



Impact of COVID-19 Pandemic on Socio-Emotional Development of Children and the Role of Quality Parent-Child Interaction and Lifestyle Modifications

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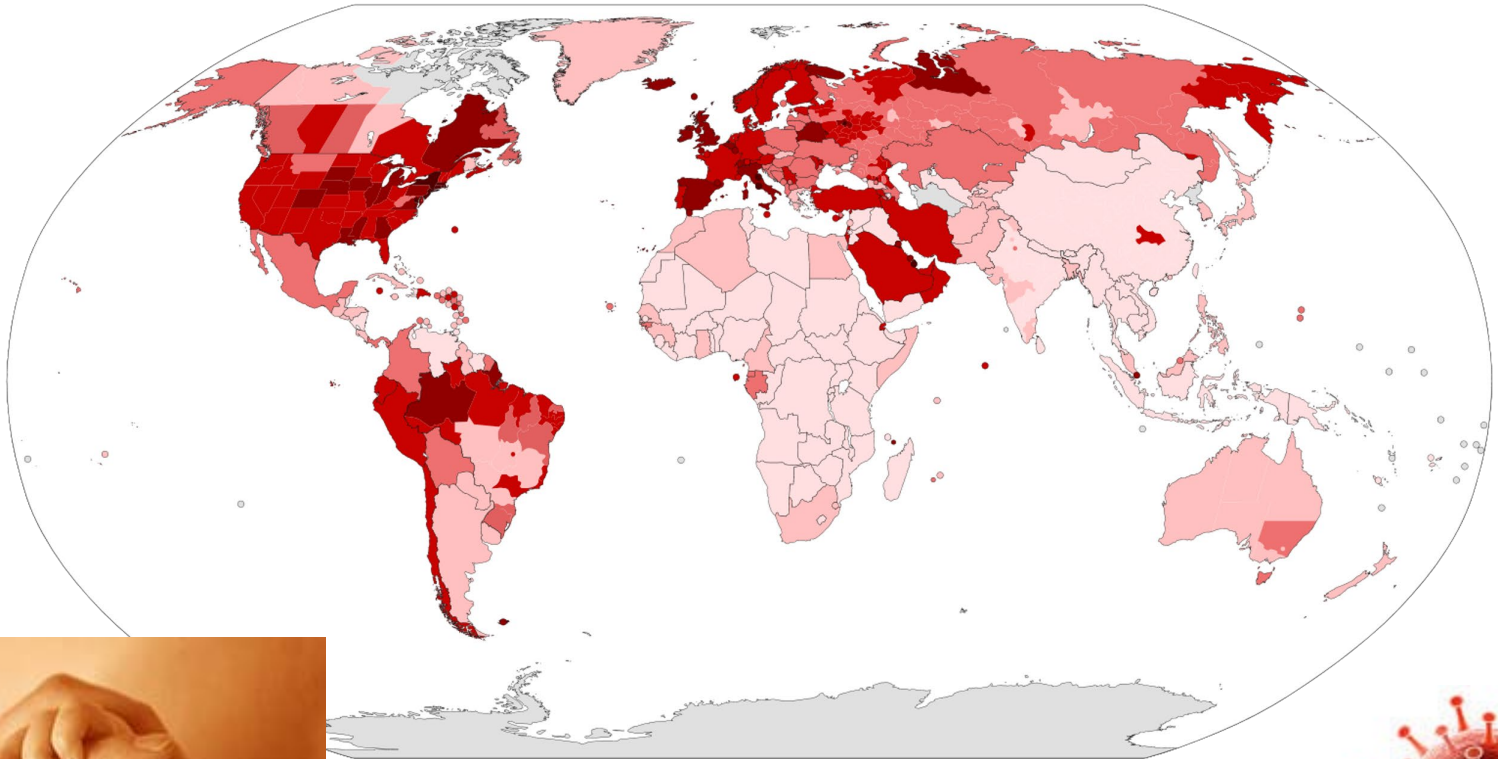




COVID-19 Pandemic 新冠肺炎大流行

11 March 2020

The World Health Organization declared spread of COVID-19 as a pandemic 2019



COVID-19
CORONAVIRUS
NOVEL CORONAVIRUS



Impact of COVID-19 Pandemic on Children

- Territory-wide school closures since Jan 2020

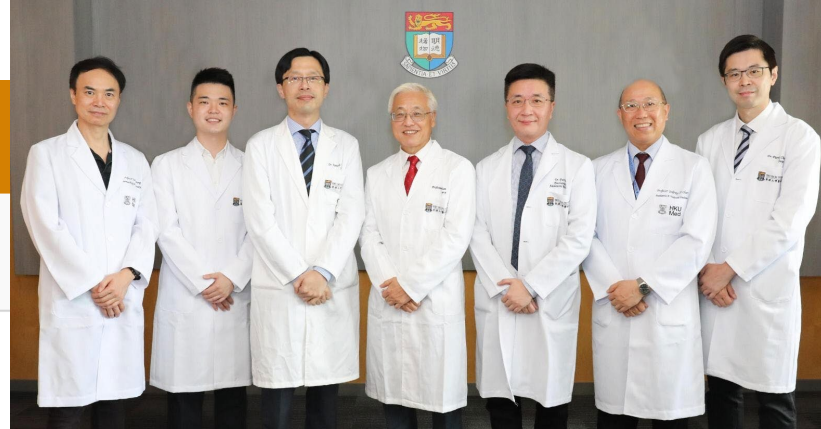


學校關閉



COVID-19 Outbreak in Feb 2020 (H.K.)

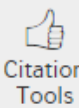




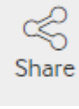
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Comparative study of the clinical characteristics and epidemiological trend of 244 COVID-19 infected children with or without GI symptoms

FREE

Xiao-li Xiong¹, Kenneth Kak-yuen Wong², Shui-qing Chi³, Ai-fen Zhou⁴, Jian-qiao Tang¹, Li-shan Zhou¹, Patrick Ho-yu Chung², Gilbert Chua⁵, Ketih Tung⁵, Ian Wong^{6, 7}, Celine Chui⁶, Xue Li⁶, Mike Yat-wah Kwan⁸, Wilfred Hing-sang Wong⁵, Marco Hok-kung Ho⁵, Godfrey Chi-fung Chan⁵, Guo-qing Cao³, Kang Li³, Patrick Ip⁵, Peng Chen⁹, Shao-tao Tang³, Paul Kwong-hang Tam^{2, 10}

[Author affiliations +](#)

Our study reported the clinical characteristics of 244 children tested positive for the COVID-19 during 21 January to 20 March 2020 2020年1月21日至3月20日期間
244名對COVID-19陽性兒童的臨床特徵

Among them, 34 (13.9%) had gastrointestinal symptoms at admission 當中有34名 (13.9%)入院時出現胃腸道症狀。

These patients were younger (14 vs 86 months; $p < 0.05$), and over half of the patients were under 3 years old 這些患者比較年輕(14 vs 86個月 $p < 0.05$)

並且超過一半的患者年齡在3歲以下。

As the **COVID-19** pandemic has led to an unprecedented health and socio-economic crisis, there is growing concern regarding the effects of home confinement on child development and family mental health around the world

各國關注居家限制對兒童發展及其家人心理健康的影響

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CORRESPONDENCE | VOLUME 395, ISSUE 10228, P945-947, MARCH 21, 2020

PDF [298 KB] Figures Save S

Mitigate the effects of home confinement on children during the COVID-19 outbreak

Guanghai Wang • Yunting Zhang • Jin Zhao • Jun Zhang • Fan Jiang ✉

Published: March 04, 2020 • DOI: [https://doi.org/10.1016/S0140-6736\(20\)30547-X](https://doi.org/10.1016/S0140-6736(20)30547-X)

Perhaps a more important but easily neglected issue is the psychological impact on children and adolescents. Stressors such as prolonged duration, fears of infection, frustration and boredom, inadequate information, lack of in-person contact with classmates, friends, and teachers, lack of personal space at home, and family financial loss can have even more problematic and enduring effects on children and adolescents.⁴ For example, Sprang and Silman⁶ showed that the mean posttraumatic stress scores were four times higher in children who had been quarantined than in those who were not quarantined. Furthermore, the interaction between lifestyle changes and psychosocial stress caused by home confinement could further aggravate the detrimental effects on child physical and mental health, which could cause a vicious circle. To mitigate the consequences of home confinement, the government, non-governmental organisations (NGOs), the community, school, and parents need to be aware of the downside of the situation and do more to effectively address these issues immediately. Experiences learned from previous outbreaks can be valuable for designing a new programme to tackle these issues in China.⁷

Lifestyle changes and increased psychosocial pressure during home confinement can worsen children's physical and mental health problems

因居家限制而引起的生活習慣轉變及心理社交壓力可加劇兒童身心健康問題



As the COVID-19 pandemic has led to an unprecedented health and socio-economic crisis, there is growing concern regarding the effects of home confinement on child development and family mental health around the world

因居家限制而引起的生活習慣轉變及心理社交壓力可加劇兒童身心健康問題

Viewpoint

ONLINE FIRST FREE

April 14, 2020

Coronavirus Disease 2019 (COVID-19) and Mental Health for Children and Adolescents

Ezra Golberstein, PhD¹; Hefei Wen, PhD²; Benjamin F. Miller, PsyD³

» Author Affiliations | Article Information

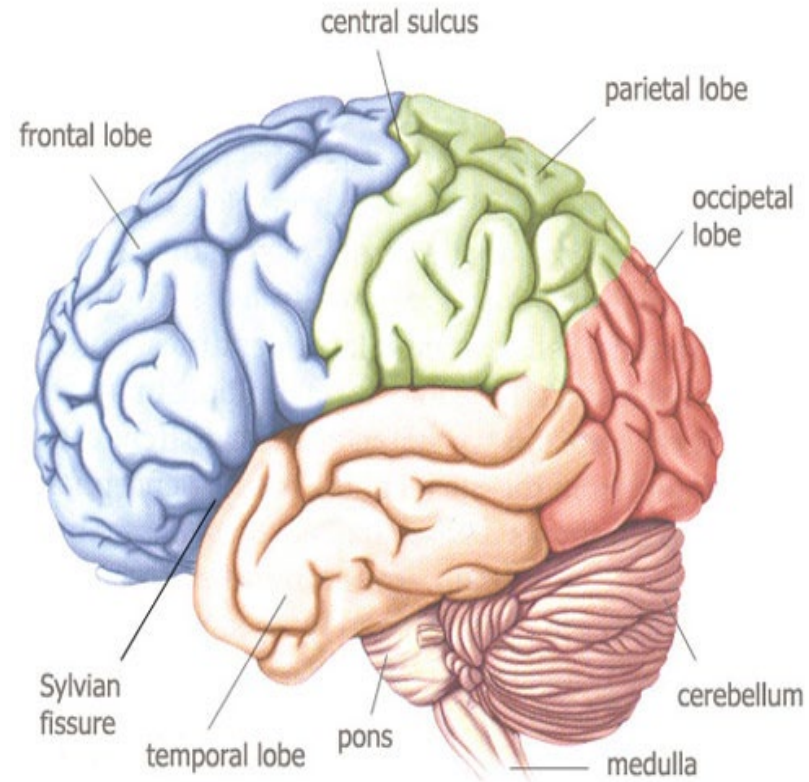
JAMA Pediatr. Published online April 14, 2020. doi:10.1001/jamapediatrics.2020.1456

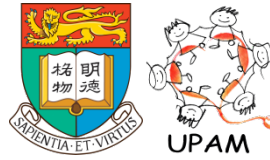
The COVID-19 pandemic may worsen existing mental health problems and lead to more cases among children and adolescents because of the unique combination of the public health crisis, social isolation, and economic recession. Economic downturns are associated with increased mental health problems for youth that may be affected by the ways that economic downturns affect adult unemployment, adult mental health, and child maltreatment.²

The COVID-19 pandemic is harming the global economy, resulting in pay cuts 降薪潮, unemployment 失業潮, reduced family income 家庭收入減少, and child maltreatment 兒童虐待情況增加. Recent graduates are also facing a shrinking job market 經濟衰退的求職環境. All these factors can affect psychological wellbeing 這些因素都可影響心理健康

Neuroscience of Brain Development

- Brain is not mature at birth
- Brain is changed by experiences – early years of life impacts on long term outcomes (life course)
- Adversity impacts on brain development

