



**CENTRE FOR
SOCIAL DATA ANALYTICS**

Protective Factors for Children
at Highest Risk of Adverse
Childhood Experiences

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Today's Goals

1. Brief Overview of ACEs
2. Highlights from Growing Up In New Zealand (GUiNZ) Round #1 Funding 2018: School Readiness and ACE Prevention Domains
3. Preview of Ongoing GUiNZ Research: Round #3 2019 Teen Mothers, ACEs, and School Readiness and Mutable Factors and School Readiness
4. Discussion on Potential Practice Ramifications



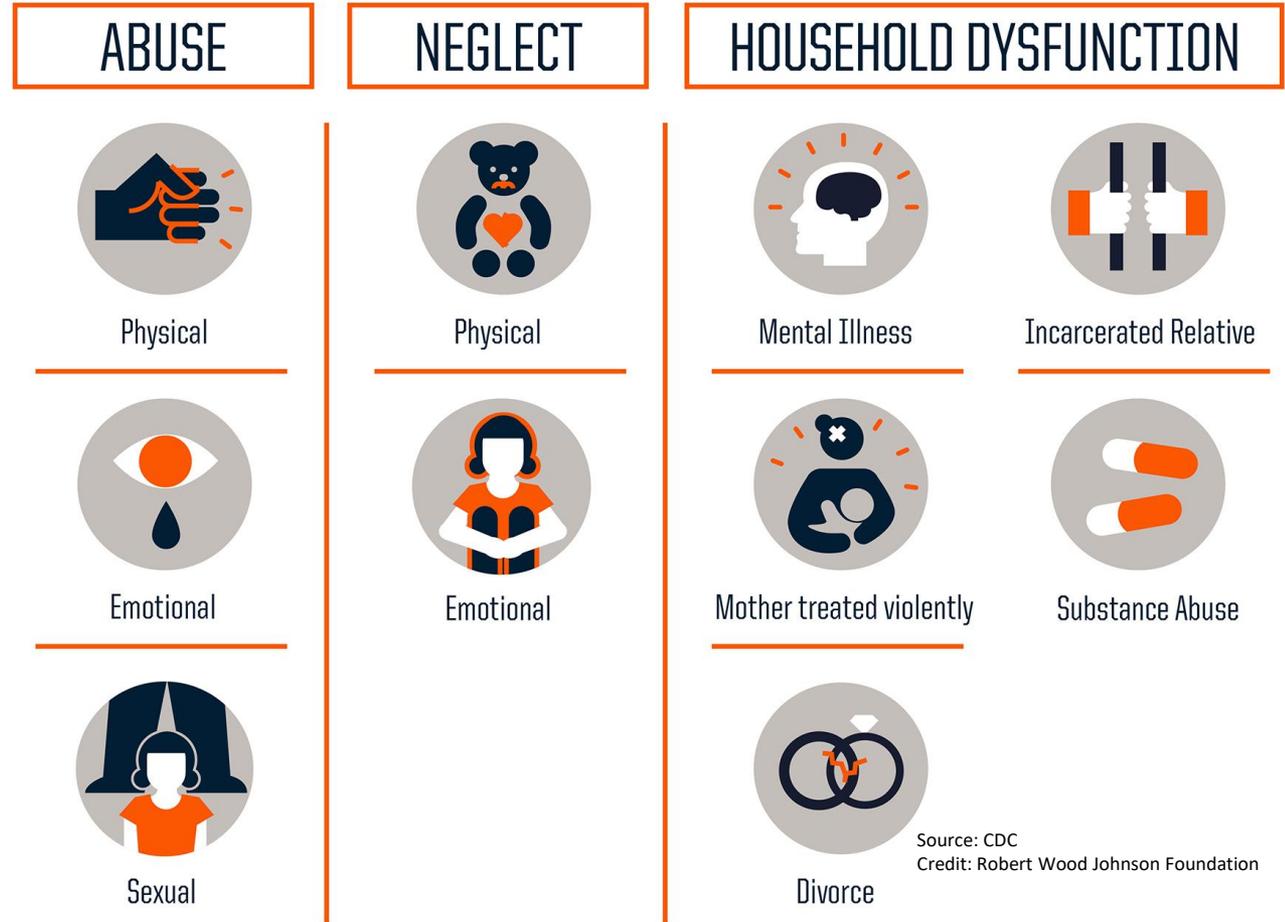
Adverse Childhood Experiences

Intensive and frequently occurring sources of stress that children may suffer in early life

Chronic Toxic Stress: Living in red alert mode for months or years.



