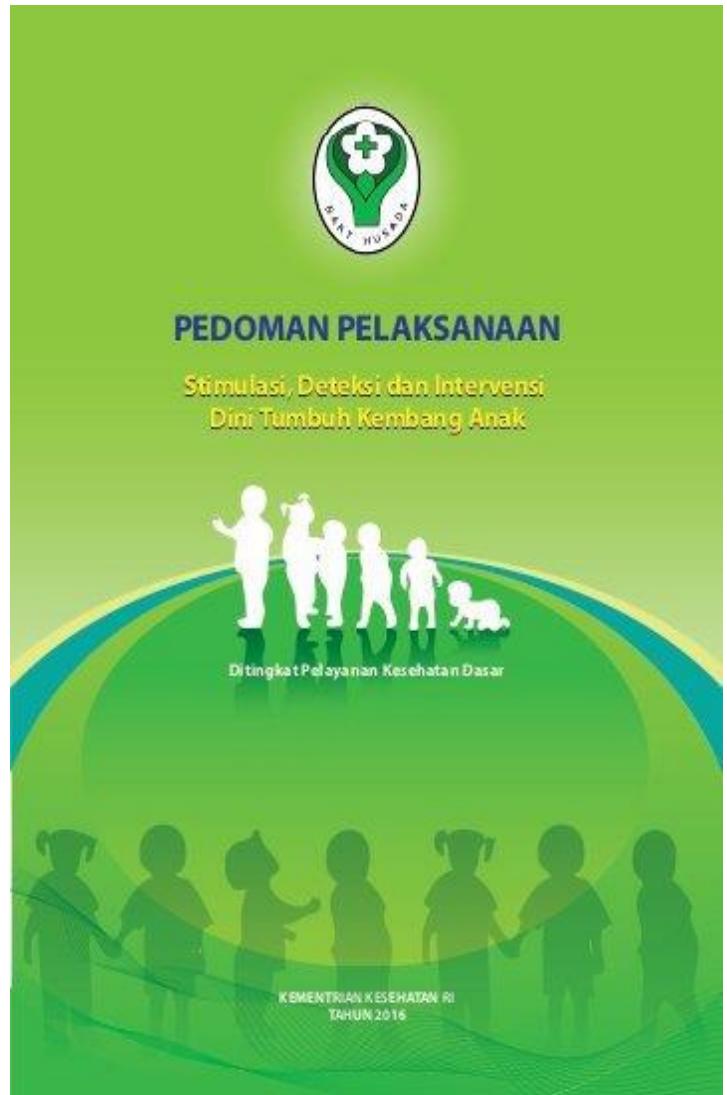
Dilakukan oleh Ibu, Ayah dan anggota keluarga lainnya:



1. Ajari anak bermain sepeda.
2. Bantu anak mengerti urutan kegiatan, contoh mencuci tangan.
3. Minta anak menceritakan apa yang dilakukannya.
4. Ajari anak melempar dan menangkap bola dengan dua tangan.
5. Ajari anak mengenai warna, huruf, angka, dan benda-benda yang ada di sekitar.
6. Ajak anak untuk membantu dalam melakukan pekerjaan rumah seperti menyiapkan bahan makanan.
7. Ajari anak konsep waktu, seperti tahun, bulan, hari, dan jam.

Home Stimulation Program : effectiveness ?





TAHAPAN PERKEMBANGAN DAN STIMULASI UMUR 3 - 6 BULAN	
GERAK KASAR	
TAHAPAN PERKEMBANGAN Berbalik dari telentang ke telungkap dan sebaliknya	STIMULASI Stimulasi perlu dilanjutkan. <ul style="list-style-type: none">• Berguling.• Menahan kepala tetap tegak
TAHAPAN PERKEMBANGAN Mengangkat kepala setengah 90°	STIMULASI Menyangga berat badan. Angkat badan bayi melalui bawah ketiaknya ke posisi berdiri. Perlahan-lahan turunkan badan bayi hingga kedua kaki menyentuh meja, tempat tidur atau pangkuhan anda. Coba agar bayi mau mengayunkan badannya dengan gerakan naik turun serta menyangga sebagian berat badannya dengan kedua kaki bayi.
TAHAPAN PERKEMBANGAN Menpertahankan posisi kepala tetap tegak dan stabil.	STIMULASI 1. Mengembangkan kontrol terhadap kepala. Latih bayi agar otot-otot lehernya kuat. Letakkan bayi pada posisi telentang. Pegang kedua pergelangan tangan bayi, tarik bayi perlahan-lahan ke arah anda, hingga badan bayi terangkat ke posisi setengah duduk. Jika bayi belum dapat mengontrol kepalaanya (kepalanya tidak ikut terangkat), jangan lakukan latihan ini. Tunggu sampai otot-otot leher bayi lebih kuat. 2. Duduk. Bantu bayi agar bisa duduk sendiri, mula-mula bayi didudukkan di kursi dengan sandaran agar tidak jatuh ke belakang. Ketika bayi dalam posisi duduk, beri mainan kecil ditangannya. Jika bayi belum bisa duduk tegak, pegang badan bayi. Jika bayi bisa duduk tegak, dudukkan bayi di lantai yang berlaskan selimut, tanpa sandaran atau penyangga.
GERAK HALUS	
TAHAPAN PERKEMBANGAN Menggenggam jari orang lain	STIMULASI Stimulasi yang perlu dilanjutkan <ul style="list-style-type: none">• Melihat, meraih dan menendang mainan gantung• Memperhatikan benda bergerak• Melihat benda-benda kecil• Meraba dan merasakan berbagai bentuk permukaan
TAHAPAN PERKEMBANGAN Meraih benda yang ada dalam jangkauannya.	STIMULASI Memegang benda dengan kuat. Letakkan sebuah mainan kecil yang berbunyi atau berwarna cerah di tangan bayi. Setelah bayi menggenggam mainan tersebut, tarik pelan-pelan untuk melatih bayi memegang benda dengan kuat.
TAHAPAN PERKEMBANGAN Memegang tangannya sendiri	STIMULASI Memegang benda dengan kedua tangan. Letakkan sebuah benda atau mainan ditangan bayi dan perhatikan apakah dia akan memindahkan benda tersebut ketangan lainnya. Usahakan agar tangan bayi, kiri dan kanan, masing-masing memegang benda pada waktu yang sama. Mula-mula bayi dibantu, letakkan mainan disatu tangan dan kemudian usahakan agar bayi mau mengambil mainan lainnya dengan tangan yang paling sering digunakan.
TAHAPAN PERKEMBANGAN	
Menengok ke kanan dan ke kiri serta ke atas dan kebawah.	STIMULASI Mengambil benda-benda kecil Letakkan benda kecil seperti potongan-potongan biskuit di hadapan bayi. Ajari bayi mengambil benda-benda tersebut. Jika bayi telah mampu melakukan hal ini, jauhkan pil/obat dan benda kecil lainnya dari jangkauan bayi.
TAHAPAN PERKEMBANGAN	
Berusaha memperluas pandangannya.	STIMULASI Jatuhkan sebuah kancing atau benda kecil lainnya yang berwarna terang di depan anak ke permukaan putih seperti kertas putih dengan jarak yang mudah dijangkau oleh anak. Gendong anak dengan menghadap ke depan dan bawa ke taman atau halaman rumah.
BICARA DAN BAHASA	
mdu..,mdu... pd..,pd..	TAHAPAN PERKEMBANGAN Meneliti suara gembira bernada tinggi atau memikir.
mdu..,mdu... pd..,pd..	STIMULASI 1. Stimulasi yang perlu dilanjutkan. <ul style="list-style-type: none">• Bicara• Meniru suara-suara• Mengenali berbagai suara 2. Mencari sumber suara. <ul style="list-style-type: none">• Latih bayi agar menengok ke arah sumber suara• Arahkan mulanya ke arah sumber suara. Mula-mula muka bayi dipegang dan dipalingkan perlahan-lahan ke arah sumber suara, atau bawa dibawa mendekati sumber suara. 3. Menirukan kata-kata. Ketika berbicara dengan bayi, ulangi beberapa kata berkali-kali dan usahakan agar bayi menirukannya. Yang paling mudah ditirukan oleh bayi adalah kata yang menggunakan huruf vocal dan gerakan bibir. Contohnya: papa, mama, baba.
SOSIALISASI DAN KEMANDIRIAN	
Tersenyum ketika melihat mainan/gambar yang menarik saat bermain sendiri.	TAHAPAN PERKEMBANGAN
STIMULASI	1. Stimulasi yang perlu dilanjutkan. <ul style="list-style-type: none">• Memberi rasa aman dan kasih sayang.• Mengajak bayi tersenyum.• Mengamati.• Mengayun.• Menina bobokan. 2. Bermain "Cilluk-ba" 3. Tutup wajah sampai tertutup semua bagian wajah anda dan buka secara tiba-tiba untuk dilihat bayi. Cara lain adalah mengintip bayi dari balik pintu atau tempat tidurnya. 4. Melihat dirinya dikaca. Pada umur ini, bayi senang melihat dirinya di cermin. Bawalah bayi melihat dirinya dicerminkan yang tidak mudah pecah. 5. Berusaha meraih mainan. Letakkan sebuah mainan sedikit diluar jangkauan bayi. Gerak-gerakkan mainan itu di depan bayi sambil bicara kepadanya agar ia berusaha untuk mendapatkan mainan itu. Jangan terlalu lama membiarkan bayi berusaha meraih mainan tersebut, agar anak merasa berhasil.



