

EVIDENCE-BASED EARLY ENVIRONMENTAL EDUCATION IN PRESCHOOLERS

From lab to nature ... and back

Nutrition

Pharmacology

Pediatrics

Physical activity and health

Early obesity prevention

Lifestyle interventions – healthy lifestyle

Early environmental education

Exposure to nature and gut microbiome



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FACULTY OF SCIENCE
THE UNIVERSITY OF HONG KONG



環境及自然保育基金
ENVIRONMENT AND CONSERVATION FUND



ENVIRONMENTAL
CAMPAIGN COMMITTEE
環境運動委員會

AGENDA

- **El objeto** es analizar la lógica en que se desarrolla la educación parvularia y la importancia que tiene la educación al aire libre, la cual reconecta a los niños con la naturaleza generando cambios cognitivos como también en la convivencia escolar, aminorando conflictos.
- Crisis en salud y bienestar
- Crisis medioambiental
- Todo el mundo reconoce estos problemas
- Planes de acción (OMS, ONU, planes de gobierno...)

Educación parvularia

Acciones en las comunidades

Universidad (educar los educadores),

Leyes

Ejemplos desde HongKong, Europa y las comunidades locales en Chile.



Experts know how to improve health...

2016 – UN Decade of Action on Nutrition, designed to reinvigorate national/international efforts for nutrition.

Guidelines for the Early Years (aged 0-4 years)

Canadian Physical Activity Guidelines (0-4 years)

For healthy growth and development:

- Infants (aged less than 1 year) should be physically active several times daily – particularly through interactive floor-based play.
- Toddlers (aged 1-2 years) and preschoolers (aged 3-4 years) should accumulate at least 180 minutes of physical activity at any intensity spread throughout the day, including:
 - A variety of activities in different environments.
 - Activities that develop movement skills.
 - Progression toward at least 60 minutes of energetic play by 5 years of age.
 - More daily physical activity provides greater benefits.

Canadian Sedentary Behaviour Guidelines (0-4 years)

- For healthy growth and development, caregivers should minimize the time infants (aged less than 1 year), toddlers (aged 1-2 years) and preschoolers (aged 3-4 years) spend being sedentary during waking hours. This includes prolonged sitting or being restrained (e.g., stroller, high chair) for more than one hour at a time.
- For those under 2 years, screen time (e.g., TV, computer, electronic games) is not recommended.
- For children 2-4 years, screen time should be limited to under one hour per day; less is better.



Figure 1. Healthy Eating Food Pyramid



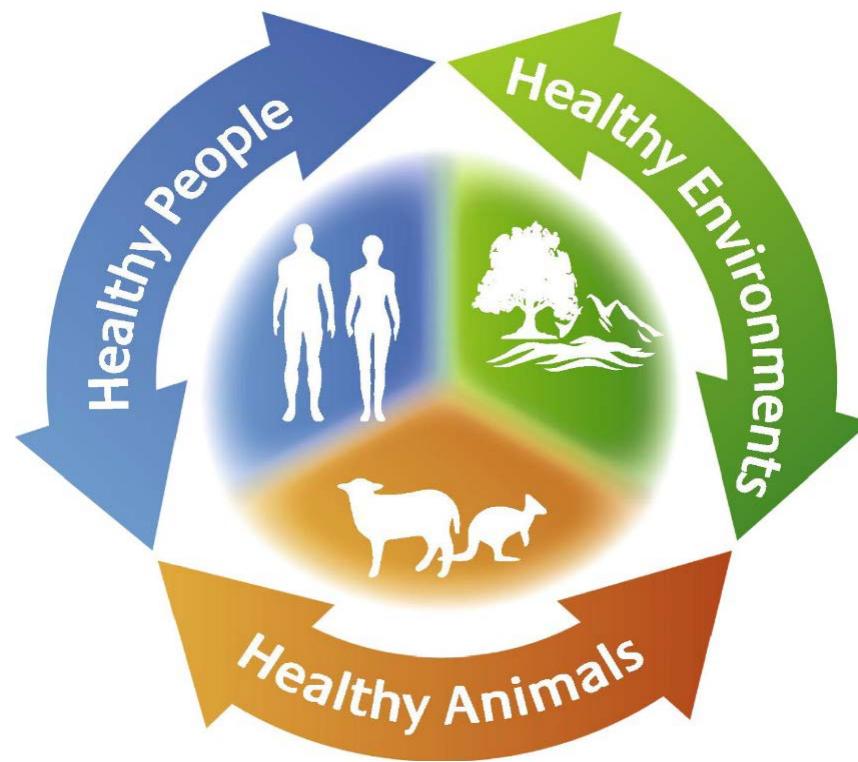
Figure 7. Physical Activity Pyramid for Preschool Children