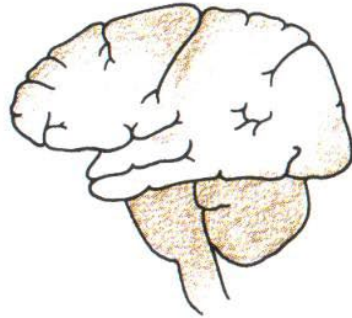




腦部快速生長



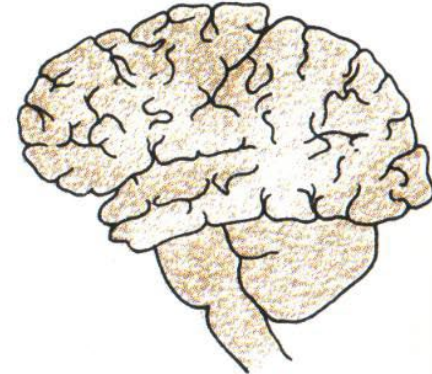
Newborns
300g



3 months
500g



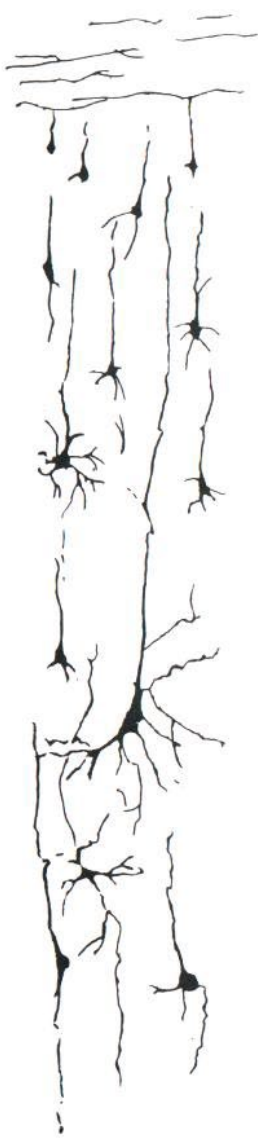
12 months
900g



24 months
1000g

Brain growing rapidly

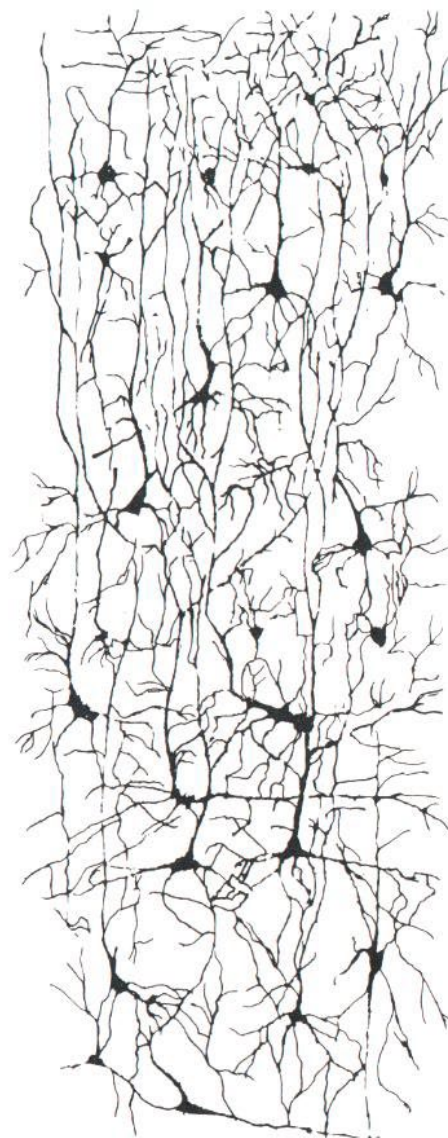
大腦神經網絡



Newborns



3 months



15 months



24 months

Cerebral cortex neuron network

'Sensitive Periods' in

Early Brain Development

Binocular vision

Central auditory system

Habitual ways of responding

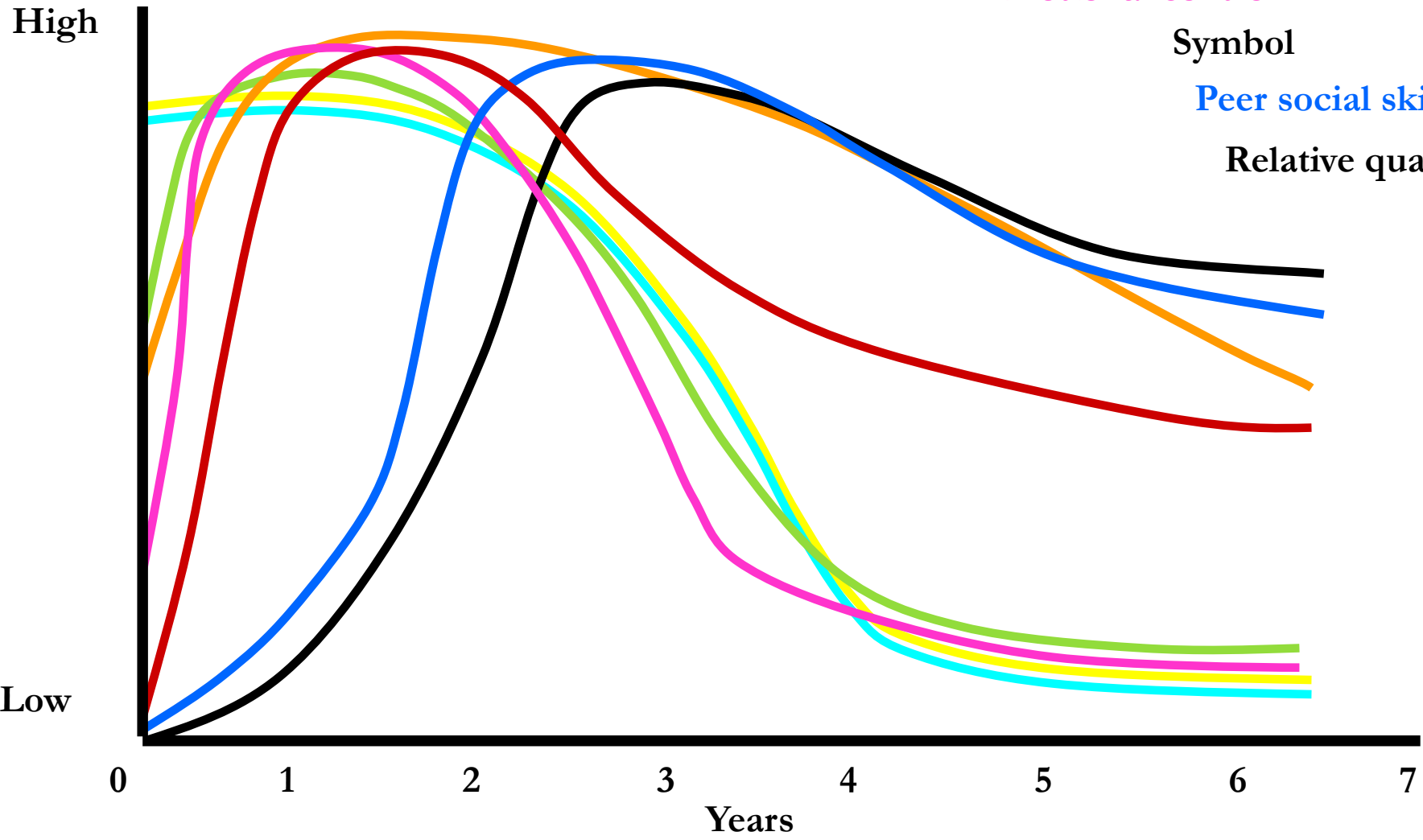
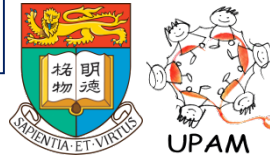
Language

Emotional control

Symbol

Peer social skills

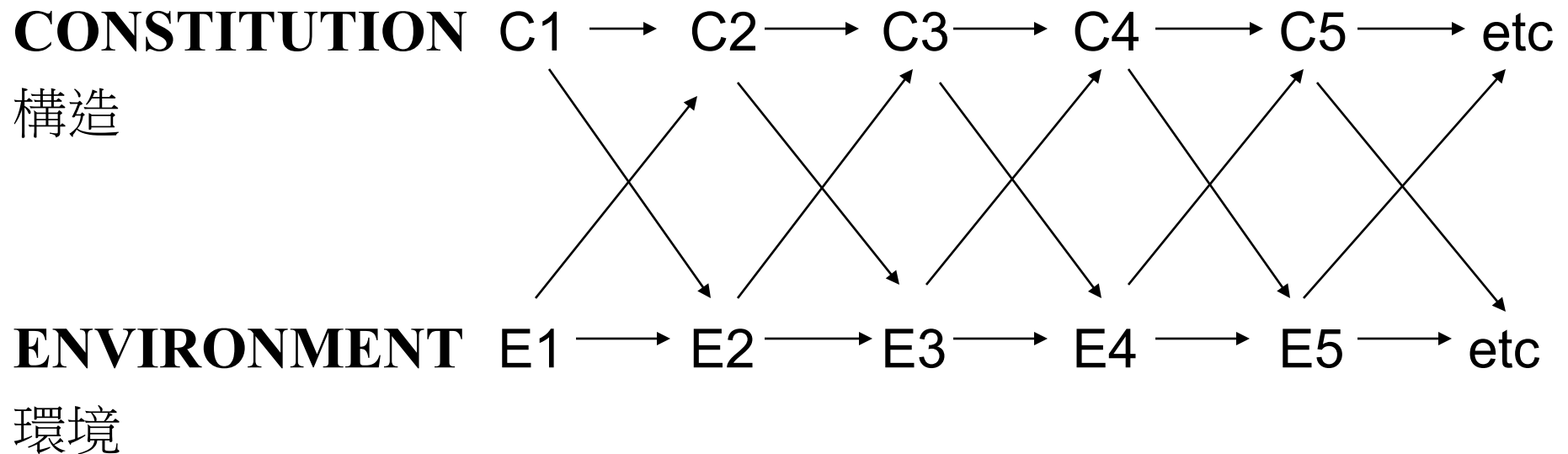
Relative quantity





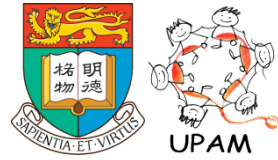
Transactional model - Child Development

兒童發展 - 動態相互作用模型



How children (and adults) turn out is the outcome of the transaction between biology and environment