GRAFIK PERTUMBUHAN

- Grafik WHO & CDC
- Interpretasi Pertumbuhan
- Tambah Data Anak
- Rekomendasi Gizi Anak



PERKEMBANGAN ANAK

- Pertanyaan KPSP
- Stimulasi Perkembangan
- Tampil sesuai usia anak
- Tersedia untuk semua usia



ARTIKEL

- Artikel Kesehatan Anak
- Cari Artikel
- Saring Artikel
- Artikel lama bekerja offline



PrimaKu

Fitur Utama :

Jadwal Imunisasi

Grafik Pertumbuhan

Perkembangan Anak

Artikel



Silahkan Unduh Aplikasi
PrimaKu, tersedia di :

Aplikasi digital untuk orang tua yang diprakarsai Ikatan Dokter Anak Indonesia untuk membangun generasi sehat Indonesia



idai_ig



IDAI

Indonesian Pediatric Society

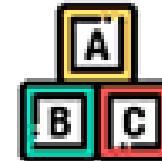
Committed in Improving The Health of Indonesian Children



IMUNISASI



PERTUMBUHAN



PERKEMBANGAN



KONDISI & PENYAKIT



PROSEDUR & TINDAKAN



DOSIS OBAT



JAMAICA (2015): Integrating a Parenting Intervention with Routine Primary Health Care Visit : A Cluster Randomized Trial

Susan M. Chang, PhDa, Sally M. Grantham-McGregor, MD_b, Christine A. Powell, PhDa, Marcos Vera-Hernández, PhD_c, Florencia Lopez-Boo, PhD_d, Helen Baker-Henningham, PhD_{a,e}, Susan P. Walker, PhD_a

PEDIATRICS Volume 136, number 2, August 2015

- integrated into primary health center visits
- 15 centers control (n = 250 mother-child pairs)
- 14 intervention (n = 251 mother-child pairs) groups.
- at the 6- to 8-week child health visit.

The intervention group delivery at 5 routine visits from age 3 to 18 months

- short films of child development messages
- discussion and demonstration
- by community health workers;
- mothers' practice of activities.

JAMAICA (2015) : Integrating a Parenting Intervention with Routine Primary Health Care: A Cluster Randomized Trial

Susan M. Chang, PhDa, Sally M. Grantham-McGregor, MD_b, Christine A. Powell, PhDa, Marcos Vera-Hernández, PhD_c, Florencia Lopez-Boo, PhD_d, Helen Baker-Henningham, PhD_{a,e}, Susan P. Walker, PhDa

PEDIATRICS Volume 136, number 2, August 2015

- measured after the 18-month visit.
- significant benefits for
 - **cognitive development (3.09 points; 95% confidence interval: 1.31 to 4.87 points; effect size: 0.3 SDs).**
 - **parenting knowledge (treatment effect: 1.59; 95% confidence interval: 1.01 to 2.17; effect size: 0.4).**

PEDIATRICS Volume 136, number 2, August 2015

A Systematic Review and Meta-analysis : Effectiveness of EARLY CHILDHOOD INTERVENTION in Promoting Cognitive Development in Developing Countries:

Rao N, Sun J, Chen EE, Ip P.. HK J Paediatr 2017;22:14-25

**70 publications,
62 independent
studies**

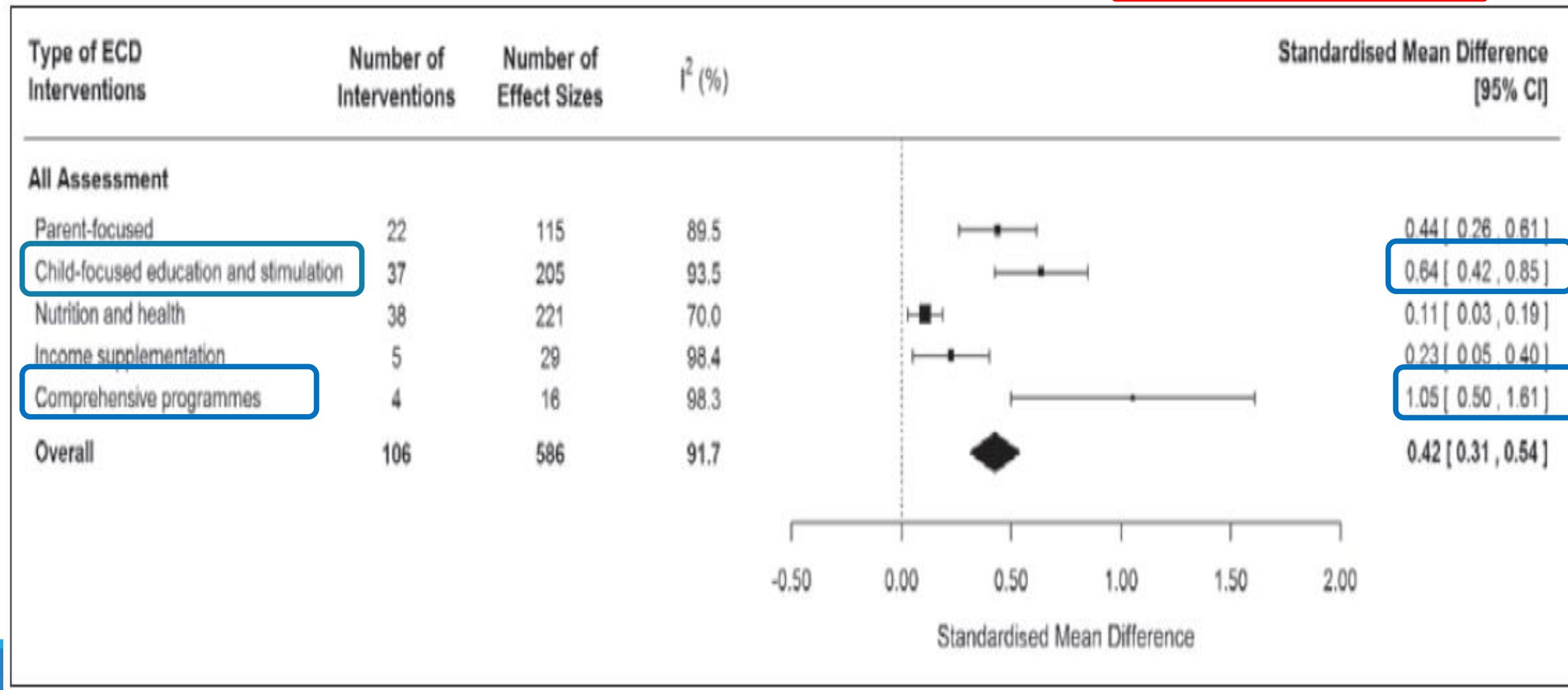
On development measurement :