**But... does it work?
“Little to NO effect..”**

Colquitt JL, et al (2016). Diet, physical activity, and behavioral interventions for the treatment of overweight or obesity in preschool children up to the age of 6 years. *Cochrane Database Syst Rev*.

Hodder, et al (2018). Interventions for increasing fruit and vegetable consumption in children aged five years and under. *The Cochrane Library*

Solutions? - One Health



“ONE HEALTH is an approach to designing and implementing **programmes, policies, legislation and research** in which multiple sectors communicate and work together to achieve better public health outcomes” (WHO)
<https://www.who.int/features/qa/one-health/en/>



New type of healthy lifestyle actions?



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PLAY & GROW
HongKong

Possible in an urban environment?



Urban >>> ‘toxic’

Palmer, S. (2015). *Toxic childhood: How the modern world is damaging our children and what we can do about it.*



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Content

PLAY & GROW
HongKong

Nature games



Food games



Environmental education



Sobko, T., Jia, Z., Kaplan, M., Lee, A., & Tseng, C. H. (2017) *Pediatric research*,

Sobko, T., Tse, M., & Kaplan, M. (2016). *BMC Public Health*



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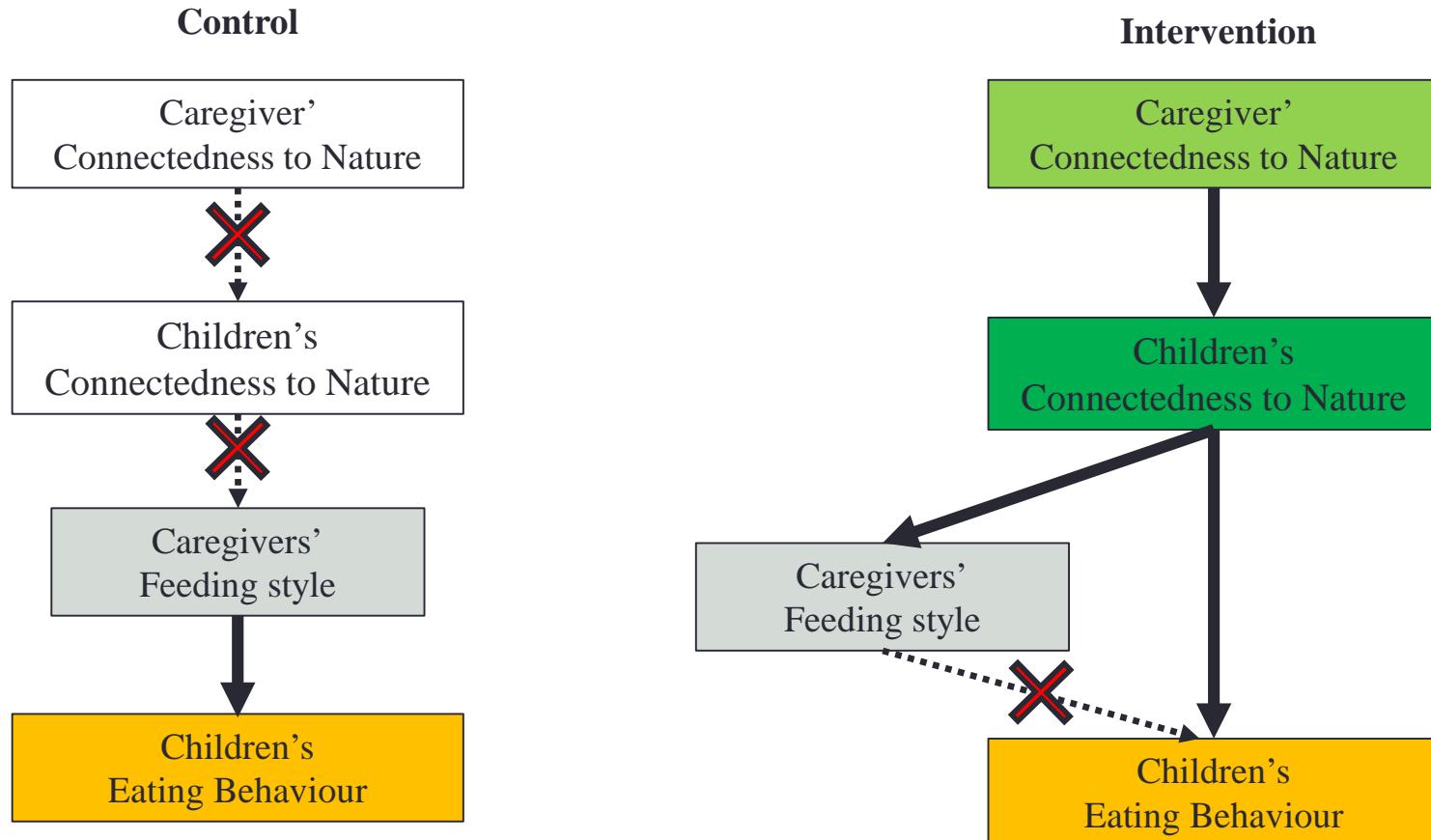
P&G EVIDENCE (Eating habits and Mental health – well-being indicators)