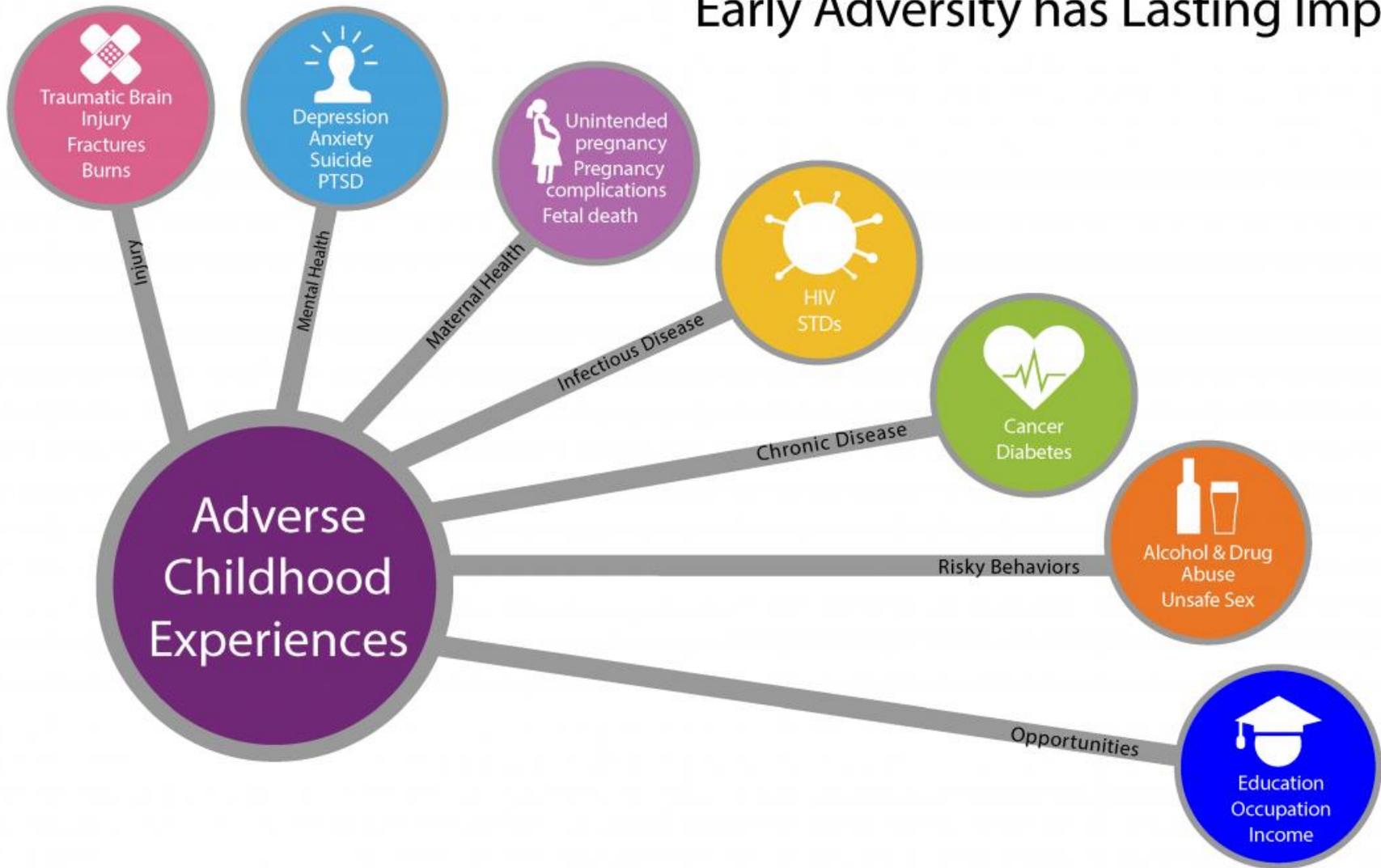
Adverse Childhood Experiences



Source: CDC
Credit: Robert Wood Johnson Foundation

- ACE Study (Felitti, V.J et al. *Am J Prev Med* 1998) Designed to identify factors that predispose individuals to adopt risky behaviours or develop conditions that put them at risk for health problems.