1. cognitive;
2. executive function (EF);
3. intellectual quotient (IQ);
4. language;
5. literacy;
6. reasoning and problem-solving;
7. school readiness; and
8. subject and learning achievement.

A Systematic Review and Meta-analysis (2017) : Effectiveness of EARLY CHILDHOOD INTERVENTION in Cognitive Development in Developing Countries:

Rao N, Sun J, Chen EE, Ip P.. HK J Paediatr 2017;22:14-25

Effectiveness of different types of ECD interventions



Effectiveness of Early Childhood Interventions in Promoting Cognitive Development in Developing Countries: A Systematic Review and Meta-analysis

Rao N, Sun J, Chen EE, Ip P.. HK J Paediatr 2017;22:14-25

Table 2 Multivariate analysis on effect modifications of intervention characteristics and country contexts on ECD intervention effectiveness

	Coefficient	95% CI		p-value	***
		Lower Bound	Upper Bound		
All Interventions					
Model Intercept	0.78	0.38	1.17	0.0001	***
Assessment Type					
Cognitive	0		Reference		
Executive Function	0.02	-0.17	0.21	0.83	
IQ	0.10	-0.10	0.30	0.32	
Language	0.09	-0.08	0.25	0.31	
Literacy	0.02	-0.15	0.20	0.79	
Reasoning & Problem Solving	0.12	-0.07	0.30	0.22	
School Readiness	1.13	0.91	1.36	<0.0001	***
Subject & Learning Achievement	0.08	-0.10	0.27	0.38	

Lesson learned : of Integrated Nutrition & Development Interventions programs(1)

Study of 31 successful programs (2014)

- home based, home visite → problem solving.
- fortnightly (2x a week home visits lasting 30–60 min)
- a structured curriculum (e.g., organized by **ECD program**),
- use of low-cost materials (e.g.,homemade toys),
- opportunities for parents to play (stimulation) with their young children
- feedback / supervision : how interaction might be strengthened

12. Yousafzai AK, Aboud F. Review of implementation processes for integrated nutrition and psychosocial stimulation interventions. Ann N Y Acad Sci 2014;1308:33–45.

Lesson learned : of Integrated Nutrition & Development Interventions Programs (2)

Duration

- longer-duration programs (2 years) : lower compliance → longer positive impact
- shorter- duration program (6-12 mos): higher compliance, more intense → impact ?

Considered : mothers constraints :

- limit their time for integrating learning activities into the daily routines,
- need appropriate / simple implementation strategies (39).
- avoid overwhelming with message
- maternal depression

12. Yousafzai AK, Aboud F. Review of implementation processes for integrated nutrition and psychosocial stimulation interventions. Ann N Y Acad Sci 2014;1308:33–45.

37. Hamadani JD, Nahar B, Huda SN, Tofail F. Integrating early child development programs into health and nutrition services in Bangladesh benefits and challenges. Ann N Y Acad Sci 2014;1308:192–203.
39. Vazir S, Engle P, Balakrishna N, Griffiths PL, Johnson SL, Creed- Kanashiro H, Rao SF, Shroff MR, Bentley ME. Cluster-randomized trial on complementary and responsive feeding education to

caregivers found improved dietary intake, growth and development among rural Indian toddlers. Matern Child Nutr 2013;9:99–117. ▪

PERU (2017): Impact of a child stimulation intervention on early child development a cluster randomised trial

Stella Maria Hartinger,^{1,2,3,4} Claudio Franco Lanata,³ Jan Hattendorf,^{1,2} Jennyfer Wolf,^{1,2} Ana Isabel Gil,³ Mariela Ortiz Obando,⁵ Magaly Noblega,⁶ Hector Verastegui,^{3,4} and Daniel Mäusezahl^{1,2}

Hartinger SM, et al. J Epidemiol Community Health 2017;71:217–224. doi:10.1136/jech-2015-206536

Peruvian Andean communities,

- 534 children
- aged 6–35 months,,

- The IHIP group, 251 households,
 - received cookstove, kitchen sink, solar drinking water treatment and hygiene education.
- The ECD (Early Child Development) group, 258 households,
 - training individual mothers to play and interact how to use the toys
 - a new set of toys and materials every 2 months
 - providing 20–30 min sessions at home
 - every 3 weeks for 12 months

Nationally validated ECD evaluation instrument, all children were assessed

- at baseline and 12 months later for into 7 developmental domains..

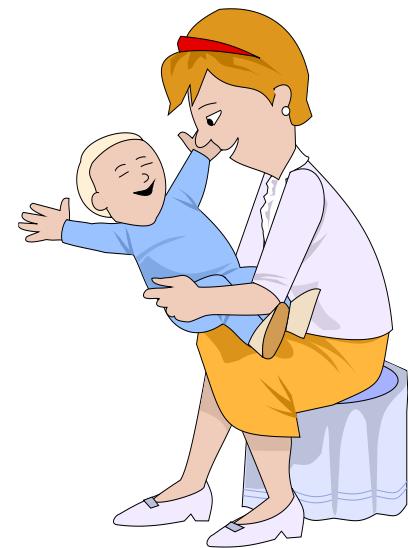
PERU (2017) : Table 2 . Comparison of successfully completed evaluation tasks between ECD (n=219), IHIP-group (n=216) children after 1-year follow-up

*ECD, early child development;; IHIP, integrated household intervention package;

Child developmental domain	Proportion indicators solved		Scored above mean		RR* (95% CI)
	ECD group, median (IQR)	IHIP group, median (IQR)	ECD group, % (n)	IHIP group, % (n)	
Fine Motor	60% (25–75)	40% (20–60)	62 (136)	39 (84)	1.6 (1.2 to 2.0)
Relationship Between Object	67% (50–75)	50% (33–67)	62 (135)	40 (86)	1.5 (1.3 to 1.9)
Personal Social	80% (60–100)	60% (40–83)	60 (131)	40 (86)	1.5 (1.1 to 2.0)
Communication	60% (40–80)	40% (33–60)	54 (119)	36 (77)	1.5 (1.1 to 2.2)
Gross Motor	67% (50–83)	67% (50–83)	49 (108)	37 (80)	1.3 (1.0 to 1.7)

The General Principles of ECD (*PAUD*)

1. **Timing** : the earlier & continuous is better, → developmental stage
2. **Role modeling (content), imitation, repetition**
3. **Playing** : interactive, fun, love, caring
4. **Multimoda** : stimulates all developmental aspect
 - auditory, visual, cognitive, communication, emotion, proprioceptive, psychomotor,
 - right & left brain,
5. **Integrated in daily activity**
6. **Authoritative parenting >< child temperament**
7. **Reward, reinforcement**