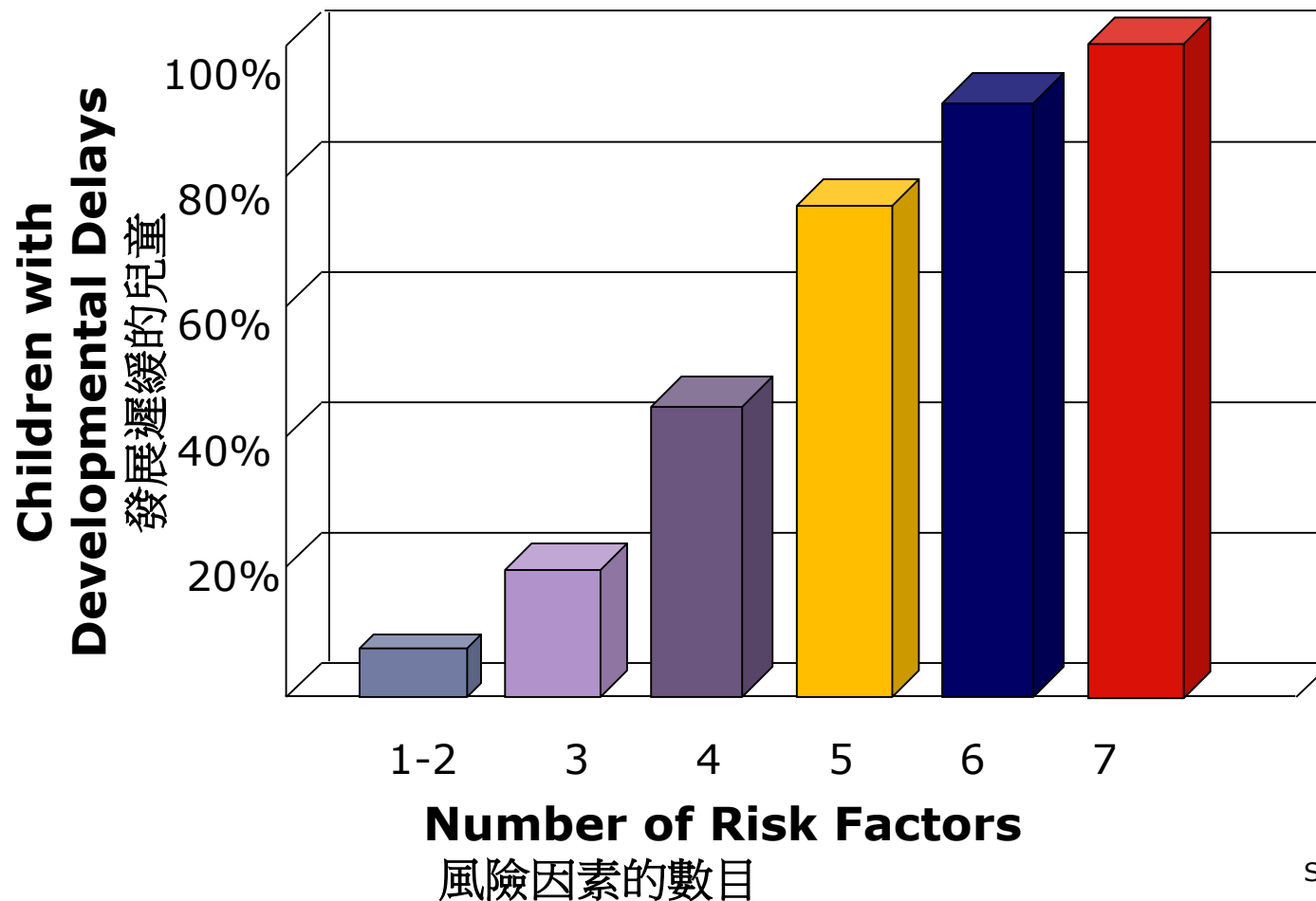
兒童（和成人）的發展是生物學與環境之間的相互作用結果

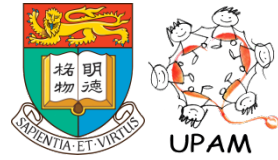


Significant Adversity Impairs Development in first 3 years

頭三年的逆境經驗會影響兒童發展

損害智能發展

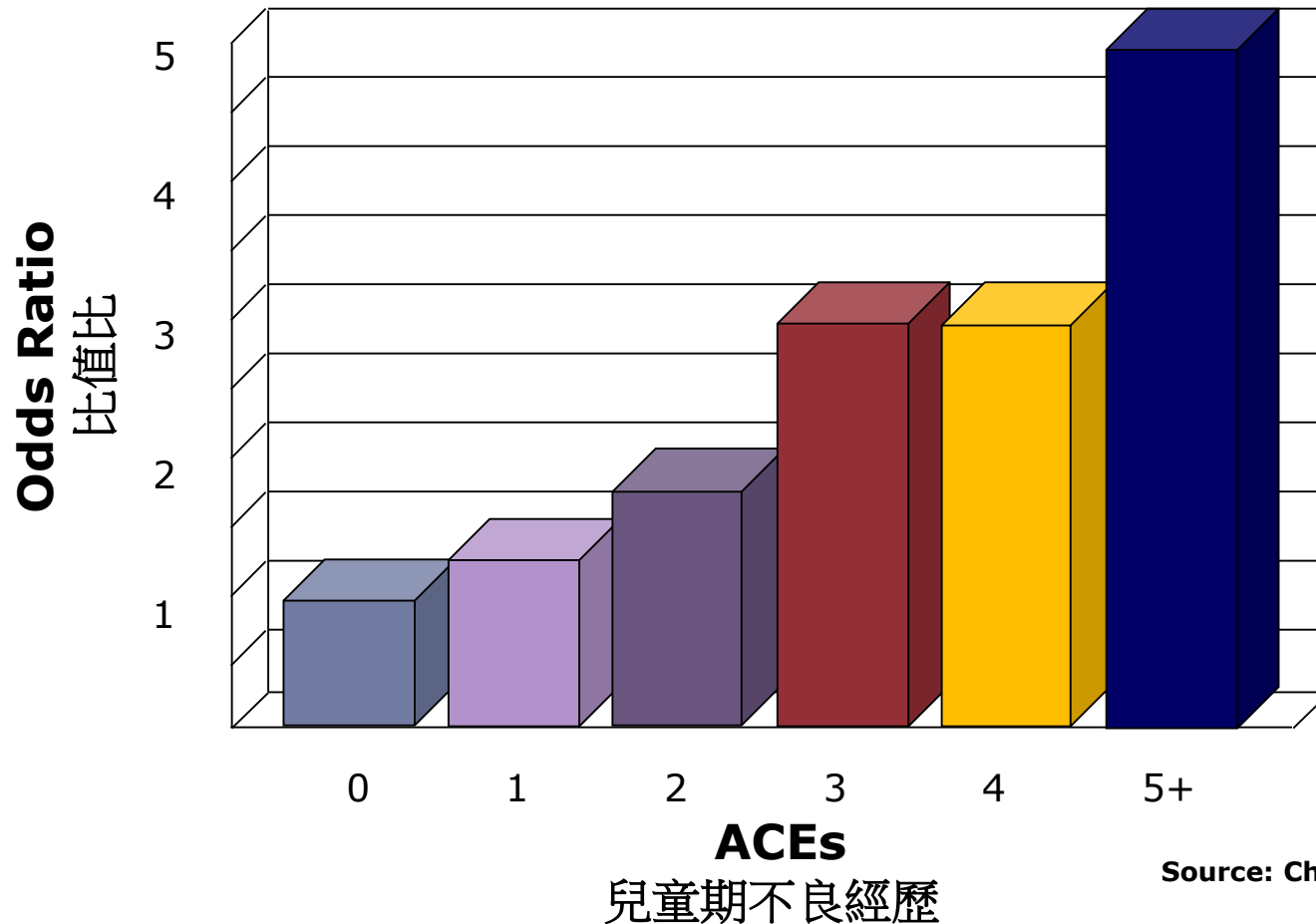




Elevated risk for Depression 抑鬱的風險增加

Risk Factors for Adult Depression are Embedded in Adverse Childhood Experiences

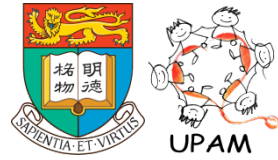
兒童期不良經歷與成人期患抑鬱症的風險



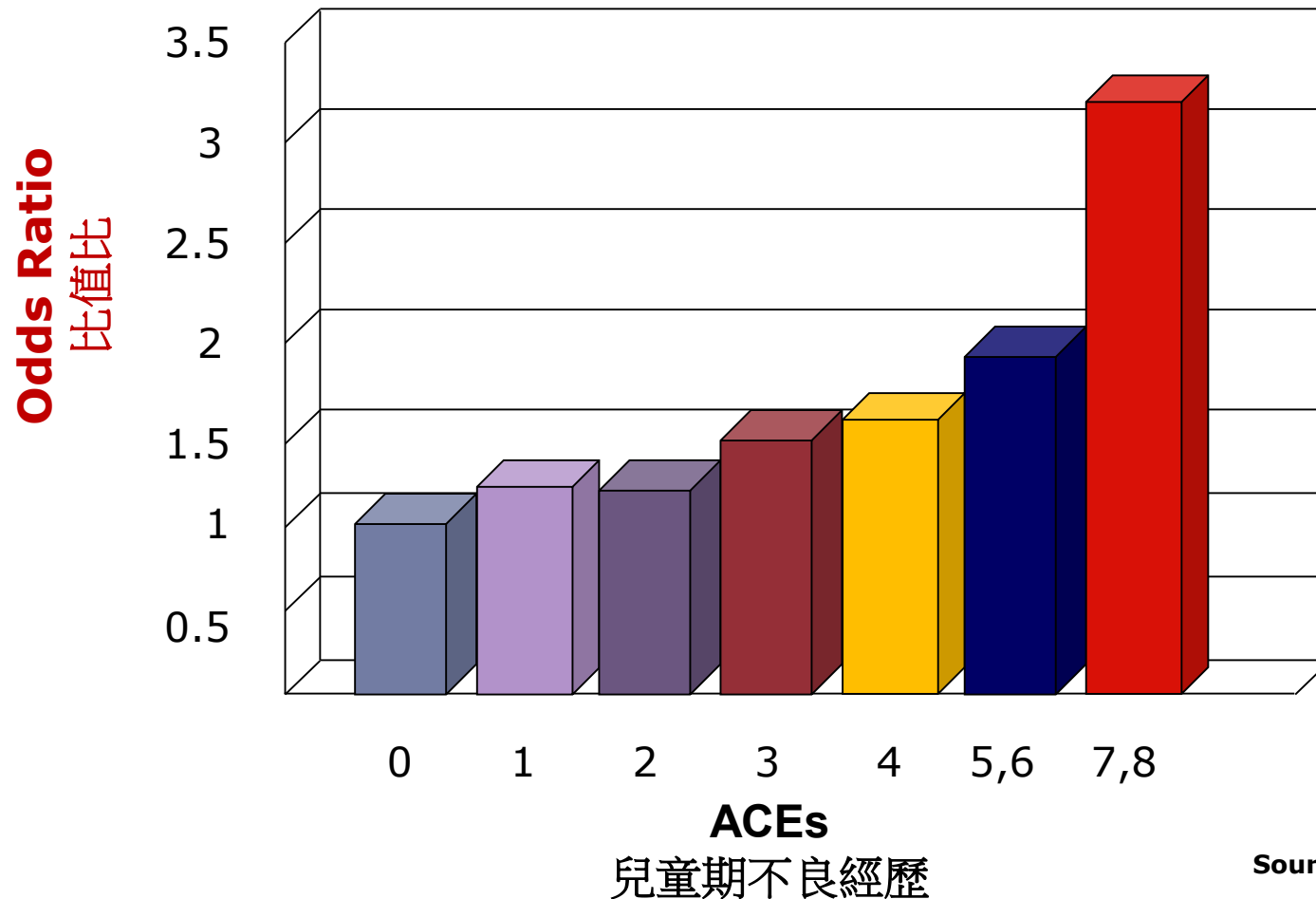
Source: Chapman et al, 2004

Risk Factors for Adult Heart Disease Are Embedded in Adverse Childhood Experience

兒童期不良經歷與成人期患心臟病的風險



增加心臟病風險



Source: Dong et al, 2004



CEDI cohort: a prospective study of biopsychosocial factors associated with childhood adversities



Dr Patrick Ip's research team



Contents lists available at [ScienceDirect](#)

Early Childhood Research Quarterly



Socioeconomic gradients in school readiness of Chinese preschool children: The mediating role of family processes and kindergarten quality

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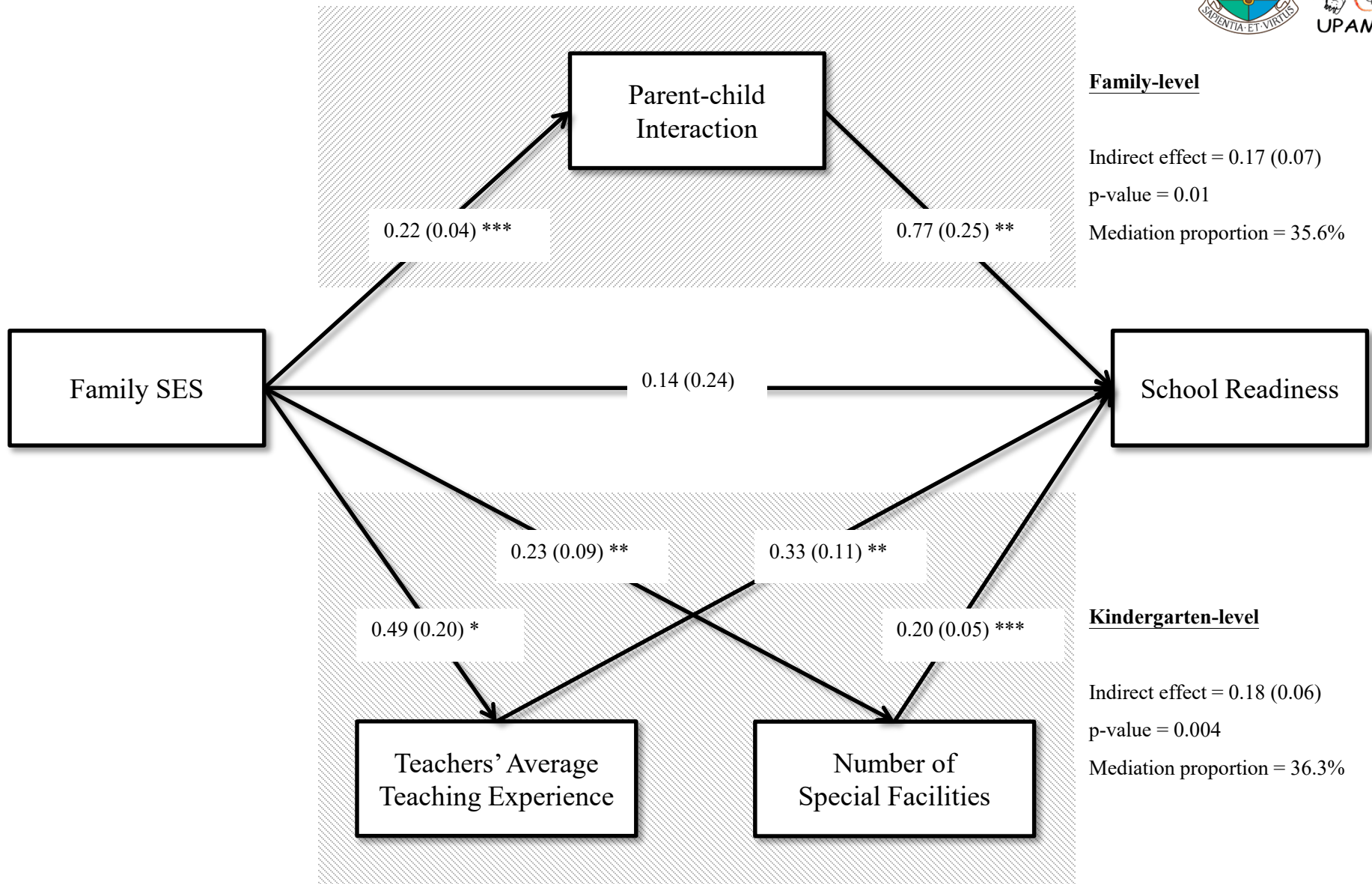
Early Development Instrument

Chinese

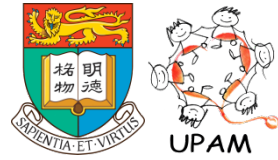
ABSTRACT

The current study examined the effects of socioeconomic status (SES) on the school readiness of Chinese preschool children in Hong Kong. A total of 69 teachers from 20 kindergartens in both rich and poor districts in Hong Kong rated the school readiness of 567 preschool children using the Chinese version of the Early Development Instrument. Information about home learning activities and kindergarten characteristics was obtained from parents and preschool teachers, respectively. The results indicated a gradient relationship between SES and total EDI scores, with children from higher-SES families rated as being very ready for school on more domains of the Chinese version of the Early Development Instrument than those from lower-SES families. Home learning activities (reading and recreational activities) and teachers' experience and kindergarten facilities significantly mediated the socioeconomic gradient effects. These findings highlight that efforts are much needed in tackling the developmental disparity and the promotion of better parent-child interaction, teacher quality, and kindergarten facilities might be able to help all children attain their own developmental potential.

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Mediating effects of Family and Kindergarten



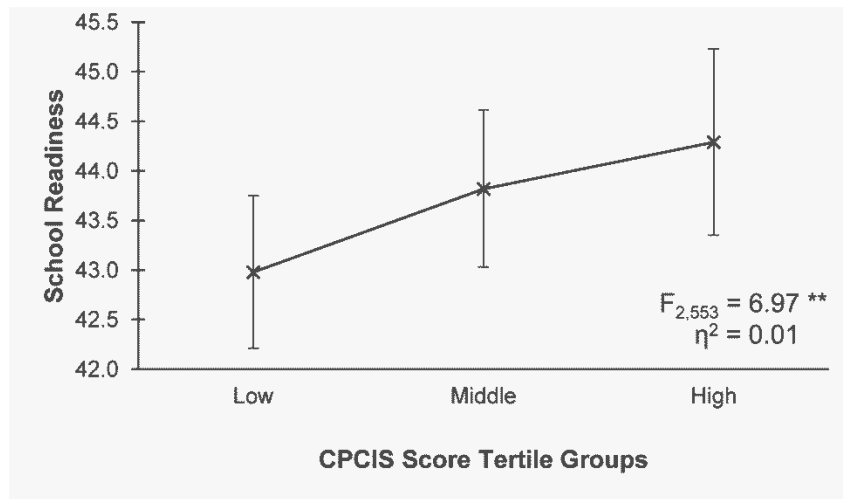
- Family processes (i.e. **frequency of parent-child interactions** and management of child **digital use** at home) in explaining socioeconomic gradients in child developmental outcomes
- Kindergarten level (annual school fees, **teacher** education background and **working experience**) as important mediators which accounted for significant proportion of variance in the total CEDI score

Double jeopardy!!

Parent-child interaction and child development

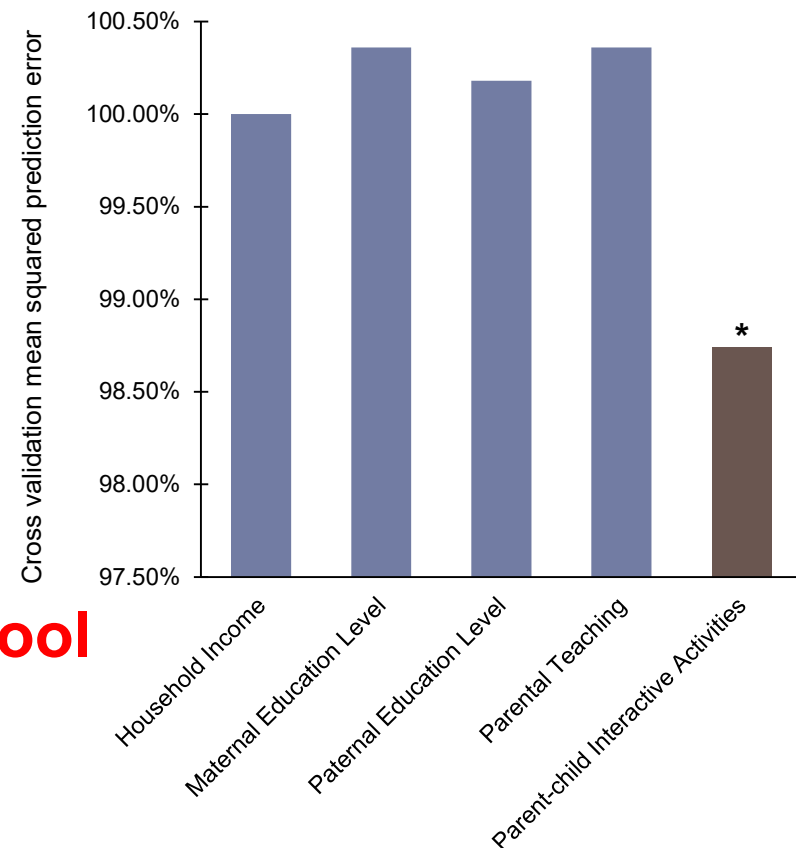


Parent-child interaction and child development



PCI has better predictive performance than SES on School readiness

Relative predictive performance of SES and PCI



Vulnerability and Resilience in Children during COVID-19 Pandemics

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Vulnerability and resilience in children during the COVID-19 pandemic

Winnie WY Tso^{1*}, Rosa S Wong^{1*}, Keith TS Tung¹, Nirmala Rao¹, King Wa Fu¹, Jason CS Yam², Gilbert T Chua¹, Eric YH Chen¹, Tatia MC Lee¹, Sherry KW Chan¹, Wilfred HS Wong¹, Xiaoli Xiong³, Celine S Chui¹, Xue Li¹, Kirstie Wong^{1,4}, Cynthia Leung⁵, Sandra KM Tsang¹, Godfrey CF Chan¹, Paul KH Tam¹, Ko Ling Chan¹, Mike YW Kwan⁶, Marco HK Ho¹, Chun Bong Chow¹, Ian CK Wong^{1,4*}, Patrick Ip^{1*}

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1



During the COVID-19 outbreak, we conducted a Large-scale Population Study on ~29000 Hong Kong families with children aged 2 to 12 years

Parents completed an online survey on family demographics, child psychosocial wellbeing, functioning and lifestyle habits, parent-child interactions, and parental stress during school closures due to COVID-19

在疫情期間，香港家庭填寫了有關兒童及家長在停課期間的心理社交健康及相關因素問卷

During school closures, Hong Kong Children

- experienced more psychosocial problems 更多心理社交問題
- have worse wellbeing 身心功能下降

Parents also experienced higher stress 承受更大親職壓力

Comparison of SDQ, PedsQL, and PSS between the present study sample and other Hong Kong samples

Comparison group	All (n=29202)		Age 2-5 (n=12163)	Age 6-12 (n=17029)	
	Mean(SD)	Mean(SD)	p-value	Mean(SD)	
SDQ^a					
Emotional problems 情緒問題	2.5(2.0)	2.09(1.77)	***	2.22(1.71)	1.99(1.80)
Conduct problems 行為問題	2.1(1.6)	2.27(1.58)	***	2.39(1.51)	2.18(1.62)
Hyperactivity/attention deficit 過度活躍/專注力不足	4.5(2.3)	4.84(2.22)	***	5.06(2.12)	4.68(2.27)
Peer relation problems 朋輩關係	2.6(1.7)	2.89(1.74)	***	3.12(1.72)	2.73(1.75)
Prosocial behaviour 利社會行為	6.7(2.0)	6.36(1.99)	***	6.19(1.97)	6.49(2.00)
Total psychosocial problems 總行為問題	11.7(5.4)	12.09(5.42)	***	12.79(5.13)	11.59(5.57)
PedsQL^b					
Physical functioning 身體功能	87.74(12.48)	81.78(14.04)	***	81.33(14.28)	82.11(13.85)
Psychological functioning 心理功能	78.57(15.78)	76.79(16.70)	***	76.97(16.61)	76.67(16.76)
Social functioning 社交功能	82.12(16.47)	78.45(16.41)	***	78.85(16.16)	78.16(16.58)
Psychosocial functioning 心理社交功能	79.71(13.04)	78.48(14.93)	**	78.91(14.64)	78.17(15.12)
Total functioning 總功能	82.77(11.58)	79.74(13.40)	***	79.83(13.38)	79.67(13.41)
PSS Parental stress ^b 親職壓力	46.74(10.35)	49.38(10.48)	***	48.88(10.10)	49.72(10.72)