Early Adversity has Lasting Impacts



Growing Up in New Zealand Population

6,823 pregnant mothers recruited (2009-2010)

Retention rates high in first 5 years (over 92%)



AUT/OT MSD Reports Available



School Readiness and ACEs

Walsh, M.C., Joyce S., Maloney T., Vaithianathan, R. (2019). Adverse childhood experiences and school readiness outcomes. Report published to the Ministry of Social Development website; New Zealand.

Protective Factors in Children at Risk of ACEs

Walsh, M.C., Joyce S., Maloney T., Vaithianathan, R. (2019). Protective factors of children and families at highest risk of adverse childhood experiences: Report published to the Ministry of Social Development website; New Zealand.

Number of ACEs Experienced by 4.5 Years in New Zealand?

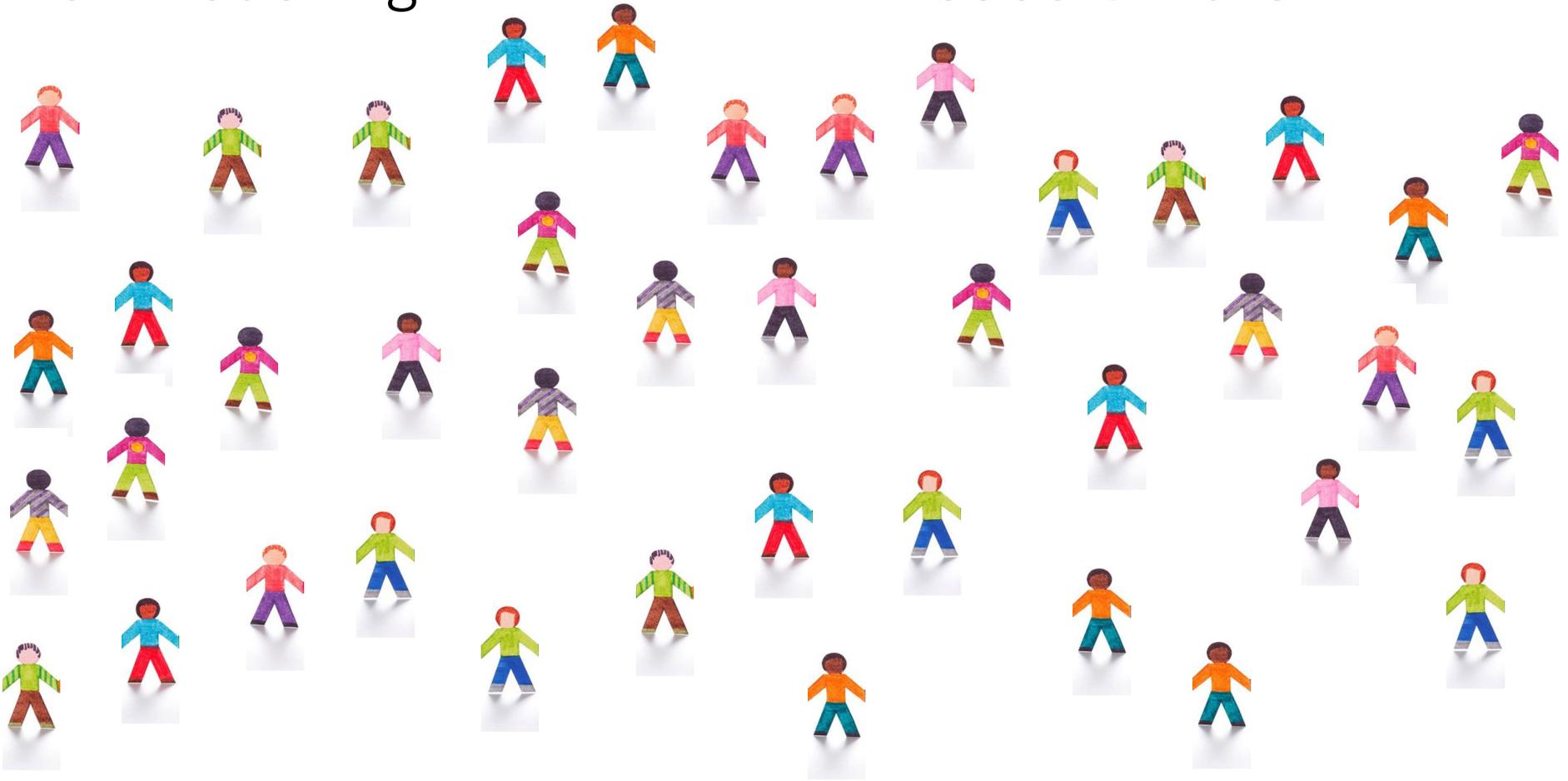
Total Aces Experienced by GUiNZ Children by 4.5 Years

Number	Percent Children	
0	47%	2,624
1	30%	1,657
2	15%	804
3	6%	334
4 or More	3%	143



Risk Modelling

~3500 Children



Risk Modelling: Using Known Factors At Birth



Lowest Risk

Low Risk

Mid Risk

High Risk

Highest Risk

20%

20%

20%

20%

20%

~700 Kids.