Maternal depression

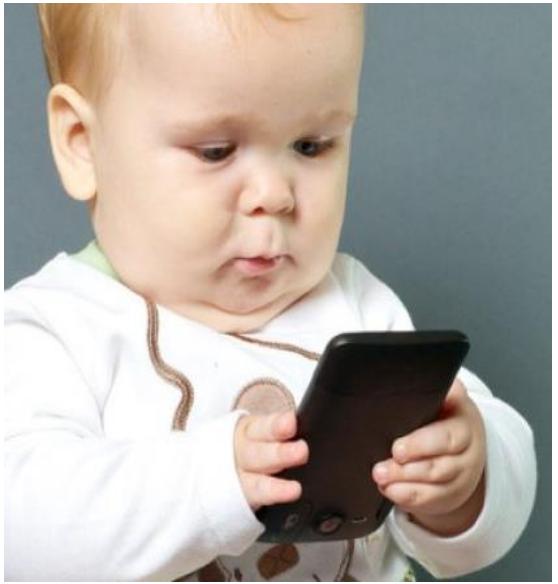
High incidence

- In **low-income countries** (15.9% for pregnant women, 19.8% for postpartum women)
- In **high-income countries** (10.0% for pregnant women, 13.0% for postpartum women) (19)

Associated with :

- **nonresponsive to play and child-feeding behaviors** (20),
- **inadequate or excess dietary intakes** (13, 21-24),
- **problems in the infants' adaptive behavior**

13. Bentley ME, Wasser HM, Creed-Kanashiro HM. Responsive feeding and child undernutrition in low- and middle-income countries. *J Nutr* 2011;141:502–7.
19. Fisher J, Cabral de Mello M, Patel V, Rahman A, Tran T, Holton S, Holmes W. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bull World Health Organ* 2012;90:139G–49G.
20. Hurley KM, Black MM, Papas MA, Caulfield LE. Maternal symptoms of stress, depression, and anxiety are related to nonresponsive feeding styles in a statewide sample of WIC participants. *J Nutr* 2008;138:799–805.
21. Hurley KM, Black MM, Merry BC, Caulfield LE. Maternal mental health and infant dietary patterns in a statewide sample of Maryland WIC participants. *Matern Child Nutr* 2015;11:229–39.
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23. Surkan PJ, Kennedy CE, Hurley KM, Black MM. Maternal depression and poor early childhood growth in developing countries: systematic review and meta-analysis. *Bull World Health Organ* 2011;89:608–15.
24. Hughes SO, Shewchuk RM, Baskin MC, Nicklas TA, Qu H. indulgent feeding style and children's weight status in preschool. *J Dev Behav Pediatr* 2006;29:405–10.

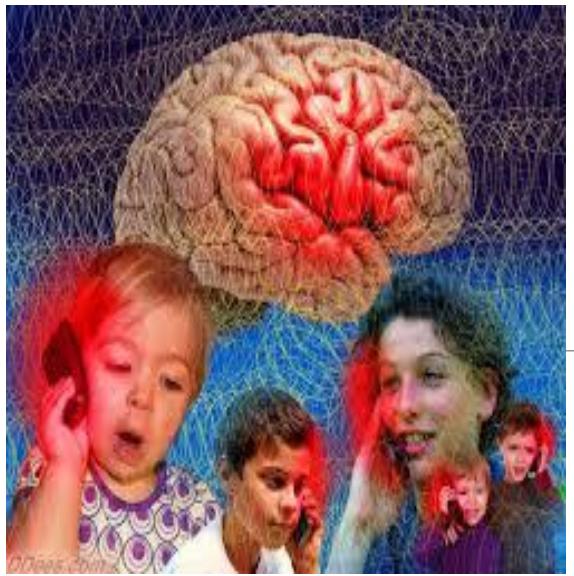


Gadget
Untuk Maian Anak ? Hiburan Anak ?
Pengganti orangtua ?
Stimulasi Perkembangan Anak ?

Alasan orangtua memberikan gawai / smartphone / tablet



- tidak mengganggu aktifitas orangtua
- menghibur anak rewel
- **media pembelajaran**
- tidak ketinggalan teknologi
- tidak kalah dengan orangtua lain
- dll



Dampak negatif ?

- **Otak** : radiasi gelombang elektro magnetik ?
- **Mata** : radiasi sinar biru ?
- **Perkembangan**
 - Bicara ekspresif, Kognitif,
 - Emosi sosial, Perilaku
 - Gerak halus, Gerak kasar
- **Aktifitas** : makan, belajar, tidur

New Results

Report of Partial findings from the National Toxicology Program Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd: Sprague Dawley® SD rats (Whole Body Exposure)

Michael Wyde, Mark Cesta, Chad Blystone, Susan Elmore, Paul Foster, Michelle Hooth, Grace Kissling, David Malarkey, Robert Sills, Matthew Stout,  Nigel Walker, Kristine Witt, Mary Wolfe, John Bucher

doi: <https://doi.org/10.1101/055699>

This article is a preprint and has not been peer-reviewed [what does this mean?].

On May 27, 2016, NTP released a report, "[Report of Partial Findings From the National Toxicology Program Carcinogenesis Studies of Cell Phone Radiofrequency Radiation in Hsd: Sprague Dawley SD Rats \(Whole Body Exposure\)](#)" on some important study findings. NTP found low incidences of tumors in the brains and hearts of male rats, but not in female rats. Studies in mice are continuing. The complete results from all the rat and mice studies will be available for peer review and public comment by the end of 2017.

14 CONCLUSIONS

- 15 Under the conditions of these 2-year studies, the hyperplastic lesions and glial cell neoplasms of
the heart and brain observed in male rats are considered likely the result of whole-body
exposures to GSM- or CDMA-modulated RFR. There is higher confidence in the association
between RFR exposure and the neoplastic lesions in the heart than in the brain. No biologically
significant effects were observed in the brain or heart of female rats regardless of modulation.

20

21 NEXT STEPS

The results reported here are limited to select findings of concern in the brain and heart and do not represent a complete reporting of all findings from these studies of cell phone RFR. The

Report Revised on February 1, 2018



National Toxicology Program Study 2007-2012 (publikasi 2016)

Radiasi HP SELURUH TUBUH TIKUS, SEJAK DI DALAM KANDUNGAN :

Cell Phone Radiation & Children's Health: What Parents Need to Know

- The rats were exposed to very large amounts of radiation—nine hours a day, seven days a week, for two years. This is far more than most people spend holding their cell phones.