- Promoting healthy eating and active playtime by connecting preschool children to nature: A randomised control trial. Study protocol. **T Sobko***, M Tse, M Kaplan. *BMC Public Health*, 2016
- Gender differences in activity levels of 9-months old toddlers, objectively measured. J Zhang, Zhen, DM Trindade, **T Sobko***. *Maternal and Child health*, 2018
- Playtime, healthy eating and nature experiences for Hong Kong preschoolers. Evaluation of the pilot study ‘Play&Grow’. **T Sobko***, M Kaplan, C Tseng, E Wong. *Pediatr Res* 2016
- Measuring connectedness to nature in preschool children in an urban setting and its relation to psychological functioning. **T Sobko*** and G Brown. *PLoS ONE* 2018.
- Linking connectedness to nature with feeding and eating habits. Results of family-based environmental education intervention for preschool children: A randomized controlled trial. **T Sobko*** et al. *Under review*.

Project	Title	Authors	Name of Journal / publisher	Progress
Book chapter	Intergenerational Gardening on Urban Rooftops: The Example of the “Play and Grow” Program in Hong Kong	T Sobko and L Chawla	Routledge	In print
P&G	Does Connectedness to Nature improve eating behaviours of pre-schoolers? Emerging evidence from the Play&Grow randomised controlled trial in Hong Kong.	T Sobko*, G Brown, WHG Cheng	TBC	Under review
Food Environment and Health	Environmental impact of the average Hong Kong diet: A case for adopting sustainable diets in urban centers	T Tang and T Sobko*	TBC	Under review
P&G	Impact of outdoor nature-related activities on mental health and gut microbiota in preschool children	T Sobko, SS Liang, WHG Cheng, CL Chan, HM Tun*	TBC	In preparation
P&G	Positive effects of connectedness to nature on emotional problems, hyperactivity and prosocial behaviours among pre-schoolers	Y Liang and T Sobko*	TBC	In preparation