Note: ***p<0.001; **p<0.01; *p<0.05

^a A study of 3,722 students aged between 6 and 12 years by Lai et. al. (2009)

^b Unpublished data from a study of 1280 disadvantaged families in Hong Kong

SITUATIONS OF CHILDREN & PARENTS DURING SUSPENSION OF SCHOOLING

- BGCA interviewed **507** children and **475** parents by telephone and online questionnaires in 2020
 - The emotional and mental health status of parents was generally even worse than that of children.
 - 35% of grass root families and 33% of CSSA families expressed their income reduced a lot and 36% and 56% felt under great pressure respectively

1, Child Behaviour and Emotion

Characteristics of Children with more behavioural and emotional problems during school closure 在停課期間有較多行為、情緒問題的兒童特徵

Elevated behavioural problems among children with the following characteristics:
較高風險出現行為問題

Younger age, boys, low socioeconomic status, single child, separated/divorced parents, parents or children with chronic diseases
幼童、男孩、低家庭社經、獨生子女、父母離異、父母或兒童本身有病患

	All		Age 2-5		Age 6-12	
	β^a	p-value	β^a	p-value	β^a	p-value
Child age 兒童年紀	-0.33	***	-0.45	***	-0.34	***
Child gender (male) 男性	0.71	***	0.62	***	0.79	***
Number of siblings 兄弟姊妹數目	-0.26	***	-0.33	***	-0.20	**
Divorced/separated parents 離婚/分居	0.96	***	1.33	***	0.79	***
Family socioeconomic status index 社經	-0.13	***	-0.11	*	-0.15	**
Child having special educational needs 特殊需要	4.27	***	3.72	***	4.48	***
Child having chronic diseases 長期病患	0.81	***	1.05	***	0.70	***
Mother having mental disorders 母親患有精神病	2.12	***	2.11	***	2.14	***
Mother having chronic diseases 母親患有長期病患	0.57	***	0.54	*	0.60	**
Father having mental disorders 父親患有精神病	1.01	***	1.04	**	0.98	***
Father having chronic diseases 父親患有長期病患	0.53	***	0.71	***	0.45	**

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

^a Mutually adjusted models

Maintaining regular parent-child activities 親子活動 and healthy lifestyle 健康生活習慣 during school closure can reduce child behavioural problems 能減少兒童行為問題

	All		Age 2-5		Age 6-12	
	β^a	p-value	β^a	p-value	β^a	p-value
CPCIS Learning Activities 學習活動	-0.74	***	-1.24	***	-0.53	***
CPCIS Recreational Activities 遊樂活動	-1.50	***	-1.88	***	-1.29	***
Daily sleep duration 睡眠時間	-0.22	**	-0.28	***	-0.19	
Daily exercise duration 運動時間	-0.55	***	-0.50	***	-0.58	***

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

^a Adjusted for child's gender and age and family socioeconomic status

Delay in going to bed 延遲睡覺 and prolonged use of electronic device 長時間使用電子產品 during school closure can increase child behavioural problems 增加兒童行為問題

	All		Age 2-5		Age 6-12	
	β^a	p-value	β^a	p-value	β^a	p-value
Delay in going to bed (weekday) 延遲睡覺	0.54	***	0.50	***	0.58	***
Delay in going to bed (weekend) 延遲睡覺	0.44	***	0.37	***	0.49	***
Weekday time spent on electronic devices for gaming after school closure (hour) 打機時間	0.49	***	0.57	***	0.45	***
Weekday time spent on electronic devices for learning after school closure (hour) 學習時間	0.21	***	0.36	***	0.11	**
Increase in weekday time spent on electronic devices for gaming after school closure (hour) 花多了時間用電子產品打機	0.24	***	0.48	***	0.17	***
Increase in weekday time spent on electronic devices for learning after school closure (hour) 花多了時間用電子產品學習	0.05		0.25	***	-0.02	

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

^a Adjusted for child's gender and age and family socioeconomic status

3, Parents' Mental Health

Characteristics of parents with higher Parenting Stress during school closures

增加親職壓力

Elevated parenting stress among parents with the following characteristics:

Divorced/separated, children or parents with chronic diseases

已離婚/分居、兒童或父母本身有病患

	All		Age 2-5		Age 6-12	
	β^a	p-value	β^a	p-value	β^a	p-value
Child age	0.003		0.24	**	-0.17	***
Child gender (male)	0.39		0.28		0.49	***
Number of siblings	0.44	**	0.23		0.54	***
Divorced/separated	2.19	***	2.22	***	2.19	***
Family socioeconomic status index	-0.15		-0.11		-0.16	
Child having special educational needs	4.20	***	4.06	***	4.17	***
Child having chronic diseases	1.25	***	2.57	***	0.74	
Mother having mental disorders	5.33	***	5.49	***	5.25	***
Mother having chronic diseases	0.83	**	1.26	*	0.67	
Father having mental disorders	1.41	**	0.15		2.07	***
Father having chronic diseases	0.44		0.63		0.36	

Note: *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

^aMutually adjusted model

Maintaining **regular Parent-child activities** and **Child healthy lifestyle** during school closure can **reduce parental stress**

	All		Age 2-5		Age 6-12	
	β^a	p-value	β^a	p-value	β^a	p-value
CPCIS Learning Activities	-1.21	***	-2.00	***	-1.10	***
CPCIS Recreational Activities	-3.15	***	-3.37	***	-3.09	***
Daily Sleep Duration	-0.29	**	-0.39	***	-0.24	*
Daily Exercise Duration	-1.27	***	-1.11	***	-1.39	***

Note: ***p<0.001; **p<0.01; *p<0.05

^a Adjusted for child's gender and age and family socioeconomic status

Children's delay in going to bed and prolonged use of electronic device during school closure can **increase parental stress**

	All		Age 2-5		Age 6-12	
	β^a	p-value	β^a	p-value	β^a	p-value
Child delay in going to bed (weekday)	0.63	***	0.62	***	0.69	***
Child delay in going to bed (weekend)	0.49	***	0.35	***	0.63	***
Child weekday time spent on electronic devices for gaming after school closure (hour)	0.41	***	0.49	***	0.38	***
Child weekday time spent on electronic devices for learning after school closure (hour)	0.25	***	0.32	***	0.18	*
Child increase in weekday time spent on electronic devices for gaming after school closure (hour)	0.45	***	0.66	***	0.38	***
Child increase in weekday time spent on electronic devices for learning after school closure (hour)	0.29	***	0.51	***	0.19	***

Note: ***p<0.001; **p<0.01; *p<0.05

^a Adjusted for child's gender and age and family socioeconomic status

Critical role of Sleep Quality during COVID-19

Decreased sleep duration 睡眠時間愈少 during the outbreak was related to **reduced parent-child interactive activities and children's daily exercise** 親子活動次數及運動時間亦會減少, but children also **spent more time using electronic devices** 花更多時間使用電子產品

	Overall		Age 2-5		Age 6-12	
	r ^a	p-value	r ^a	p-value	r ^a	p-value
CPCIS Learning Activities	0.05	***	0.06	***	0.04	***
CPCIS Recreational Activities	0.03	***	0.01		0.05	***
Daily exercise duration	0.04	***	0.03	**	0.06	***
Weekday time spent on electronic devices for gaming after school closure (hour)	-0.02	***	-0.01		-0.04	***
Weekday time spent on electronic devices for learning after school closure (hour)	-0.02	*	-0.01		-0.04	***
Increase in weekday time spent on electronic devices for gaming after school closure (hour)	0.00		0.01		-0.01	
Increase in weekday time spent on electronic devices for learning after school closure (hour)	-0.02	**	-0.01		-0.03	**

Note: ***p<0.001; **p<0.01; *p<0.05

^a Pearson correlation coefficient

Sleep duration and school readiness



THE JOURNAL OF PEDIATRICS • www.jpeds.com

ORIGINAL
ARTICLES

Sleep Duration and School Readiness of Chinese Preschool Children

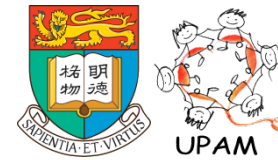
Winnie Tso, MBBS¹, Nirmala Rao, PhD², Fan Jiang, MD³, Albert Martin Li, MD⁴, So-lun Lee, MPH¹, Frederick Ka-wing Ho, BSc¹,
Sophia Ling Li, PhD¹, and Patrick Ip, MPH¹

Objectives To examine the average sleep duration in Chinese preschoolers and to investigate the association between sleep duration and school readiness.

Study design This is a cross-sectional study that included 553 Chinese children (mean age = 5.46 years) from 20 preschools in 2 districts of Hong Kong. Average daily sleep duration in the last week was reported by parents and school readiness as measured by the teacher-rated Chinese Early Development Instrument (CEDI).

Results Most Chinese preschoolers had 9-10 hours of sleep per day. Only 11% of preschoolers had the recommended 11-12 hours of sleep per day. This group was associated with more “very ready” CEDI domains. Sleep deprivation (≤ 7 hours per day) was associated with a lower CEDI total score, lower scores in the emotional maturity and language/cognitive domain, and prosocial behaviors subdomain but a greater score in the hyperactivity/inattention subdomain. Children with a lower family socioeconomic index, lower maternal education level, infrequent parent-child interactions, and who used electronic devices for more than 3 hours per day had shortened sleep durations.

Conclusions Optimal sleep duration was associated with better school readiness in preschool children, whereas sleep deprivation was associated with lower school readiness, more hyperactivity and inattention, and less prosocial behavior. (*J Pediatr* 2015; ■: ■- ■).



THE LANCET

VOLUME 389, ISSUE 10064, P91-102, JANUARY 07, 2017

Nurturing care: promoting early childhood development

[Pia R Britto, PhD](#)   • [Prof Stephen J Lye, PhD](#) • [Kerrie Proulx, PhD](#) • [Prof Aisha K Yousafzai, PhD](#) •

[Prof Stephen G Matthews, PhD](#) • [Tyler Vaivada, MSc](#) • [Prof Rafael Perez-Escamilla, PhD](#) • [Prof Nirmala Rao, PhD](#) •

[Patrick Ip, FRCPCH](#) • [Prof Lia C H Fernald, PhD](#) • [Prof Harriet MacMillan, MD](#) • [Prof Mark Hanson, DPhil](#)

[Prof Theodore D Wachs, PhD](#) • [Haogen Yao, PhD](#) • [Prof Hirokazu Yoshikawa, PhD](#) • [Adrian Cerezo, PhD](#) •

[James F Leckman, MD](#) • [Prof Zulfiqar A Bhutta, PhD](#)

and the Early Childhood Development Interventions Review Group, for the *Lancet* Early Childhood Development Series

Steering Committee [†] •

WHO ECD Expert Group Meeting Cambridge 17-19 Sep 2014



Factors influencing Early Child Development

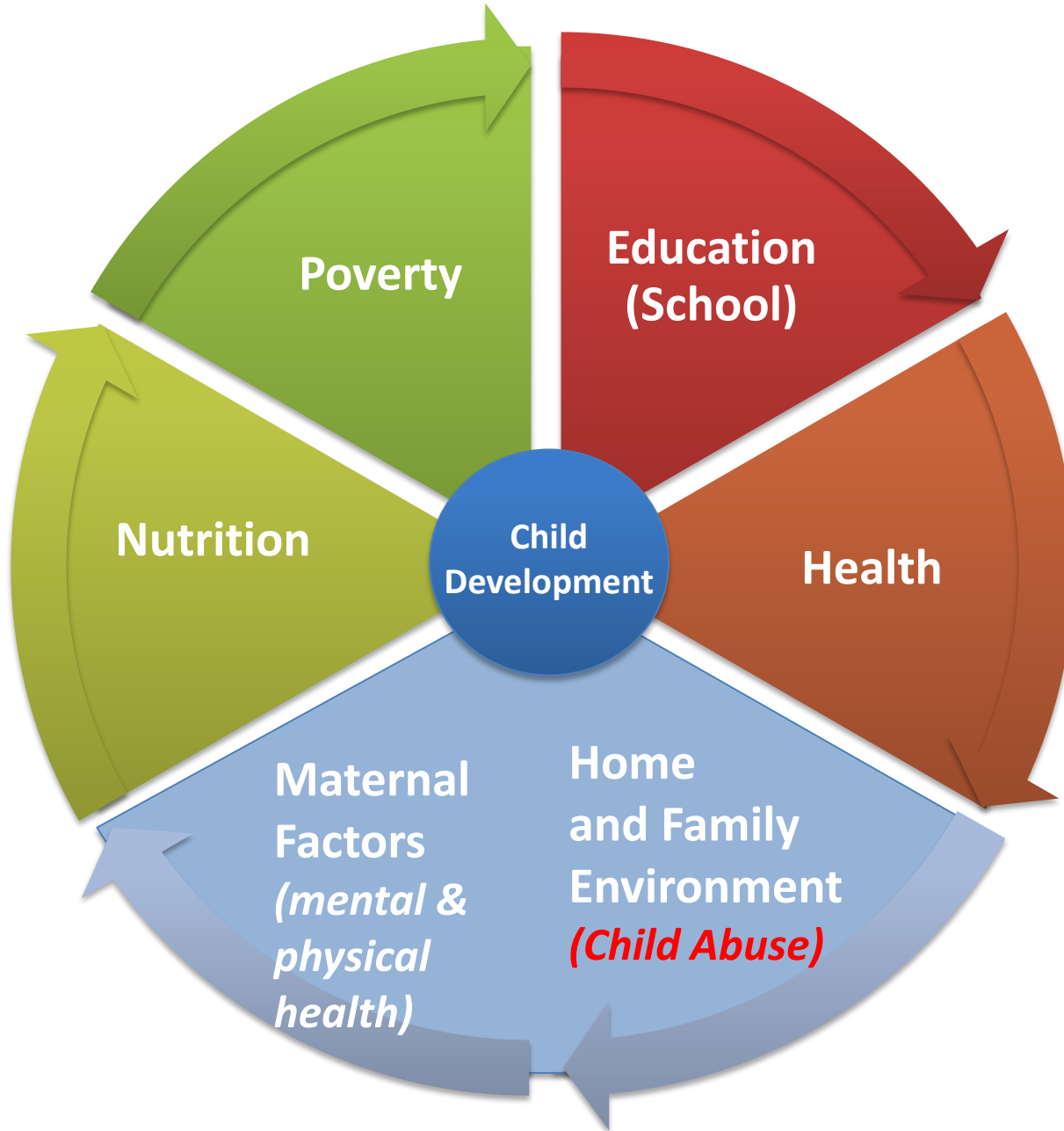
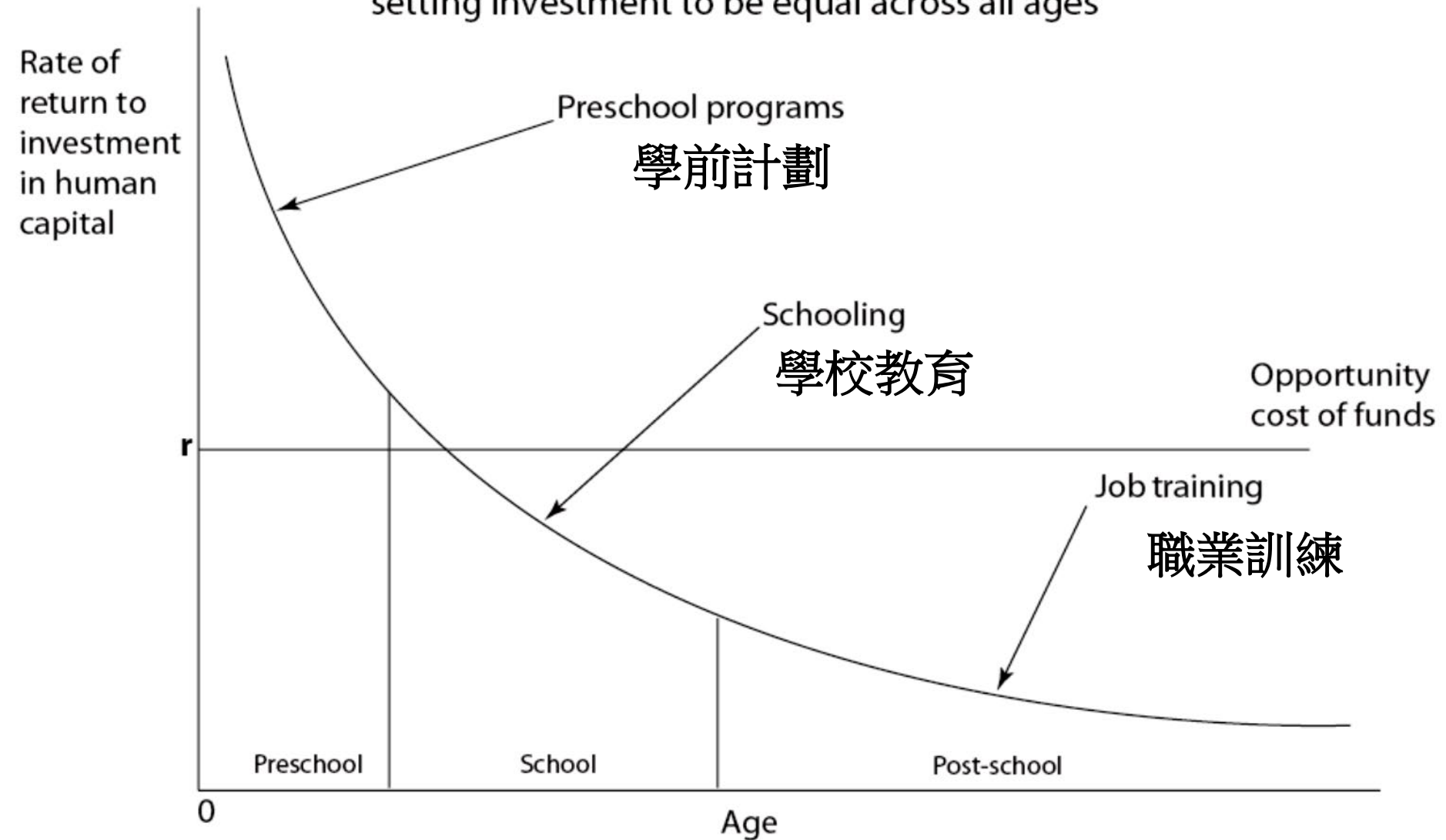