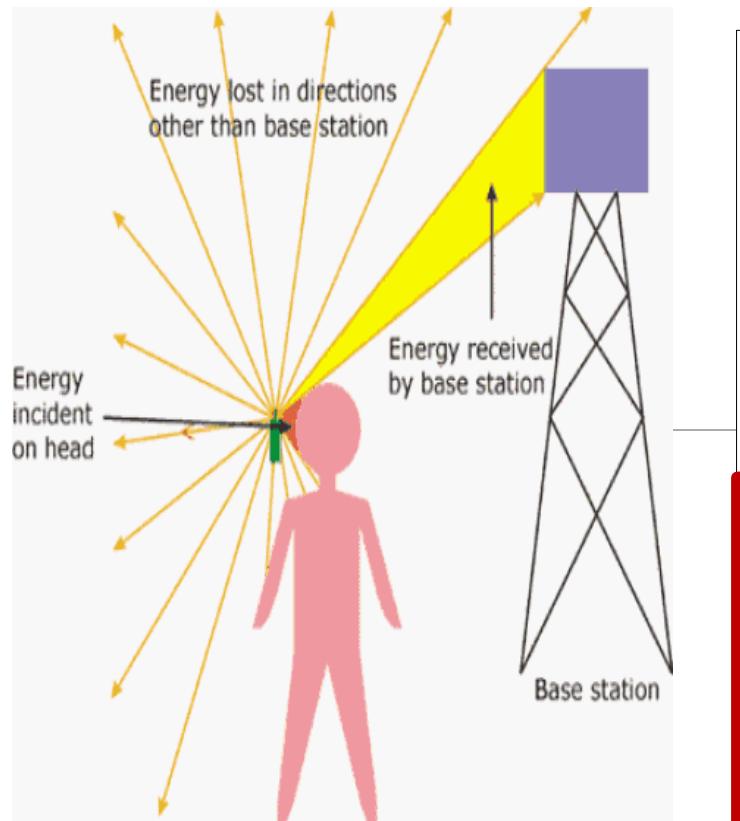
- 18 jam perhari, lama 10 menit, jeda 10 menit,
- total 9 jam sehari, 7 hari seminggu, selama 2 tahun
- 540 tikus yang diradiasi telefon **GSM**
 - kanker otak 16 ekor (2,9%),
 - kanker jantung 13 ekor (2,4%),
- 540 radiasi telefon **CDMA**
 - kanker otak 12 ekor (2,2%),
 - kanker jantung 21 ekor (3,8%).
- **kematian tikus diradiasi lebih rendah daripada tanpa radiasi. .**

Dampak Radiasi Gelombang Elektro Magnetik ?

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™



Cell Phone Radiation & Children's Health: What Parents Need to Know



What is cell phone radiation, anyway?

There are two types of radiation: ionizing and non-ionizing.

- **Ionizing radiation** (e.g., x-rays, radon, sunlight) is high frequency (and high energy).
- **Non-ionizing** is low frequency (low energy) radiation.

Cell phones have non-ionizing radiation. Your phone sends radio frequency waves from its antenna to nearby cell towers. When you make a call, text, or use data, your phone receives radio frequency waves to its antenna from cell towers.

What do expert organizations conclude about the cancer risk from cell phone use?

In 2011, the International Agency for Research on Cancer (IARC), a component of the World Health Organization, appointed an expert Working Group to review all available evidence on the use of cell phones. The Working Group classified cell phone use as "possibly carcinogenic to humans," based on limited evidence from human studies, limited evidence from studies of radiofrequency energy and cancer in rodents, and inconsistent evidence from mechanistic studies (5).

The Working Group indicated that, although the human studies were susceptible to bias, the findings could not be dismissed as reflecting bias alone, and that a causal interpretation could not be excluded. The Working Group noted that any interpretation of the evidence should also consider that the observed associations could reflect chance, bias, or confounding rather than an underlying causal effect. In addition, the Working Group stated that the investigation of risk of cancer of the brain associated with cell phone use

1-800-4-CANCER

ABOUT CANCER CANCER TYPES RESEARCH GRANTS & TRAINING NEWS & EVENTS

Home > About Cancer > Causes and Prevention > Risk Factors > Radiation

CAUSES AND PREVENTION

Cell Phones and Cancer Risks

**Denmark, Swedia, Norway, Swiss
Tumor otak 2004 – 2008**

Anak umur 7 – 19 tahun

Tidak ada hubungan ponsel & tumor otak :

- **Mulai penggunaan HP**
- **Lama penggunaan**
- **Lokasi tumor**

Do children have a higher risk of developing cancer due to cell phone use than adults?

There are theoretical considerations as to why the possible risk should be investigated separately in children. Their nervous systems are still developing and, therefore, more vulnerable to factors that may cause cancer. Their heads are smaller than those of adults and consequently have a greater proportional exposure to the field of radiofrequency radiation that is emitted by cell phones. And, children have the potential of accumulating more years of cell phone exposure than adults do.

Thus far, the data from studies in children with cancer do not support this theory. The first published analysis came from a large case-control study called CEFALO, which was conducted in Denmark, Sweden, Norway, and Switzerland. The study included children who were diagnosed with brain tumors between 2004 and 2008, when their ages ranged from 7 to 19. Researchers did not find an association between cell phone use and brain tumor risk either by time since initiation of use, amount of use, or by the location of the tumor (23).

Use of mobile phones and risk of brain tumours update of Danish cohort study

Patrizia Frei, postdoctoral research fellow¹, Aslak H Poulsen, doctoral student¹, Christoffer Johansen, professor¹, Jørgen H Olsen, director¹, Marianne Steding-Jessen, statistician¹, Joachim Schüz, head of section²

BMJ 2011;343 doi: <https://doi.org/10.1136/bmj.d6387> (Published 20 October 2011)

Cite this as: BMJ 2011;343:d6387

1990 – 2007

10.729 tumor CNS

➤ 13 thn pakai
HP

Tidak ada risiko
peningkatan tumor
SSP

Results 358 403 subscription holders accrued 3.8 million person years. In the follow-up period 1990-2007

there were 10 729 cases of tumours of the central nervous system. The risk of such tumours was close to unity for both men and women. When restricted to individuals with the longest mobile phone use—that is, ≥13 years of subscription—the incidence rate ratio was 1.03 (95% confidence interval 0.83 to 1.27) in men and 0.91 (0.41 to 2.04) in women. Among those with subscriptions of ≥10 years, ratios were 1.04 (0.85 to 1.26) in men and 1.04 (0.56 to 1.95) in women for glioma and 0.90 (0.57 to 1.42) in men and 0.93 (0.46 to 1.87) in women for meningioma. There was no indication of dose-response relation either by years since first subscription for a mobile phone or by anatomical location of the tumour—that is, in regions of the brain closest to where the handset is usually held to the head.

Conclusions In this update of a large nationwide cohort study of mobile phone use, there were no increased risks of tumours of the central nervous system, providing little evidence for a causal association.



Contents lists available at ScienceDirect

Journal of Microscopy and Ultrastructure

journal homepage: www.elsevier.com/locate/jmau

Review

Why children absorb more microwave radiation than adults: The consequences

L. Lloyd Morgan^{a,*}, Santosh Kesari^b, Devra Lee Davis^a

^a Environmental Health Trust, USA

^b University of California, San Diego, USA



- Radiasi gelombang mikro HP mungkin karsinogen
- Mainan anak & HP menyebarkan gelombang mikro
- Otak anak menyerap radiasi gelombang mikro > dewasa
 - **Tulang tengkorak lebih tipis**
 - **Otak anak sedang tumbuh**
 - **Daya serap lebih tinggi**
 - **Volume otak lebih kecil**
- **Anak, terutama janin berisiko karsinogen > dewasa**
 - masa laten > , diagnosis pada dewasa
 - degenerasi myelin dan neuron → “digital dementia”
school aged
 - remaja kanker payudara → HP disimpan di bra
 - radiasi minimal bila laptop & tablet > 20 cm

The American Cancer Society (ACS) states that the IARC classification means that there could be some cancer risk associated with radiofrequency energy, but the evidence is not strong enough to be considered causal and needs to be investigated further. Individuals who are concerned about radiofrequency energy exposure can limit their exposure, including using an ear piece and limiting cell phone use, particularly among children.

The National Institute of Environmental Health Sciences (NIEHS) states that the weight of the current scientific evidence has not conclusively linked cell phone use with any adverse health problems, but more research is needed.

The U.S. Food and Drug Administration (FDA) notes that studies reporting biological changes associated with radiofrequency energy have failed to be replicated and that the majority of human epidemiologic studies have failed to show a relationship between exposure to radiofrequency energy from cell phones and health problems.

The U.S. Centers for Disease Control and Prevention (CDC) states that no scientific evidence definitively answers whether cell phone use causes cancer.