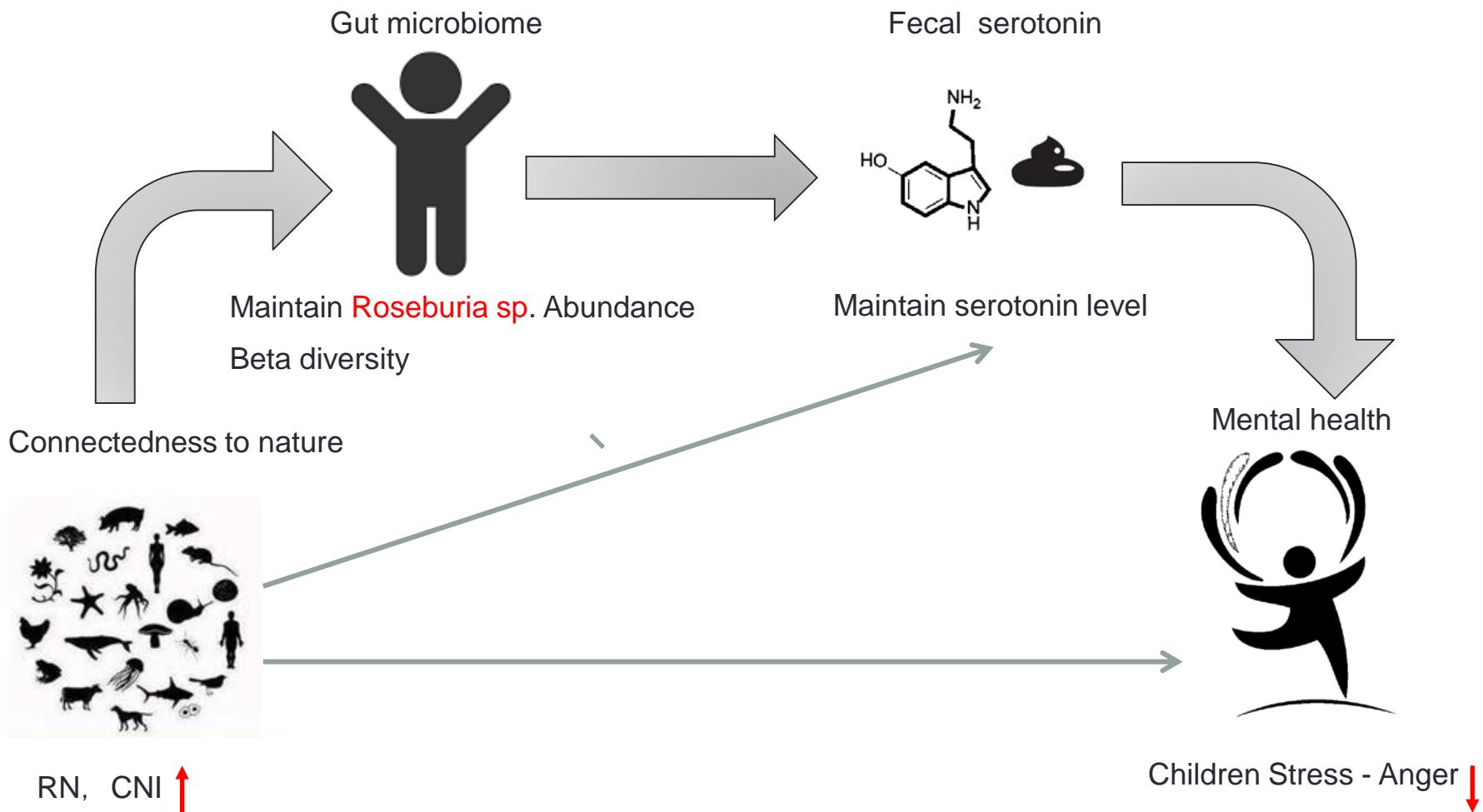
Effect of Nature on **Eating habits** (Indicators of health and well-being) - A paradigm shift!