Figure 1A

(a) Rates of return to human capital investment initially setting investment to be equal across all ages



Rates of return to human capital investment initially setting investment to be equal across all ages



Early Childhood Investments Substantially Boost Adult Health

Frances Campbell *et al.*

Science **343**, 1478 (2014);

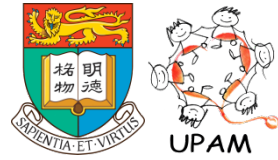
DOI: 10.1126/science.1248429

Frances Campbell,¹ Gabriella Conti,² James J. Heckman,^{3,4,5*} Seong Hyeok Moon,³
Rodrigo Pinto,³ Elizabeth Pungello,¹ Yi Pan¹

High-quality early childhood programs have been shown to have substantial benefits in reducing crime, raising earnings, and promoting education. Much less is known about their benefits for adult health. We report on the long-term health effects of one of the oldest and most heavily cited early childhood interventions with long-term follow-up evaluated by the method of randomization: the Carolina Abecedarian Project (ABC). Using recently collected biomedical data, we find that disadvantaged children randomly assigned to treatment have significantly lower prevalence of risk factors for cardiovascular and metabolic diseases in their mid-30s. The evidence is especially strong for males. The mean systolic blood pressure among the control males is 143 millimeters of mercury (mm Hg), whereas it is only 126 mm Hg among the treated. One in four males in the control group is affected by metabolic syndrome, whereas none in the treatment group are affected. To reach these conclusions, we address several statistical challenges. We use exact permutation tests to account for small sample sizes and conduct a parallel bootstrap confidence interval analysis to confirm the permutation analysis. We adjust inference to account for the multiple hypotheses tested and for nonrandom attrition. Our evidence shows the potential of early life interventions for preventing disease and promoting health.

Parental & Societal Expectation

家長和社會對兒童的期望



What do we want from our children?

- **Excellent academic performance**
優秀學習表現
- **Good career prospect** 良好職業前景
- **Good health** 身體健康

- **Positive holistic development** 正面全能發展
(physical, mental, emotional 身體，精神，情感)



Support to Children and families during CCOVID-19 Pandemic: Effective Service development and evaluation Study

Project “SUCCESS”

*Funded by
Collaborative Research Fund*



Impact of COVID-19 on children and parents in the community

Objectives

- To assess children's psychosocial well-being, behaviour, risk of maltreatment and parental stress
- To identify vulnerable groups of children and factors promoting resilience during COVID-19 pandemic
- To study the accessibility to medical and rehabilitation care for children with special needs in the pandemic

Cohort 1: 29,202 HK families

CHILDREN

- Behavioural & emotional difficulties
- Electronic devices usage

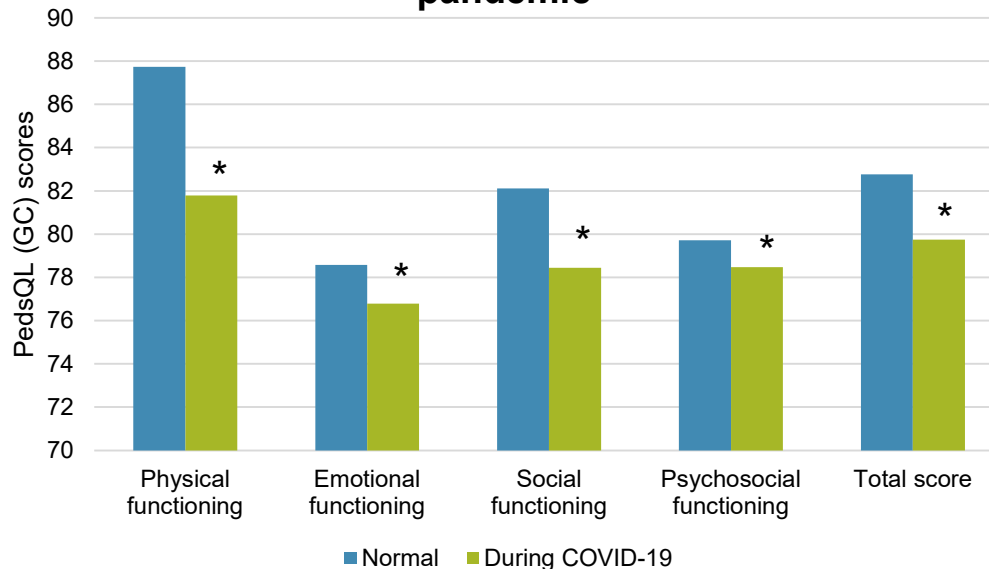
PARENTS

- Higher parental stress

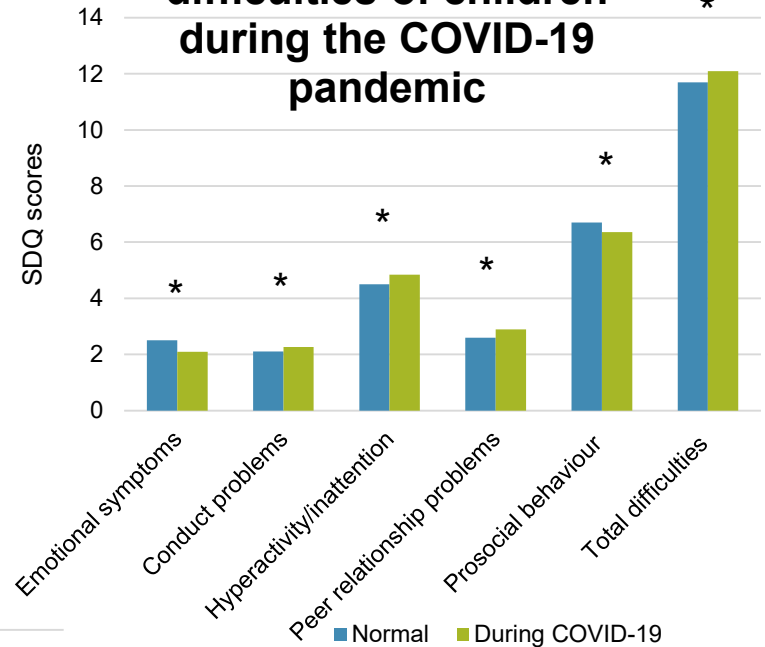
CHILDREN

- Worse quality of life
- Less Exercise
- Sleep Quality

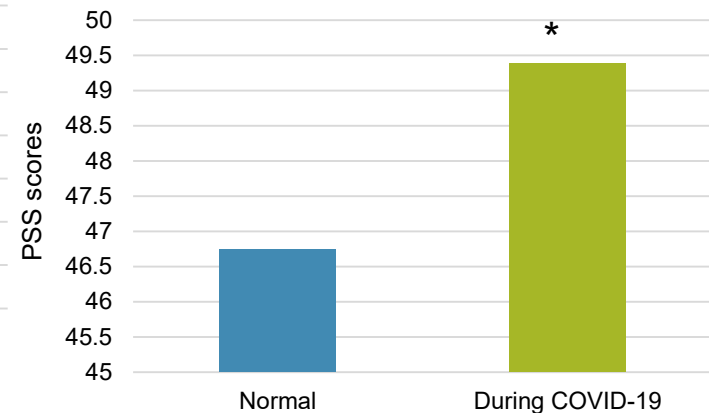
Quality of life of children during the COVID-19 pandemic



Behavioral & emotional difficulties of children during the COVID-19 pandemic



Parental stress during COVID-19



Identify Vulnerable groups & Factors promoting Resilience during COVID-19 pandemic

Vulnerable children (<i>factors associated with significantly higher psychosocial problems in children</i>)	Factors that promote resilience (Protective factors)
Children with special educational needs	Adequate sleep
Children with acute/ chronic illnesses	Adequate exercise
Mother with mental illnesses	Avoid extended use of electronic device
Single parent families	↑ Parent-child interactions
Low income families	

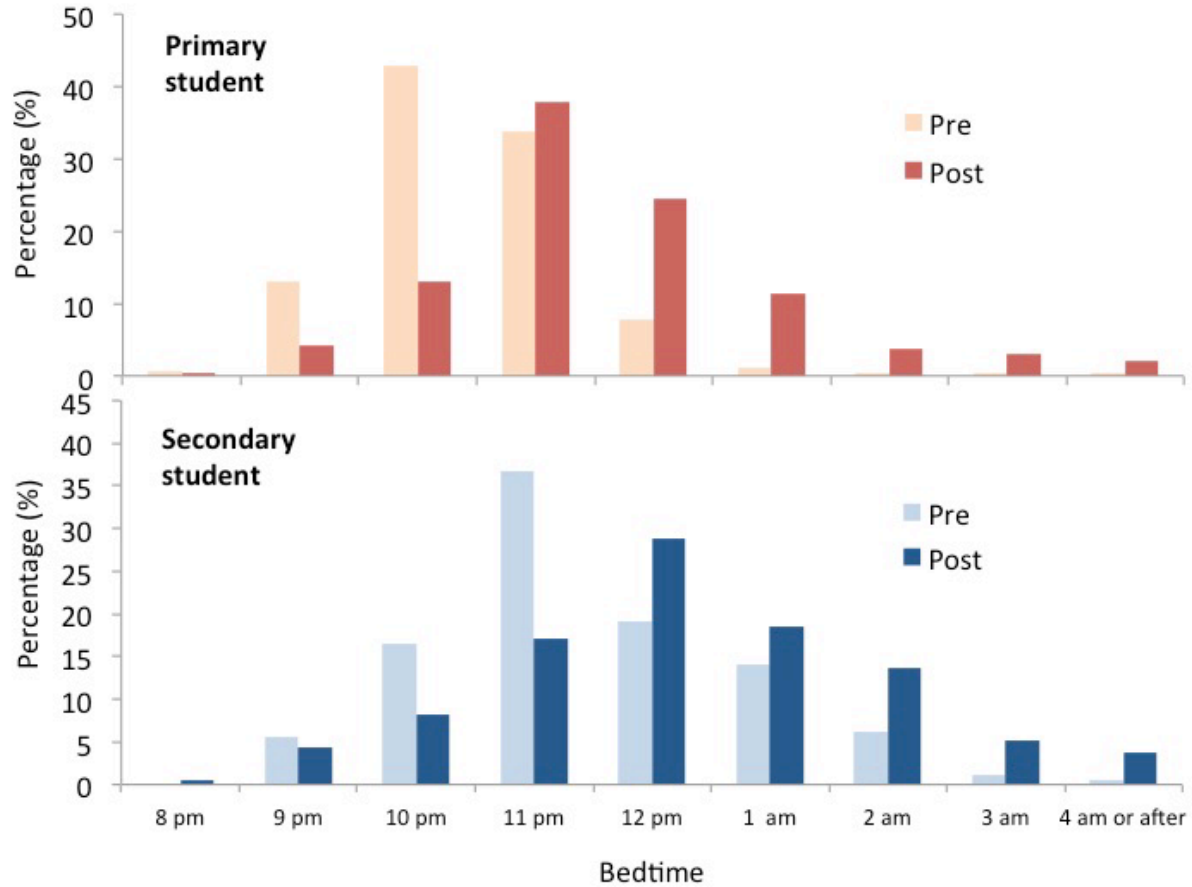


Impact on Sleep pattern and
Physical Activity/Play

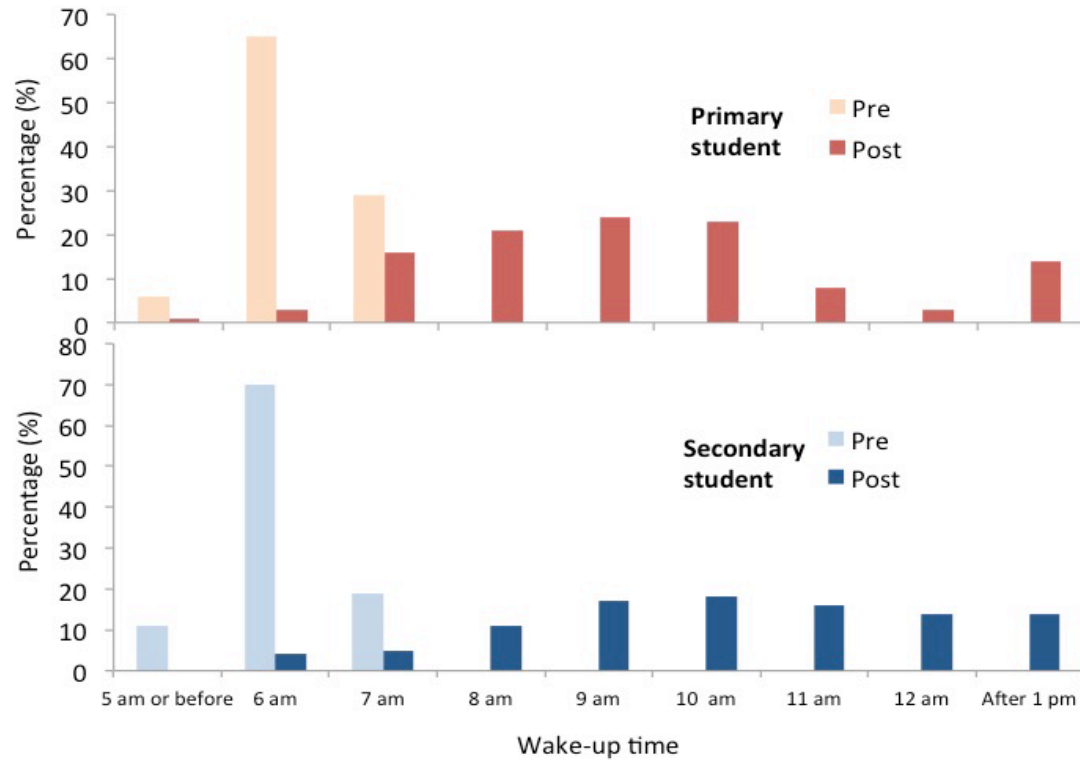
Methodos

- Baseline assessment in Sep 2019 – Jan 2020
- Repeated assessment in March – April 2020
- 79 and 61 children from 3 primary (P3 – P6) and 3 secondary (F.1 – 5) schools agreed for reassessment during the COVID-19 outbreak
- Assessment:
 - Questionnaires for demographics
 - Questionnaires on Electronic device use
 - Actigraphy assessment