The Federal Communications Commission (FCC) concludes that no scientific evidence establishes a causal link between wireless device use and cancer or other illnesses.

In 2015 the European Commission Scientific Committee on Emerging and Newly Identified Health Risks concluded that, overall, the epidemiologic studies on cell phone radiofrequency electromagnetic radiation exposure do not show an increased risk of brain tumors or of other cancers of the head and neck region (1). The Committee also stated that epidemiologic studies do not indicate increased risk for other malignant diseases, including childhood cancer (1).

Waspada

1. Radiasi elektro magnetik : bahaya belum terbukti
2. Radiasi sinar biru : mata Lelah, mata malas, kering
3. Pencegahan jangka panjang

Orang tua



- Jangan adiksi : sering cek HP, menonton, browsing
- Ajak bayi anak : bicara, bermain interaktif
- Ibu hamil, menyusui jangan sering menelpon
- Ibu dekat bayi dan anak jangan menelpon < 20 cm
- Jangan memberi anak ; HP / Tablet
- HP untuk komunikasi dan mencari informasi
- bukan untuk : menonton, mainan, menenangkan
- Komunikasi paling aman : teks
- Menelpon > 1 inchi dari kepala, handsfree, bluetooth
- Jangan menelpon sambil berjalan, menyopir → kecelakaan
- jangan menelpon di dalam mobil, bus, lift, KA
- → sinyal kecil → radiasi lebih kuat
- bicara sesingkat mungkin
- Film : unggah → airmode



Cell Phone Radiation & Children's Health: What Parents Need to Know

How can we limit cell phone radiation for ourselves and our children?

The AAP reinforces its existing recommendations on limiting cell phone use for children and teenagers. The AAP also reminds parents that cell phones are not toys, and are not recommended for infants and toddlers to play with.

Tip mengurangi radiasi dan kecelakaan

- teks, atau speaker, atau handfree
- bicara : jarak 1 inchi
- bicara sesingkat mungkin
- jangan di simpan kantong, kaus, atau bra
- menyupir : jangan teks atau bicara
- berjalan : jangan teks atau bicara
- film : donlot → airplane mode radiasi <<
- sinjal kecil → HP kerja keras, radiasi >>
- dalam mobil, elevator, KA, bus → menembus logam → HP kerja keras → radiasi >>
- Hp bukan mainan anak

Pencegahan jangka panjang



BAYI / ANAK



- Tidak boleh punya HP / tablet
- banyak bicara, bermain interaktif yang disukai anak
- nonton film / edutainment di TV, sehari maksimal 1 jam bersama ortu
- Aplikasi interaktif : push and swipe
→ tidak banyak manfaat

Original Investigation, January 28, 2019

Association Between Screen Time and Children's Performance on a Developmental Screening Test

Sheri Madigan, PhD^{1,2}; Dillon Browne, PhD³; Nicole Racine, PhD^{1,2}; et al Camille Mori, BA^{1,2}; Suzanne Tough, PhD²

JAMA Pediatr. 2019;173(3):244-250. doi:10.1001/jamapediatrics.2018.5056

Longitudinal cohort study : 2441 children, 1169 (47.9%) were boys.

- in Calgary, Alberta, Canada,.. between October 20, 2011, and October 6, 2016.
- at **age 24, 36, and 60 months**, children's screen-time behavior (total hours per week)
- and developmental outcomes (Ages and Stages Questionnaire, Third Edition)
- via maternal report.

Results

- higher levels of **screen time at 24 and 36 months**
- were **significantly associated with poorer performance**
- **on developmental screening tests at 36 months** (β , -0.08; 95% CI, -0.13 to -0.02)
- and **60 months** (β , -0.06; 95% CI, -0.13 to -0.02),



AAP & Radesky dkk 2015

- < 18 bulan : hanya utk video *chatting* jarak jauh dgn orangtua atau saudara
- 18 – 24 bulan : program-program khusus, dijelaskan oleh pengasuh (ortu)
- < 24 bln : belum bisa program interaktif
- < 30 bln, belum bisa pembelajaran akademik Sesame street (Radesky dkk 2015)
- 2 – 5 tahun : 1 jam perhari, dijelaskan oleh pengasuh (ortu)
- > 5 thn : Batasi waktu, tempat, isi
 - tidak mengganggu waktu tidur, bermain, sekolah, makan, mandi dll
- Tidak boleh : Waktu makan bersama, di kendaraan, di kamar tidur

Pencegahan jangka Panjang

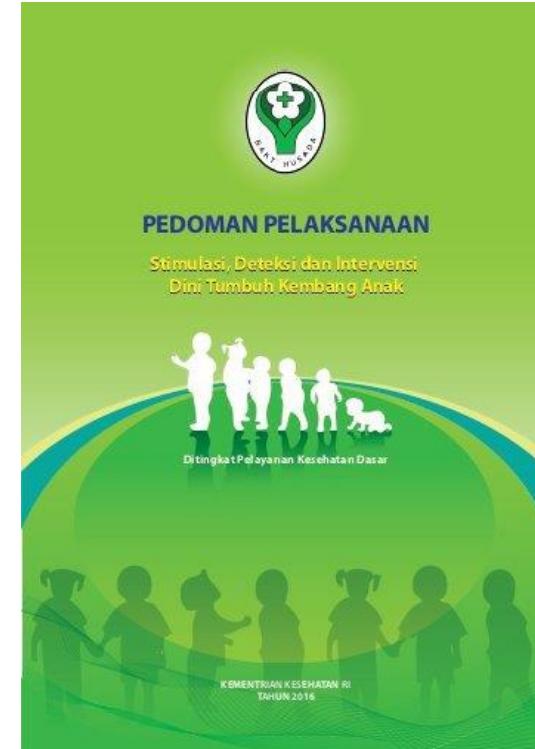


REMAJA :

- **batasi** : untuk komunikasi , pengetahuan, berita
- **cegah adiksi** : game, film
- **mengganggu** : belajar, tidur, interaksi sosial, obesitas
- **siber** : bullying, pornografi, sex predator
- **Tambah aktifitas / interaksi di dunia nyata :** olahraga, menari, musik, drama, organisasi drumband, pramuka dll