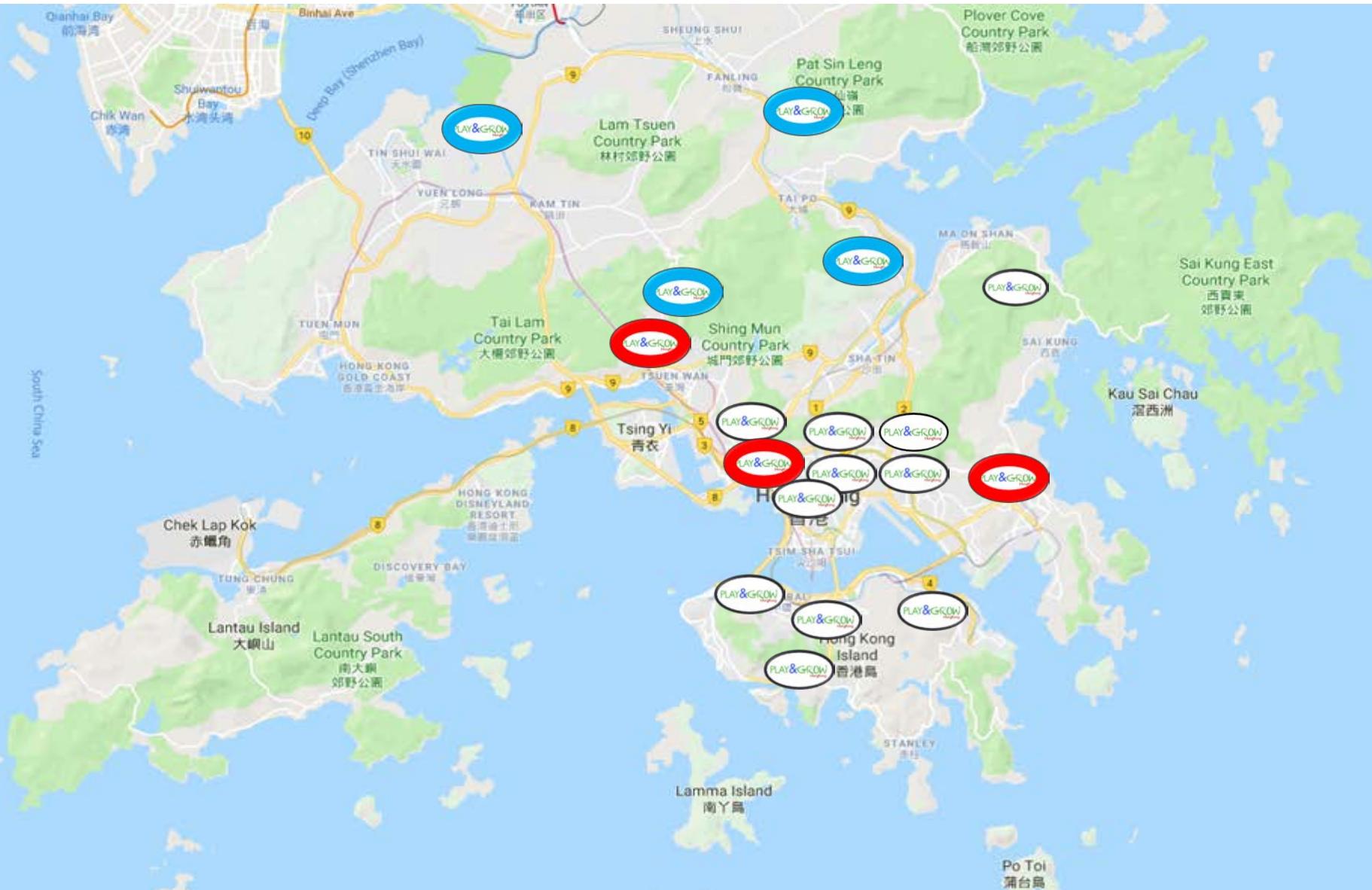
Nature and Mental Health

- Children connection with nature have less distress, hyperactivity, fewer behavioural and emotional difficulties, and improved pro-social behaviour.
- Children who take greater responsibility towards the nature have fewer peer difficulties.
- New links between the outdoor environment and mental health in pre-school children.

Measuring connectedness to nature in preschool children in an urban setting and its relation to psychological functioning.
T Sobko* and G Brown. *PLoS ONE* 2018.



Why “evidence-based” matter?



Expanding worldwide

The Play&Grow network in HK and the big world:

Frankie (HK)
Will (HK)
Kiki (HK)
Christina (HK)
Yan (HK)
Grace (HK)
Ann (HK)
Michael (HK)
Dulce (Macau)
Christian (HK)
Chia Huei (Japan)
Matt (USA)
Hein (Canada)
Gavin (NZ)
Desiree (Australia)
Matias (Chile)
Anahi (Chile)
Joao (Denmark)
Tore (Sweden)
Jon (Sweden)
Mette (Norway)



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