Bedtime



Wake Up Time



Primary Students

	Before Home Confinement Mean (SD)	During Home Confinement Mean (SD)	Mean	P values
Electronic Device Use				
Screen Time (min)	243.7 (168.4)	379.5 (278.9)	135.0 (278)	0.0003
Game Time (min)	116.2 (115)	163.7 (161.3)	46.9 (141.6)	0.0279
Homework Time (min)	51.5 (44.3)	100.0 (79.5)	47.9 (81.2)	<.0001
Social Media Time (min)	63.0 (88.7)	112.4 (305.3)	85.4 (365.3)	0.2641
Television Time (min)	76.3 (47.9)	80.1 (39.9)	9.6 (40.4)	0.0812
Physical Activities (PA)				
Moderate-to-vigorous PA Time (min)	42.0 (24.0)	36.0 (24.0)	-6.0 (24.0)	0.1436
Moderate PA time (min)	36.0 (18.0)	18.0 (24.0)	-6.0 (24.0)	0.1329
Light PA time (min)	294.0 (60.0)	240.0 (72.0)	-54.0 (60.0)	<.0001
Sedantary Time (min)	1098.0 (78.0)	1164.0 (84.0)	66.0 (78.0)	<.0001
Sleep				
Total awake duration (min)	402.0 (24.0)	552.0 (60.0)	156.0 (60.0)	<.0001
Total duration in bed (min)	438.0 (48.0)	486.0 (78.0)	48.0 (72.0)	<.0001
Sleep Latency (min)	57.5 (31.2)	110.4 (56.5)	51.0 (57.9)	<.0001
Duration fallen asleep (min)	384.0 (48.0)	432.0 (84.0)	42.0 (78.0)	<.0001
Awake duration while in bed (min)	52.8 (14.2)	59.4 (18.8)	7.2 (21.1)	0.0036
Movement index	9.5 (1.8)	9.5 (2.5)	0.1 (2.7)	0.8421

Secondary Students

	Before Home Confinement Mean (SD)	During Home Confinement Mean (SD)	Mean Differences (SD)	p-value
Physical Activities (PA)				
Moderate-to-vigorous PA Time (min)	18.0 (18.0)	12.0 (12.0)	-6.0 (12.0)	<.0001
Moderate PA time (min)	18.0 (12.0)	12.0 (6.0)	-6.0 (12.0)	<.0001
Light PA time (min)	198.0 (60.0)	114.0 (48.0)	-84.0 (48.0)	<.0001
Sedantary Time (min)	1182.0 (66.0)	1320.0 (48.0)	138.0 (66.0)	<.0001
Sleep				
Total awake duration (min)	396.0 (24.0)	600.0 (84.0)	246.0 (84.0)	<.0001
Total duration in bed (min)	378.0 (84.0)	480.0 (120.0)	90.0 (120.0)	0.0035
Sleep Latency (min)	50.6 (54.8)	87.9 (63.7)	34.8 (47.1)	0.0006
Duration fallen asleep (min)	342.0 (90.0)	426.0 (126.0)	72.0 (120.0)	<.0001
Awake duration while in bed (min)	39.6 (19.5)	54.5 (20.2)	15.8 (24.4)	<.0001
Movement index	8.3 (3.1)	9.9 (3.1)	1.9 (4.1)	0.0011
Fragmentation index	9.3 (6.1)	11.5 (5.4)	2.5 (8.2)	0.0237

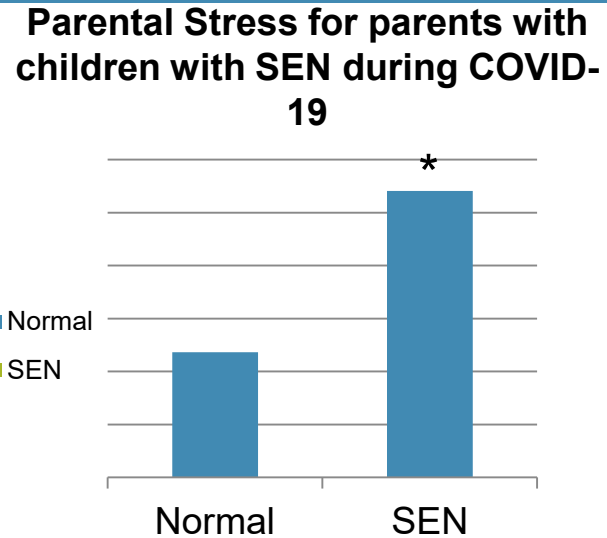
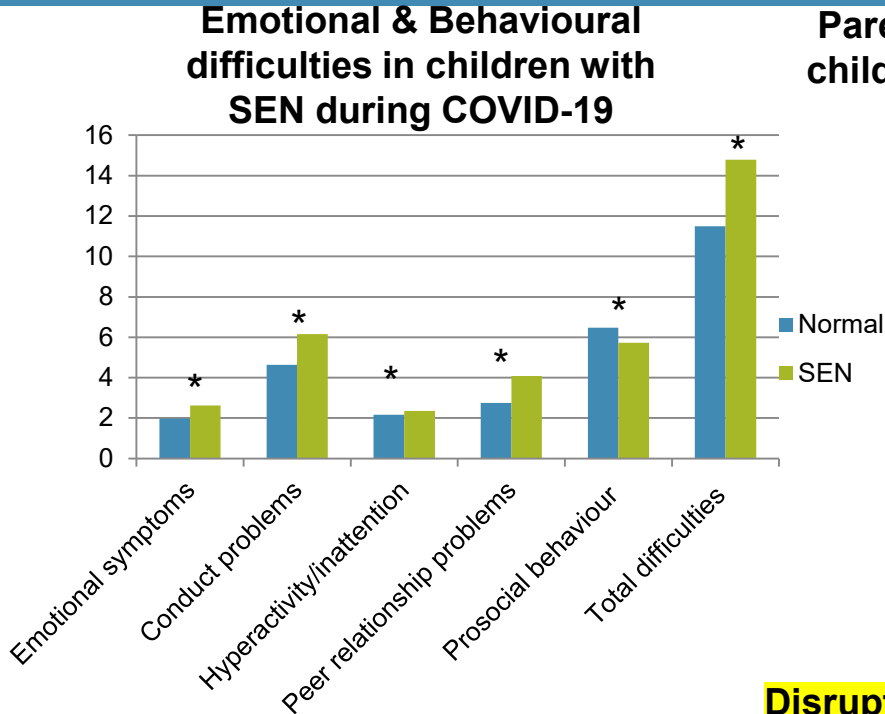
Correlation with Demographics

- The lower the parents' education and family income at baseline:
 - the more time children spent on screen
 - the less time children did moderate-to-vigorous exercise.
 - the higher children's sedentary time
- The higher the family income, the difference of TV time between the two periods is smaller. ($r=0.29$, $p=0.03$)
- Longer MVPA time at baseline is correlated with less changes in MVPA time between between the two periods and less changes in wake up time between the two periods

Cohort 2: SEN Children

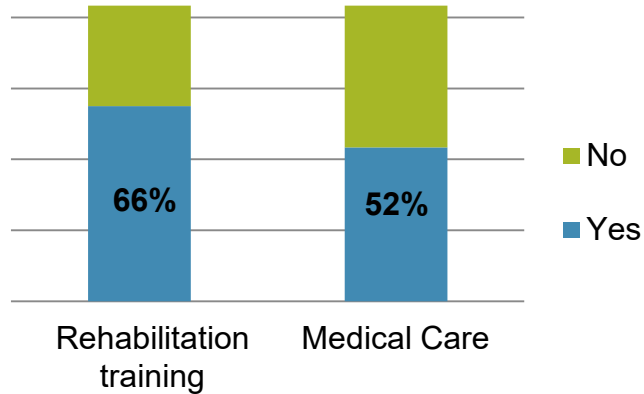
Children with SEN

- More emotional & behavioural difficulties
- Higher parental stress



Types of maltreatment	% of respondents with 1 least 1 episode of Maltreatment to children
Physical Assault	71.2%
Severe Physical Assault	23.5%
Very Severe Physical Assault	1.9%
Psychological Aggression	80.5%
Neglect	28.8%
Non-violent Discipline	83.3%

Disrupted care for SEN children during COVID-19



~80% had **Child Maltreatment**

* Significant differences $p < .05$



Sign in to attend:
COVID 19 in Children:
Presentation,
Management and
Screening (7th
September 2020)



陪我講 Shall We Talk



我一起正視情緒健康

Mr. WONG Yan Lung SC

Video Participants 966 Q&A 10 Polls Chat Share Screen Raise Hand More

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精神健康諮詢委員會
Advisory Committee on Mental Health

Shallwetaalk 陪

Cohort 3
Preschoolers from
underprivileged families

Cohort 4
(Hong Kong Children Eye Study)

25,000 primary students

Measures (Child)

Physical health

Physical activity habit

Use of electronic
device

Emotion and behaviour

Sleep quality and
duration

**Measures
(Parent/Family)**

Parental stress

Parent-child interaction

Risk of child abuse

**Administrative
records**

Healthcare service
utilization

Baseline

6 months

12 months

24 months

Hong Kong Children Eye Study

709 children examined

- Baseline in Dec 2019 – Jan 2020
- Reassessment in Jul – Aug 2020

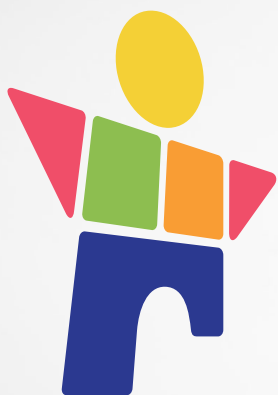
Results:

- Myopia incidence increases from 18 to 35%
- Myopia progression +0.3D to -0.2D (Δ -0.5D)
- Axial Length Elongation 0.29mm
- Total reading time (incl. screen) assoc. with myopia risk

Compared with same age HK Children

- **2.5x** in **myopia incidence**
- **2x** myopia progression
- **2.5x** in **screen time** during the COVID-19 pandemic





賽馬會童亮計劃 KeySteps@JC

兒童一小步 社會一大步 *Bridging from the start*



策劃及捐助 Created & Funded By



香港賽馬會慈善信託基金
The Hong Kong Jockey Club Charities Trust
同心同步同進 RIDING HIGH TOGETHER

聯合策動 Co-created By



香港大學
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全人關心 卓越創新
care for all. excel in all.

A multidisciplinary collaboration involving health, education & welfare



2 Districts : Sham Shui Po & Tin Shui Wai



32 Kindergartens



6,000 Children & their Families



Build stronger foundation for better life outcomes of the children



Strengthen family functioning



Develop quality learning environment



Create community space to foster social connectedness



Use data and evidence-based research to inform future policy design

Unsatisfactory Emotional and Social Functioning



Psychosocial development were lagging behind, especially on **emotional functioning and social functioning**

	KeySteps@ JC	Previous Local Research
Emotional symptoms	2.62	2.4
Peer relationship problems	3.16	2.6



- **Child Interactive and Parenting Programme** helps parents to improve parent-child attachment and the socio-emotional functioning of their children
- **Play-based Learning** at the **Community Hub** enhances the holistic development of children
- **Professional Development Programme** enhances the teachers' capability to help the holistic development of the children



Unsatisfactory Mental Health of Primary Caregivers

Primary caregivers of children are parents or grandparents. Parents have greater level of stress and grandparents mental health is affected while taking care of the children.

	KeySteps@J C	Previous Local Research
Parents' stress	72.28	48.71
Grandparents' mental distress	48.06	30.90

- **Parenting and Grandparenting Programmes** take care of both physical and mental wellness of primary caregivers to reduce the stress of parents and grandparents
- **Grandparenting Programme** aims at reducing the role-confusion especially to custodial grandparents and providing a social support network among themselves



ORIGINAL ARTICLES

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Parent Technology Use, Parent–Child Interaction, Child Screen Time, and Child Psychosocial Problems among Disadvantaged Families

Rosa S. Wong, PhD¹, Keith T. S. Tung, MPH¹, Nirmala Rao, PhD², Cynthia Leung, PhD³, Anna N. N. Hui, PhD⁴, Winnie W. Y. Tso, MBBS¹, King-Wa Fu, PhD⁵, Fan Jiang, PhD^{6,7}, Jin Zhao, PhD^{8,9}, and Patrick Ip, MPH¹

Objective To disentangle the pathways of parent technology use, parent–child interactions, child screen time, and child psychosocial difficulties among disadvantaged families in Hong Kong.

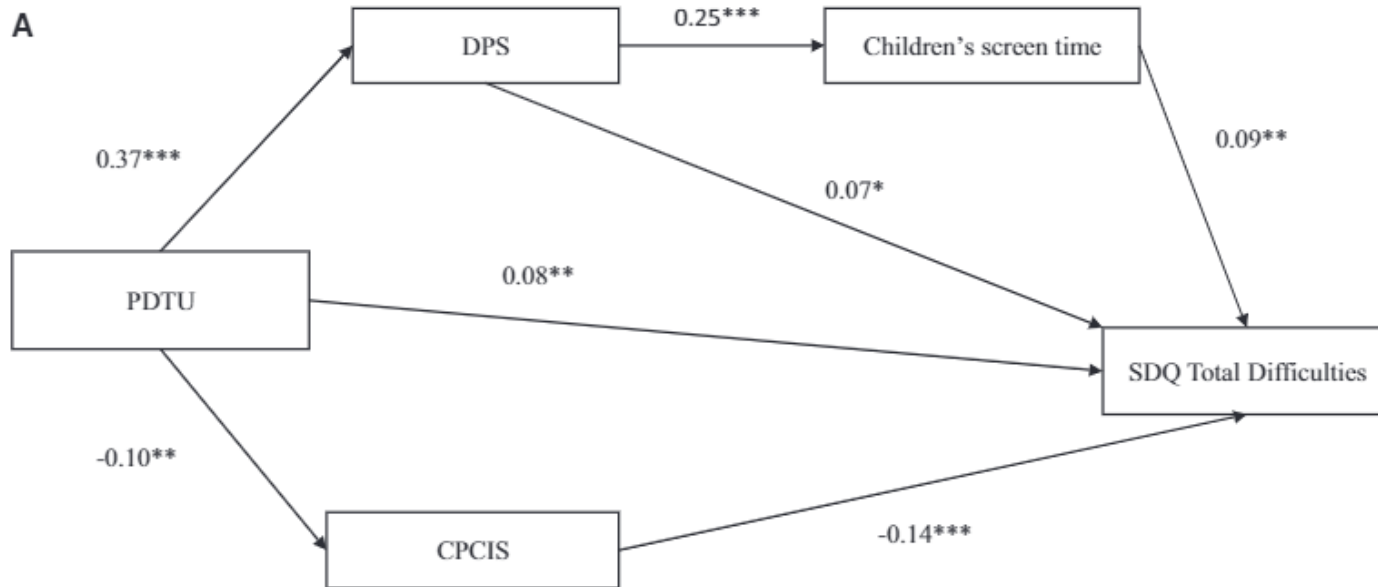
Study design Parents of 1254 3-year-old children from the KeySteps@JC project reported on the number of hours their children used electronic devices every day and evaluated their children's psychosocial behaviors using the Strengths and Difficulties Questionnaire. These parents also reported on their own digital device usage patterns and the frequency of parent–child interactions and provided sociodemographic data. Structural models were tested with parent technology use (independent variable), parent technological distractions and parent–child interactions and child screen time (mediators), child psychosocial problems (dependent variable), and children's age and sex and family socioeconomic status index (confounding variables).