Monitoring / Evaluation

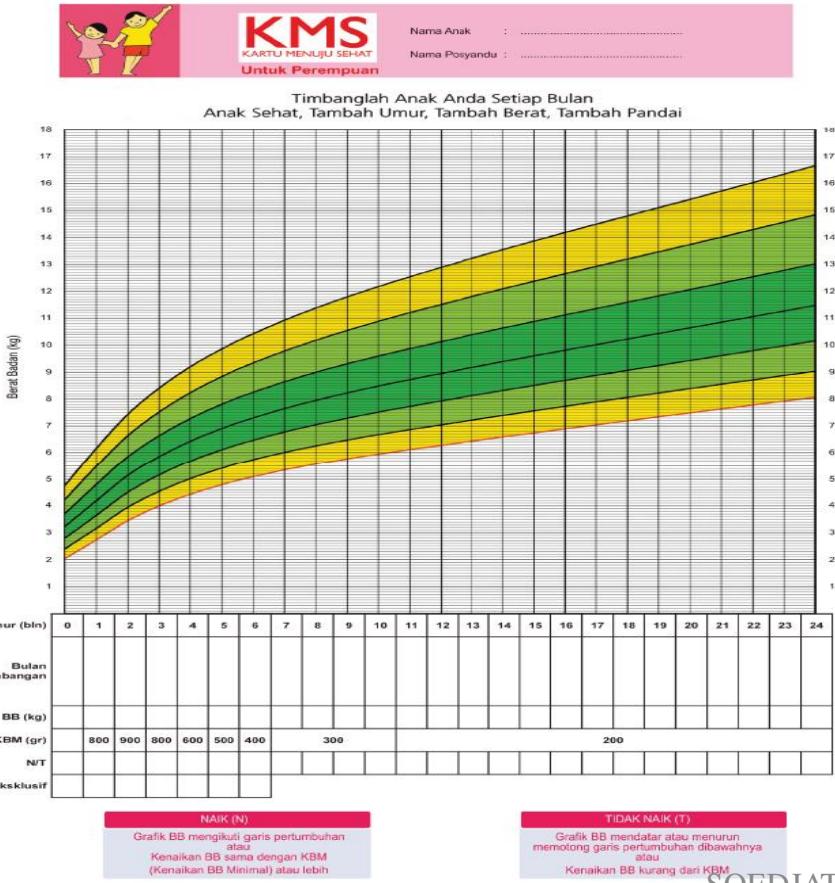


MONITORING of

Age	GROWTH		DEVELOPMENT			BEHAVIOR		
	BB/TB	LK	KPSP	TDL	TDD	KMME	CHAT	GPPH
0 mo	V	V						
3 mo	V	V	V		V			
6 mo	V	V	V		V			
9 mo	V	V	V		V			
12 mo	V	V	V		V			
15 mo	V		V					
18 mo	V	V	V		V		V	
21 mo	V		V				V	
2 y	V	V	V		V		V	
2 ½ y	V		V		V		V	
3 y	V	V	V	V	V	V		V
3 ½ y	V		V	V	V	V		V
4 y	V	V	V	V	V	V		V
4 ½ y	V		V	V	V	V		V
5 y	V	V	V	V	V	V		V

SOEDJATMIKO, 22 April 2018

Body weight monitoring





Developmental Checklist : by parent / health worker

Pada umur 1 bulan, bayi bisa:

- Menatap ke ibu
- Mengeluarkan suara o... o...
- Tersenyum
- Menggerakkan tangan dan kaki.

Pada umur 3 bulan bayi bisa:

- Mengangkat kepala tegak ketika tengkurap
- Tertawa
- Menggerakkan kepala ke kiri dan kanan
- Membalas tersenyum ketika diajak bicara/tersenyum
- Mengoceh spontan atau bereaksi dengan mengoceh

Pada umur 9 bulan, bayi bisa:

- Merambat
- Mengucapkan ma ... ma, da ... da
- Meraih benda sebesar kacang
- Mencari benda/mainan yang dijatuhkan
- Bermain tepuk tangan atau ci-luk-ba
- Makan kue/biskuit sendiri

Pada umur 12 bulan, bayi bisa:

- Berdiri dan berjalan berpegangan
- Memegang benda kecil
- Meniru kata sederhana seperti ma.. ma.., pa.. pa..
- Mengenal anggota keluarga
- Takut pada orang yang belum dikenal
- Menunjuk apa yang diinginkan tanpa menangis/merengek

Pada umur 6 bulan, bayi bisa:

- Berbalik dari telungkup ke telentang.
- Mempertahankan posisi kepala tetap tegak.
- Meraih benda yang ada didekatnya.
- Menirukan bunyi.
- Menggenggam mainan.
- Tersenyum ketika melihat mainan/gambar yang menarik.

Pada umur 2 tahun, anak bisa:

- Naik tangga dan berlari-lari
- Mencoret-coret pensil pada kertas
- Dapat menunjuk 1 atau lebih bagian tubuhnya
- Menyebut 3-6 kata yang mempunyai arti, seperti bola, piring dan sebagainya
- Memegang cangkir sendiri
- Belajar makan-minum sendiri

Pada umur 3 tahun, anak bisa:

- Mengayuh sepeda roda tiga
- Berdiri di atas satu kaki tanpa berpegangan
- Bicara dengan baik menggunakan 2 kata
- Mengenal 2-4 warna
- Menyebut nama, umur dan tempat
- Menggambar garis lurus
- Bermain dengan teman
- Melepas pakaianya sendiri
- Mengenakan baju sendiri

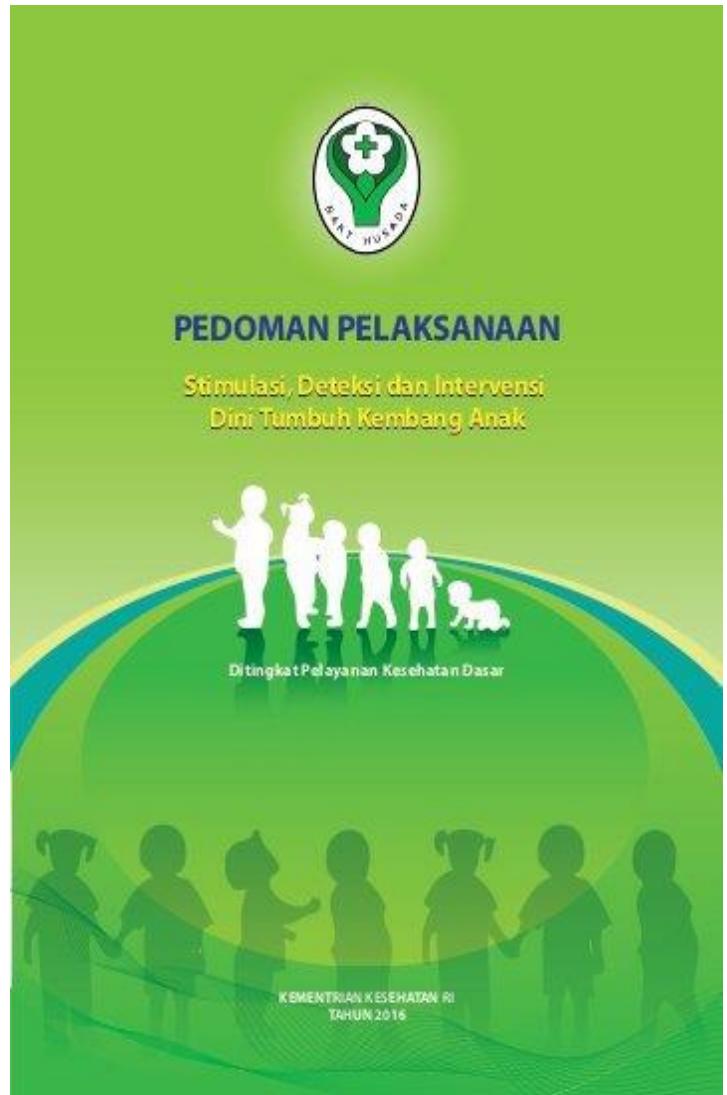


Pada umur 5 tahun, anak bisa:

- Melompat-lompat 1 kaki, menari dan berjalan lurus.
- Menggambar orang 3 bagian (kepala, badan, tangan/kaki)
- Menggambar tanda silang dan lingkaran
- Menangkap bola kecil dengan kedua tangan
- Menjawab pertanyaan dengan kata-kata yang benar
- Menyebut angka, menghitung jari
- Bicaranya mudah dimengerti
- Berpakaian sendiri tanpa dibantu
- Mengancing baju atau pakaian boneka
- Menggosok gigi tanpa bantuan

Pada umur 6 tahun, anak bisa:

1. Berjalan lurus
2. Berdiri dengan 1 kaki selama 11 detik
3. Menggambar 6 bagian (contoh: menggambar orang lengkap: kepala, badan, 2 tangan, dan 2 kaki)
4. Menangkap bola kecil dengan kedua tangan
5. Menggambar segi empat
6. Mengerti arti lawan kata
7. Mengenal angka, bisa menghitung angka 5-10
8. Mengenal warna
9. Mengikuti aturan permainan
10. Berpakaian sendiri tanpa dibantu



TAHAPAN PERKEMBANGAN DAN STIMULASI UMUR 3 - 6 BULAN	
GERAK KASAR	
TAHAPAN PERKEMBANGAN Berbalik dari telentang ke telungkap dan sebaliknya	STIMULASI Stimulasi perlu dilanjutkan. <ul style="list-style-type: none">• Berguling.• Menahan kepala tetap tegak
TAHAPAN PERKEMBANGAN Mengangkat kepala setengah 90°	STIMULASI Menyangga berat badan. Angkat badan bayi melalui bawah ketiaknya ke posisi berdiri. Perlahan-lahan turunkan badan bayi hingga kedua kaki menyentuh meja, tempat tidur atau pangkuhan anda. Coba agar bayi mau mengayunkan badannya dengan gerakan naik turun serta menyangga sebagian berat badannya dengan kedua kaki bayi.
TAHAPAN PERKEMBANGAN Menpertahankan posisi kepala tetap tegak dan stabil.	STIMULASI 1. Mengembangkan kontrol terhadap kepala. Latih bayi agar otot-otot lehernya kuat. Letakkan bayi pada posisi telentang. Pegang kedua pergelangan tangan bayi, tarik bayi perlahan-lahan ke arah anda, hingga badan bayi terangkat ke posisi setengah duduk. Jika bayi belum dapat mengontrol kepalaanya (kepalanya tidak ikut terangkat), jangan lakukan latihan ini. Tunggu sampai otot-otot leher bayi lebih kuat. 2. Duduk. Bantu bayi agar bisa duduk sendiri, mula-mula bayi didudukkan di kursi dengan sandaran agar tidak jatuh ke belakang. Ketika bayi dalam posisi duduk, beri mainan kecil ditangannya. Jika bayi belum bisa duduk tegak, pegang badan bayi. Jika bayi bisa duduk tegak, dudukkan bayi di lantai yang berselimut, tanpa sandaran atau penyangga.
GERAK HALUS	
TAHAPAN PERKEMBANGAN Menggenggam jari orang lain	STIMULASI Stimulasi yang perlu dilanjutkan <ul style="list-style-type: none">• Melihat, meraih dan menendang mainan gantung• Memperhatikan benda bergerak• Melihat benda-benda kecil• Meraba dan merasakan berbagai bentuk permukaan
TAHAPAN PERKEMBANGAN Meraih benda yang ada dalam jangkauannya.	STIMULASI Memegang benda dengan kuat. Letakkan sebuah mainan kecil yang berbunyi atau berwarna cerah di tangan bayi. Setelah bayi menggenggam mainan tersebut, tarik pelan-pelan untuk melatih bayi memegang benda dengan kuat.
TAHAPAN PERKEMBANGAN Memegang tangannya sendiri	STIMULASI Memegang benda dengan kedua tangan. Letakkan sebuah benda atau mainan ditangan bayi dan perhatikan apakah dia akan memindahkan benda tersebut ketangan lainnya. Usahakan agar tangan bayi, kiri dan kanan, masing-masing memegang benda pada waktu yang sama. Mula-mula bayi dibantu, letakkan mainan disatu tangan dan kemudian usahakan agar bayi mau mengambil mainan lainnya dengan tangan yang paling sering digunakan.
TAHAPAN PERKEMBANGAN	
Menengok ke kanan dan ke kiri serta ke atas dan kebawah.	STIMULASI Mengambil benda-benda kecil Letakkan benda kecil seperti potongan-potongan biskuit di hadapan bayi. Ajari bayi mengambil benda-benda tersebut. Jika bayi telah mampu melakukan hal ini, jauhkan pil/obat dan benda kecil lainnya dari jangkauan bayi.
TAHAPAN PERKEMBANGAN	
Berusaha memperluas pandangannya.	STIMULASI Jatuhkan sebuah kancing atau benda kecil lainnya yang berwarna terang di depan anak ke permukaan putih seperti kertas putih dengan jarak yang mudah dijangkau oleh anak. Gendong anak dengan menghadap ke depan dan bawa ke taman atau halaman rumah.
BICARA DAN BAHASA	
mdu..,mdu... pd..,pd..	TAHAPAN PERKEMBANGAN Meneliti suara gembira bernada tinggi atau memikir.
mdu..,mdu... pd..,pd..	STIMULASI 1. Stimulasi yang perlu dilanjutkan. <ul style="list-style-type: none">• Bicara• Meniru suara-suara• Mengenali berbagai suara 2. Mencari sumber suara. <ul style="list-style-type: none">• Latih bayi agar menengok ke arah sumber suara• Arahkan mulanya ke arah sumber suara. Mula-mula muka bayi dipegang dan dipalingkan perlahan-lahan ke arah sumber suara, atau bawa dibawa mendekati sumber suara. 3. Menirukan kata-kata. Ketika berbicara dengan bayi, ulangi beberapa kata berkali-kali dan usahakan agar bayi menirukannya. Yang paling mudah ditirukan oleh bayi adalah kata yang menggunakan huruf vocal dan gerakan bibir. Contohnya: papa, mama, baba.
SOSIALISASI DAN KEMANDIRIAN	
Tersenyum ketika melihat mainan/gambar yang menarik saat bermain sendiri.	TAHAPAN PERKEMBANGAN
STIMULASI	1. Stimulasi yang perlu dilanjutkan. <ul style="list-style-type: none">• Memberi rasa aman dan kasih sayang.• Mengajak bayi tersenyum.• Mengamati.• Mengayun.• Menina bobokan. 2. Bermain "Cilluk-ba" 3. Tutup wajah sampai tertutup semua bagian wajah anda dan buka secara tiba-tiba untuk dilihat bayi. Cara lain adalah mengintip bayi dari balik pintu atau tempat tidurnya. 4. Melihat dirinya dikaca. Pada umur ini, bayi senang melihat dirinya di cermin. Bawalah bayi melihat dirinya dicerminkan yang tidak mudah pecah. 5. Berusaha meraih mainan. Letakkan sebuah mainan sedikit diluar jangkauan bayi. Gerak-gerakkan mainan itu di depan bayi sambil bicara kepadanya agar ia berusaha untuk mendapatkan mainan itu. Jangan terlalu lama membiarkan bayi berusaha meraih mainan tersebut, agar anak merasa berhasil.



GRAFIK PERTUMBUHAN

- Grafik WHO & CDC
- Interpretasi Pertumbuhan
- Tambah Data Anak
- Rekomendasi Gizi Anak



PERKEMBANGAN ANAK

- Pertanyaan KPSP
- Stimulasi Perkembangan
- Tampil sesuai usia anak
- Tersedia untuk semua usia



ARTIKEL

- Artikel Kesehatan Anak
- Cari Artikel
- Saring Artikel
- Artikel lama bekerja offline



PrimaKu

Fitur Utama :
Jadwal Imunisasi
Grafik Pertumbuhan
Perkembangan Anak
Artikel





Silahkan Unduh Aplikasi
PrimaKu, tersedia di :



Aplikasi digital untuk orang tua yang diprakarsai Ikatan Dokter Anak Indonesia untuk membangun generasi sehat Indonesia



IDAI

Indonesian Pediatric Society

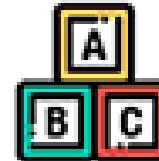
Committed in Improving The Health of Indonesian Children



IMUNISASI



PERTUMBUHAN



PERKEMBANGAN



KONDISI & PENYAKIT



PROSEDUR & TINDAKAN



DOSIS OBAT