Results Parent distraction with technology during parent–child interactions completely mediated the overall association between parent problematic digital technology use and child screen use duration. Parent problematic digital technology use was positively and directly associated with child psychosocial difficulties. In addition, it was indirectly related to child psychosocial difficulties through technological distractions and reductions in parent–child interactions and increased media use by children.

Conclusion Higher parent digital technology usage was associated with reduced parent–child interactions and increased child screen time and psychosocial difficulties in disadvantaged families. These results suggest that limiting parents' use of electronic devices in front of their young children could be beneficial for childhood psychosocial development. (*J Pediatr* 2020;226:258-65).



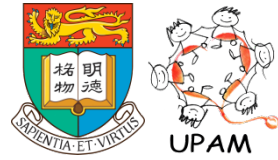
Why frequent parent technology use could affect child development?



DPS: Distracted Parenting Scale; PDTU: Problematic Digital Technology Use

- Parent problematic digital technology use was positively and directly associated with child psychosocial difficulties.
- In addition, it was indirectly related to child psychosocial difficulties through technological distractions and reductions in parent–child interactions and increased media use by children

Effectiveness of KeySteps@JC PCI Program for Promoting Social-Emotional School Readiness among Disadvantaged Children: A Cluster Randomized Community Trial



Intervention

- Parent empowerment component
 - To equip parents with skills to increase positive parent-child interactions; reward appropriate behavior; set clear limits on behavioral interactions; and confront inappropriate behavior
 - To use emotion-coaching strategies emphasizing recognizing emotions; showing empathy; and problem solving
- Child interactive component
 - To promote dialogic reading and interactive play between children and parents
- 20 sessions; 1.5 hours per session



Content of the KeySteps PCI Program

Session	Topic
1	Building up the parent-child relationship
2	Understanding factors affecting child behavior, analysis of antecedents and consequences of child behavior
3	Strategies to promote positive behavior
4	Emotion coaching strategies
5	Emotion coaching strategies and relaxation techniques
6	Management of misbehavior – family rules and instructions
7	Management of misbehavior – using consequences
8	Management of misbehavior – planned ignoring and revision of the management of misbehavior
9	Management of serious misbehavior – quiet time
10	Emotion coaching – dealing with anxiety, fear, and anger
11	Planning ahead for high-risk situations
12	Reading with children
13*	Four steps in dialogical reading
14*	Asking questions in dialogic reading
15*	Demonstration videos on dialogic reading
16*	Sharing videos of dialogic reading with children
17	Understanding play
18	Role of parents in children's play and playing with children
19*	Playing with children
20	Playing with children – dos and don'ts

* Attended by both parents and children

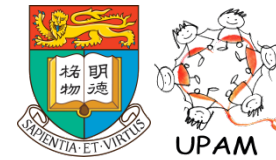
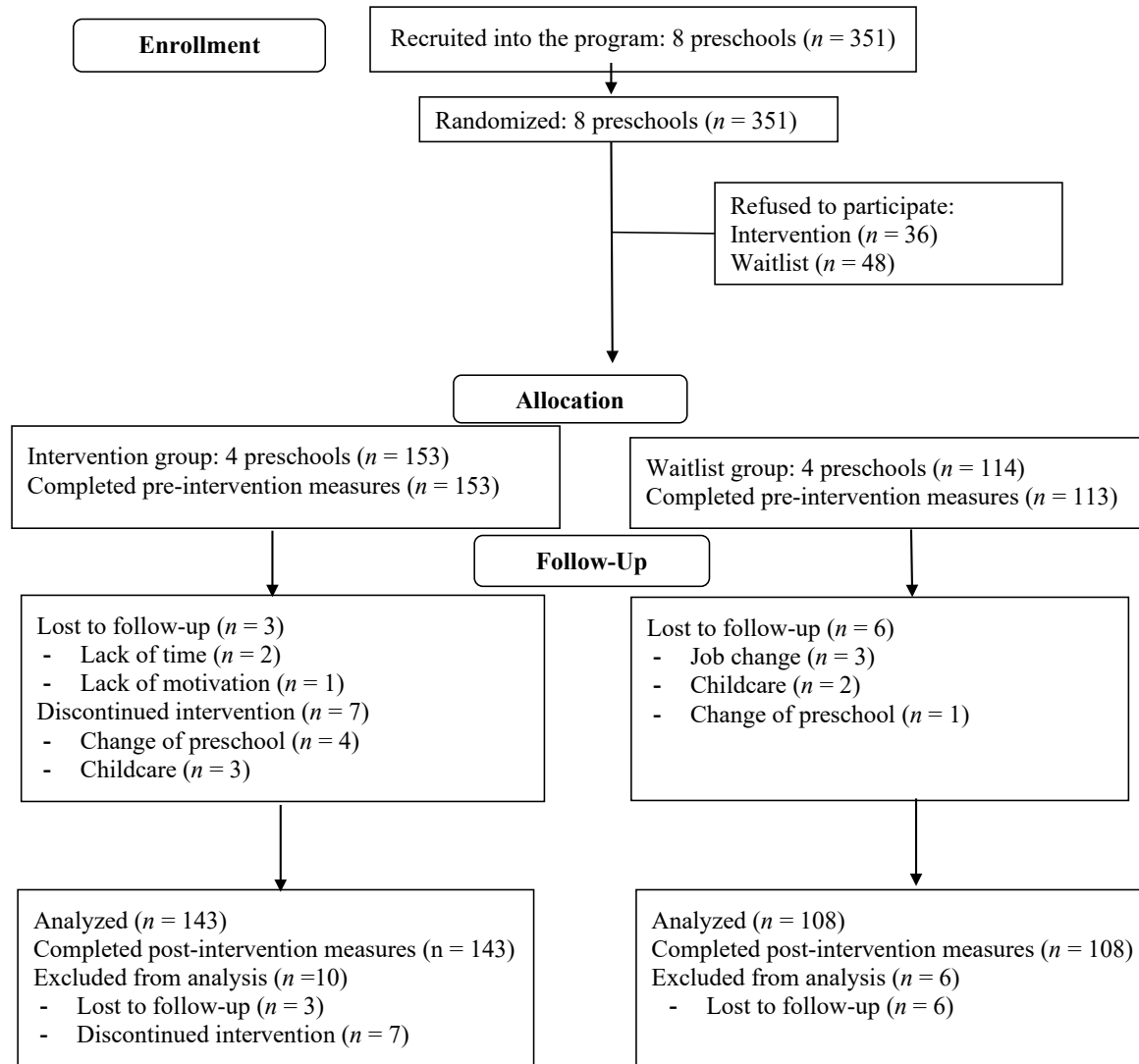
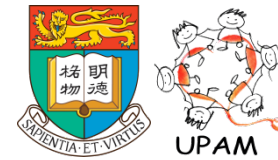


Figure 1: Flowchart of participants



- Two-arm, parallel-cluster randomized community trial conducted with preschools as a unit of randomization
- Eight preschools in two disadvantaged districts of Hong Kong: Sham Shui Po and Tin Shui Wai
- The preschools were randomly allocated to either the parenting program intervention (immediate) group or the waitlist control (delayed) group.
- The participants were parents of children aged three years in Kindergarten 1 (K1) of eight preschools.

Results



Outcome by Group Status

	Intervention (<i>n</i> = 153)	Waitlist (<i>n</i> = 114)	Effect size (Cohen's <i>d</i>)
	<i>M</i> [95% CI]	<i>M</i> [95% CI]	
SDQ total difficulties	11.28 [10.48, 12.07]	12.69 [11.72, 13.67]	0.29 [0.04, 0.53]
SDQ prosocial behavior	6.77 [6.40, 7.14]	6.89 [6.55, 7.23]	0.06 [-0.18, 0.30]
PRBI reading instruction	5.13 [5.00, 5.26]	4.99 [4.87, 5.12]	0.17 [-0.07, 0.41]
PRBI teaching efficacy	17.15 [16.85, 17.46]	17.50 [17.16, 17.83]	0.18 [-0.06, 0.42]
PRBI verbal participation	14.40 [14.07, 14.74]	14.79 [14.37, 15.20]	0.17 [-0.07, 0.42]
PRBI positive affect	12.23 [11.97, 12.48]	12.52 [12.25, 12.79]	0.19 [-0.05, 0.43]
PRBI knowledge base	26.10 [25.59, 26.62]	26.51 [25.97, 27.05]	0.13 [-0.11, 0.37]
Parent-child interaction	13.97 [13.23, 14.70]	14.28 [13.46, 15.10]	0.07 [-0.17, 0.31]
ERPS emotion coaching parenting style	19.70 [19.30, 20.09]	19.86 [19.48, 20.23]	0.07 [-0.17, 0.32]
ERPS parental rejection of negative emotion	15.52 [15.05, 16.00]	16.50 [15.95, 17.05]	0.33 [0.08, 0.57]
ERPS parental acceptance of negative emotion	17.09 [16.56, 17.61]	17.59 [17.05, 18.14]	0.16 [-0.08, 0.40]
ERPS feelings of uncertainty/ineffectiveness in emotion socialization	14.00 [13.49, 14.51]	14.81 [14.27, 15.35]	0.26 [0.01, 0.50]
Parental stress	47.44 [45.59, 49.30]	47.19 [45.35, 49.03]	0.02 [-0.22, 0.27]
Social support	26.86 [25.76, 27.95]	26.84 [25.67, 28.02]	0.001 [-0.24, 0.24]






- The intervention group reported improvement in children's behavior (Cohen's $d = 0.29$, 95%CI: 0.04, 0.53)
- Improvement in parents' use of emotion coaching strategies (Cohen's $d = 0.26 - 0.33$, 95%CI: 0.01, 0.57)
- Improvement in involvement in child reading (Cohen's $d = 0.17$, 95%CI: -0.07, 0.42).





Ready Family

Progressive Parenting Programme






- Main P&C Programme (K1) with Cluster RCT design among 8 schools in Comprehensive Intervention Group (CIG) in different time points



- SDQ behaviour Problem  14.2%
- ERPS feelings of uncertainty/ineffectiveness in emotion socialization  7.6%
- ERPS parental rejection of negative emotion  6.6%
- PRBI verbal participation  2.8%
- PRBI reading instruction  3.4%

- Booster Programme (K2) showed significant improvement between pre and post tests in:

- SDQ prosocial behaviour  8.4%
- PRBI efficacy  1.9%

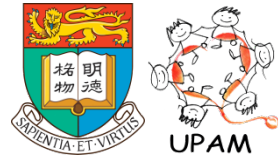
- Main P&C Programme (K1) with Cluster RCT design between Comprehensive Intervention Group (CIG) and Health Support Group (HSG)

- ERPS parental acceptance of negative emotion  2.9%
- PRBI reading instruction  4.0%
- ERPS feelings of uncertainty/ineffectiveness in emotion socialization  3.2%
- ERPS parental rejection of negative emotion  5.1%
- PRBI verbal participation  4.2%

- Parental stress  3.0%
- Social support  5.2%

Emotion-Related Parenting Styles (ERPS) Parent Reading Belief Inventory (PRBI)

Implications



- The KeySteps@JC PCI program is a pioneer attempt at integrating behavior management; emotion coaching; dialogic reading; and interactive play into one program together with sessions for joint parent-child activities.
- Children in the intervention group compared to children in the waitlist control group demonstrated a greater reduction in reported behavioral difficulties.
- Following the intervention parents were more effective in dealing with their child's emotions and more involved with their children's reading.
- The results provide promising evidence on the effectiveness of a multi-component parenting intervention in preparing underprivileged children to be more socially and emotionally ready for school.



Hong Kong Early Child Development Scale

- Baseline assessment
- 2nd assessment during K3



香港大學教育學院

香港兒童早期發展量表 III (短式)

The Hong Kong Early Child Development Scale III Short Form

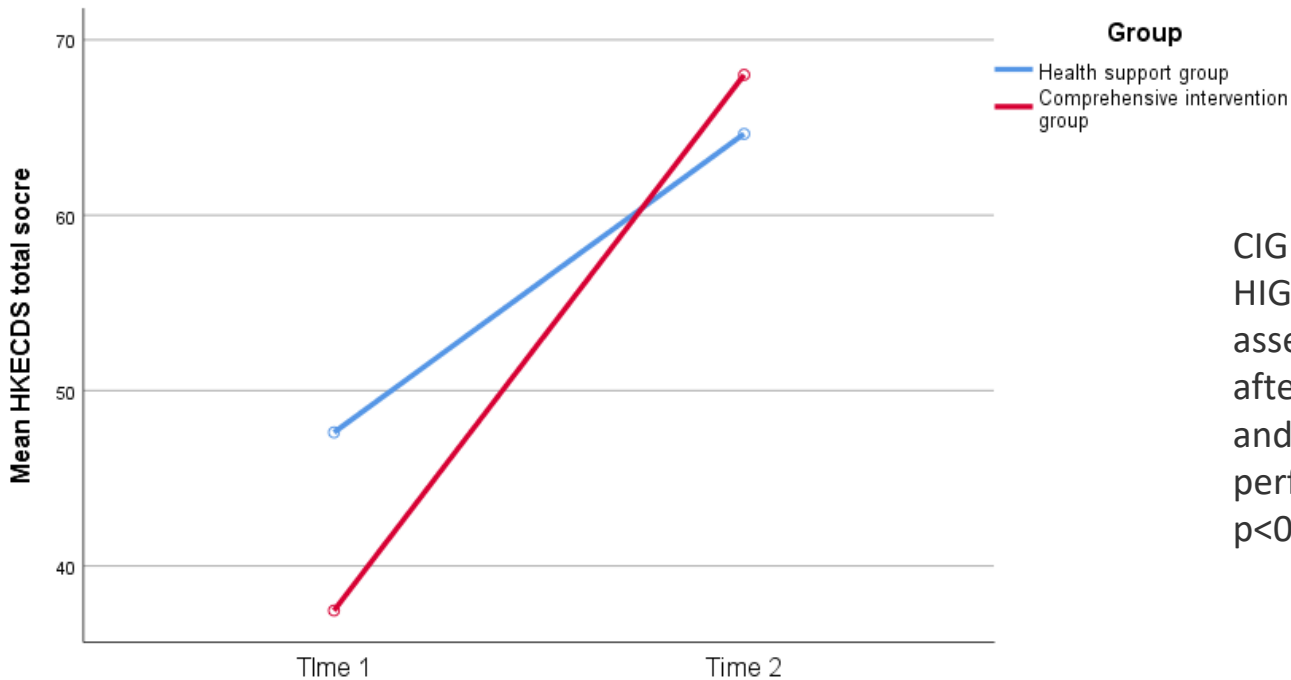
劉麗薇 (Nirmala Rao), 王寬韻 (Rhoda Wang), 李佩鈴 (Diana Lee)
陳穎欣 (Stephanie Chan), 孫瑾 (Jin Sun), 白綺雲 (Yvonne Becher)
劉姬莉 (Carrie Lau), 吳婉婷 (Rita Ng)

測查手冊





HKECDS Total Score



CIG students outperformed HIG students in HKECDS assessment at Time 2 even after adjusting for child age and gender and Time 1 performance (beta=0.39, p<0.001).

	Time 1 mean(SD)	Time 2 mean(SD)
Comprehensive Intervention (n=178)	37.46(13.62)	68.00(9.03)
Health Support (n=339)	47.62(11.96)	64.64(10.16)

*Group x Time interaction was significant



Emotion-Related Parenting Styles (Wave 3)

	Comprehensive Intervention (n=502) mean(SD)	Health Support (n=614) mean(SD)	p-value (crude)	p-value ^a (adjusted)
Parental acceptance of negative emotion	17.28(3.11)	16.68(2.80)	0.001	<0.001
Parental rejection of negative emotion	15.53(2.76)	15.50(2.52)	0.860	0.752
Emotion coaching parenting style	19.32(2.51)	19.08(2.45)	0.105	0.035
Feelings of uncertainty/ineffectiveness in emotion socialization	14.11(2.72)	14.15(2.58)	0.818	0.672

^a adjusted for child age and gender and Wave 1 score

Parents in the Comprehensive Intervention group showed higher acceptance of negative emotion and more emotion coaching parenting skills at Wave 3 than parents in the Health Support group, even after adjusting for child age and gender and their Wave 1 score.



Proportion of children at risk of developmental delay

(Results based on students from 26 schools who did HKECDS assessment twice)

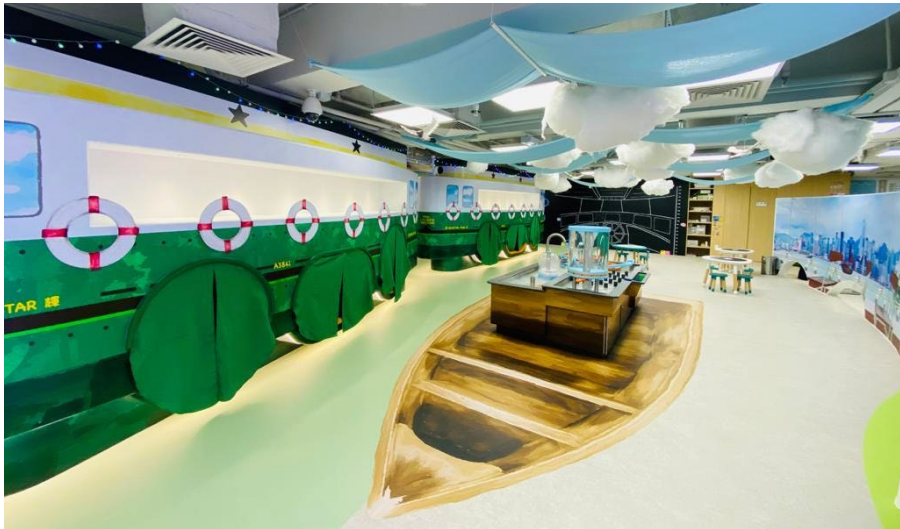
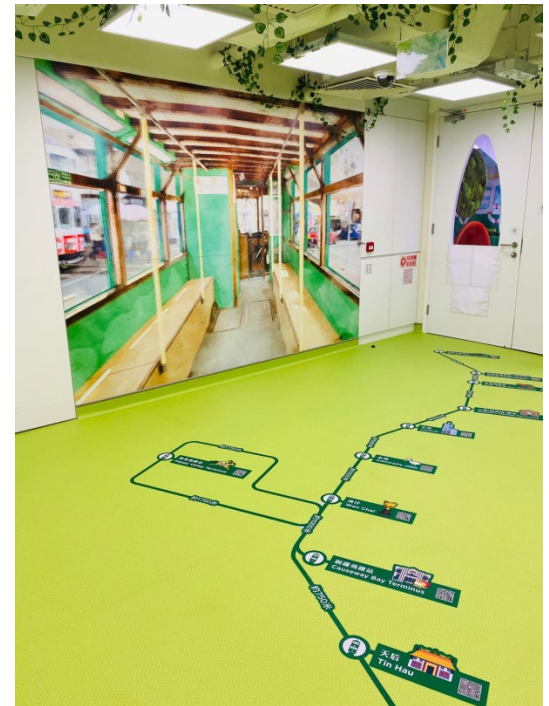
At the first assessment, 79 children (43 in CIG and 36 in HSG) at risk of developmental delay were identified by using the HKECDS total score (without gross motor scale) cut-off for vulnerability (i.e. the bottom 10%) derived from the validation study sample

At K3, these 79 children HKECDS vulnerability status:

	Comprehensive Intervention	Health Support
No longer at risk	95.3%	88.9%
Remain at risk	4.7%	11.1%

KeySteps@JC Hub 童亮館

Early Childhood Stimulation and Play





生命點亮的地方

Where Our Lights Brighten Our Lives



香港耀能協會賽馬會田徑學校
SAHK Jockey Club Elaine Field School





親愛的醫生們，

多謝你對殘障學童的支持。

祝身體健康，生活愉快。



田綺玲學生上



香港兒科醫學會

Hong Kong Paediatric Society



香港兒科醫學院

Hong Kong College of
Paediatricians



香港兒童免疫過敏及傳染病學會

The Hong Kong Society for
Paediatric Immunology, Allergy
and Infectious Diseases

懇切呼籲每一位成人接種預防新冠病毒疫苗，以促進香港兒童的健康、 學習和身心發展

新冠病毒感染肆虐全球已經一年多，疫情一直沒有消滅的跡象。防疫措施包括保持社交隔離、學校停課、減少活動和接觸是一向用來預防社區中的交叉感染的方法。這些措施對於保護我們社會中的體弱成員，如幼童、老年人和慢性病患者尤其重要。奈何隨著這些持續長時間的社交隔離，我們已經察覺到香港兒童開始患有社交心理問題的趨勢，這些負面因素尤其對有特殊學習需要和基層家庭的兒童影響深遠。為十六歲或以上的健康穩定的成年人廣泛接種預防新冠病毒疫苗是確保學校全面復課及每位兒童回復正常活動的最有效方法。

從香港兒科傳染病學專家最近於「美國醫學會雜誌旗下的 JAMA Network Open」發表的科學論文中，清楚地顯示了家庭是傳播兒童及青少年感染新冠病毒的主要途徑。為十六歲或以上的健康穩定的成年人進行預防新冠病毒的免疫接種，不論他們是家庭中的成員、或是兒童及青少年的照顧者，這不僅能保護自身在日常生活時免受感染，而且還可有效地保護未能接種疫苗的年輕下一代。

COVID-19 Vaccine: What is TRUE?

कोविड - १९ भ्याक्सिन : सत्य के हो ?
Language: **Nepali**

Register NOW to ask questions and get answers.



Friday 30th April 2021
7 - 8pm
Online zoom session

<https://vaccinenepali.eventbrite.hk>

Sharmila GURUNG

Service Manager
United Christian Nethersole
Community Health Service



Organisers:



香港兒科醫學會
The Hong Kong Paediatric Society



THE ZUBIN FOUNDATION

Supporting Organisations:





📺 網上講座：

2019冠狀病毒疫苗 兒童及青少年接種



形式： 三場講座均在有線新聞 i-Cable News 的 Facebook 專頁以 Facebook Live 形式進行直播

主持： 有線新聞總監 李臻

對象： 中學及小六學生及家長

參加辦法： 於下列時間透過有線新聞 i-Cable News 的 Facebook 專頁 (<https://www.facebook.com/icable.news>) 收看，無須報名



第一場

講者



葉柏強醫生、關日華醫生

日期

2021年7月17日(星期六)

時間

下午2時至3時

第二場

講者



劉宇隆教授

日期

2021年7月20日(星期二)

時間

下午6時半至7時半

第三場

講者



袁國勇教授

日期

2021年7月25日(星期日)

時間

上午10時半至11時半

講座設有問答環節，由專家解答有關兒童及青少年疫苗接種最受關注的問題。

若你對2019冠狀病毒疫苗有任何疑問並希望講者在講座期間解答，

可於講座舉辦前兩天下午五時前將你的問題電郵至 acohp13@dh.gov.hk (若你希望講者在2021年7月17日的講座期間解答你的問題，你須在7月15日下午五時前以電郵提交你問題)

如有查詢，請聯絡梁韻芝女士 (電話：2835 1084 / 電郵：acohp13@dh.gov.hk)

主辦機構：

Original Investigation | Pediatrics

Clinical Characteristics and Transmission of COVID-19 in Children and Youths During 3 Waves of Outbreaks in Hong Kong

Gilbert T. Chua, MBBS, MRCPCH; Joshua Sung Chih Wong, MBBS; Ivan Lam, MBChB; Polly Po Ki Ho, MPH; Wai Hung Chan, MBChB, MRCP; Felix Yat Sun Yau, MBChB, MRCPCH; Jaime S. Rosa Duque, MD, PhD; Alvin Chi Chung Ho, MBBS; Ka Ka Siu, MBChB; Tammy W.Y. Cheung, MBBS, MRCPCH; David Shu Yan Lam, MRCP; Victor Chi Man Chan, MBChB, MRCPCH; Kwok Piu Lee, MBChB; Kwing Wan Tsui, MBBS, MRCP; Tak Wai Wong, MBBS, MRCP; Man Mut Yau, MBBS; Tsz Yan Yau, MBChB; Kate Ching Ching Chan, MBChB; Michelle Wai Ling Yu, MBChB; Chit Kwong Chow, MBBS; Wah Keung Chiu, MBBS, MRCPCH; Kwok Chiu Chan, MBBS, MRCP; Wilfred H.S. Wong, PhD; Marco Hok Kung Ho, MD; Winnie W.Y. Tso, MBBS, MRCPCH; Keith T.S. Tung, MPH; Christina S. Wong, MRCP; Janette Kwok, PhD; Wing Hang Leung, PhD; Jason C. Yam, MBBS; Ian C.K. Wong, PhD; Paul Kwong Hang Tam, ChM; Godfrey Chi Fung Chan, MD; Chun Bong Chow, MD; Kelvin K. W. To, MD; Yu Lung Lau, MD; Kwok Yung Yuen, MD; Patrick Ip, MPH; Mike Yat Wah Kwan, MSc, MRCPCH

Abstract

IMPORTANCE Schools were closed intermittently across Hong Kong to control the COVID-19 outbreak, which led to significant physical and psychosocial problems among children and youths.

OBJECTIVE To compare the clinical characteristics and sources of infection among children and youths with COVID-19 during the 3 waves of outbreaks in Hong Kong in 2020.

DESIGN, SETTING, AND PARTICIPANTS This cross-sectional study involved children and youths aged 18 years or younger with COVID-19 in the 3 waves of outbreaks from January 23 through December 2, 2020. Data were analyzed from December 2020 through January 2021.

MAIN OUTCOMES AND MEASURES Demographic characteristics, travel and contact histories, lengths of hospital stay, and symptoms were captured through the central electronic database. Individuals who were infected without recent international travel were defined as having domestic infections.

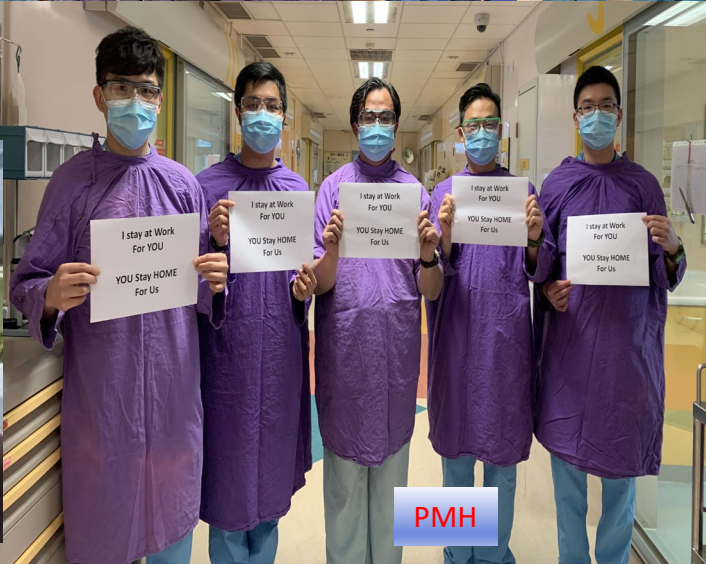
RESULTS Among 397 children and youths confirmed with COVID-19 infections, the mean (SD) age was 9.95 (5.34) years, 220 individuals (55.4%) were male, and 154 individuals (38.8%) were asymptomatic. There were significantly more individuals who were infected without symptoms in the second wave (59 of 118 individuals [50.0%]) and third wave (94 of 265 individuals [35.5%]) than in the first wave (1 of 14 individuals [7.1%]) ($P = .001$). Significantly fewer individuals who were infected in the second and third waves, compared with the first wave, had fever (first wave: 10 individuals [71.4%]; second wave: 22 individuals [18.5%]; third wave: 98 individuals [37.0%]; $P < .001$) or cough (first wave: 6 individuals [42.9%]; second wave: 15 individuals [12.7%]; third wave:

Key Points

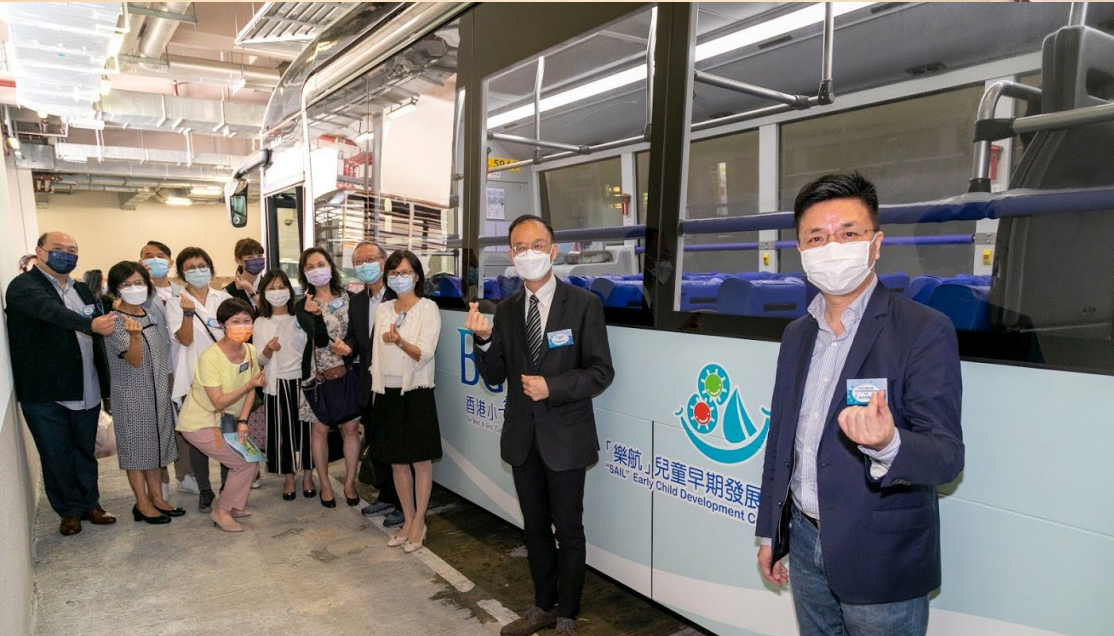
Question What were the major sources of infection among children and youths with COVID-19 in Hong Kong in 2020?

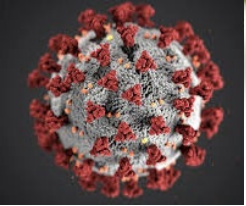
Findings In this cross-sectional study of 397 children and youths with COVID-19 in the first 3 waves of outbreaks in Hong Kong, in 2020, the largest group had no recent international travel, and nearly all individuals were reported to have other family members with COVID-19. Three students studying in the same school contracted COVID-19, and few children or youths with no recent international travel reported unknown contact histories.

Meaning These findings suggest that households and not schools were the major route of transmission among children and youths with COVID-19 in Hong Kong.



With courtesy from Dr Mike Kwan





The way to 'SUCCESS'

Support to **C**hildren and families during **COVID-19** pandemic: **E**ffective **S**ervice development



Environment, Child Health & Development

*Inter-discipline
Collaboration*

Family

Community



School



HA

Health

DH