~700 Kids

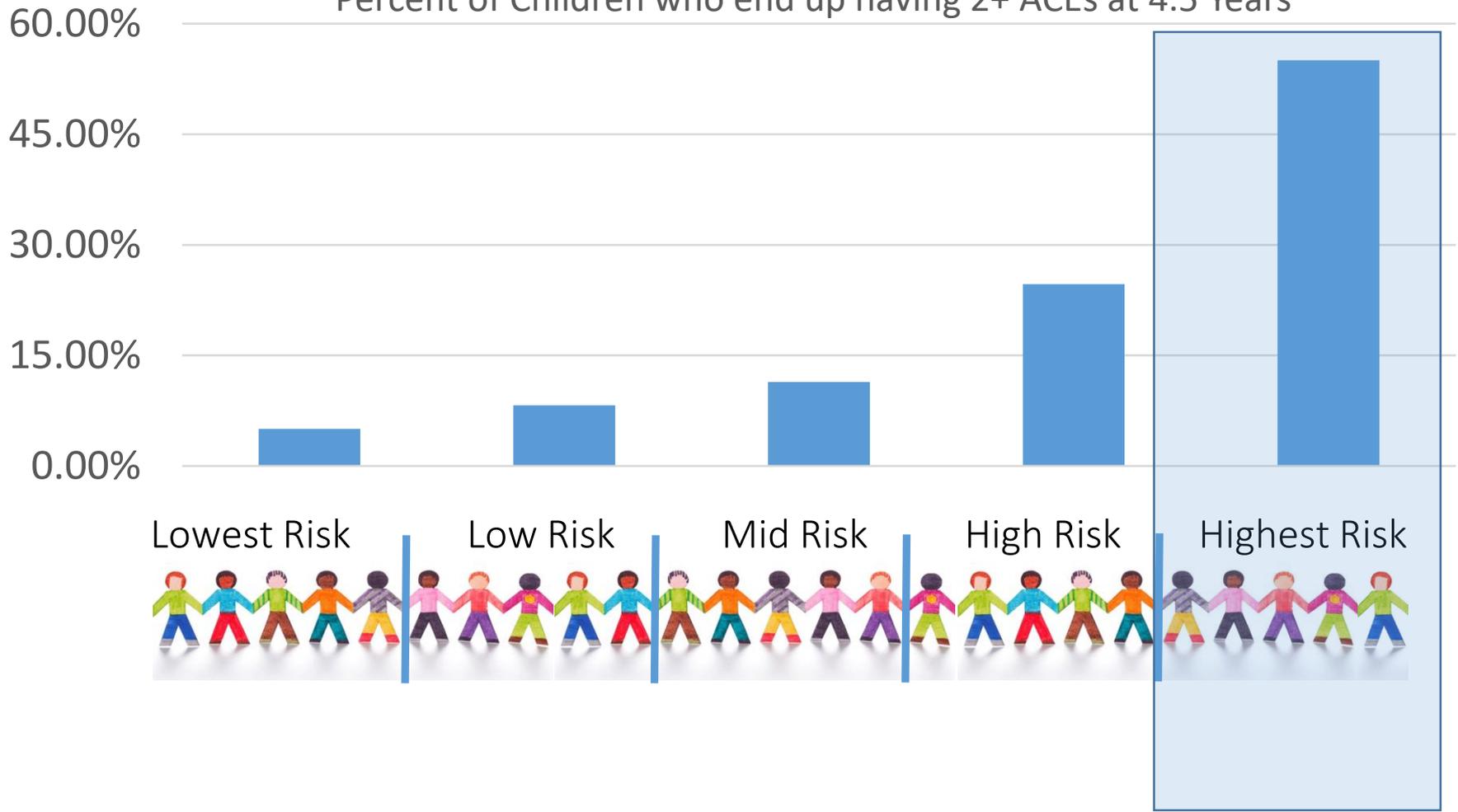
~700 Kids

~700 Kids

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What Percent in Each Risk Group Had 2+ ACEs at 4.5 Years?

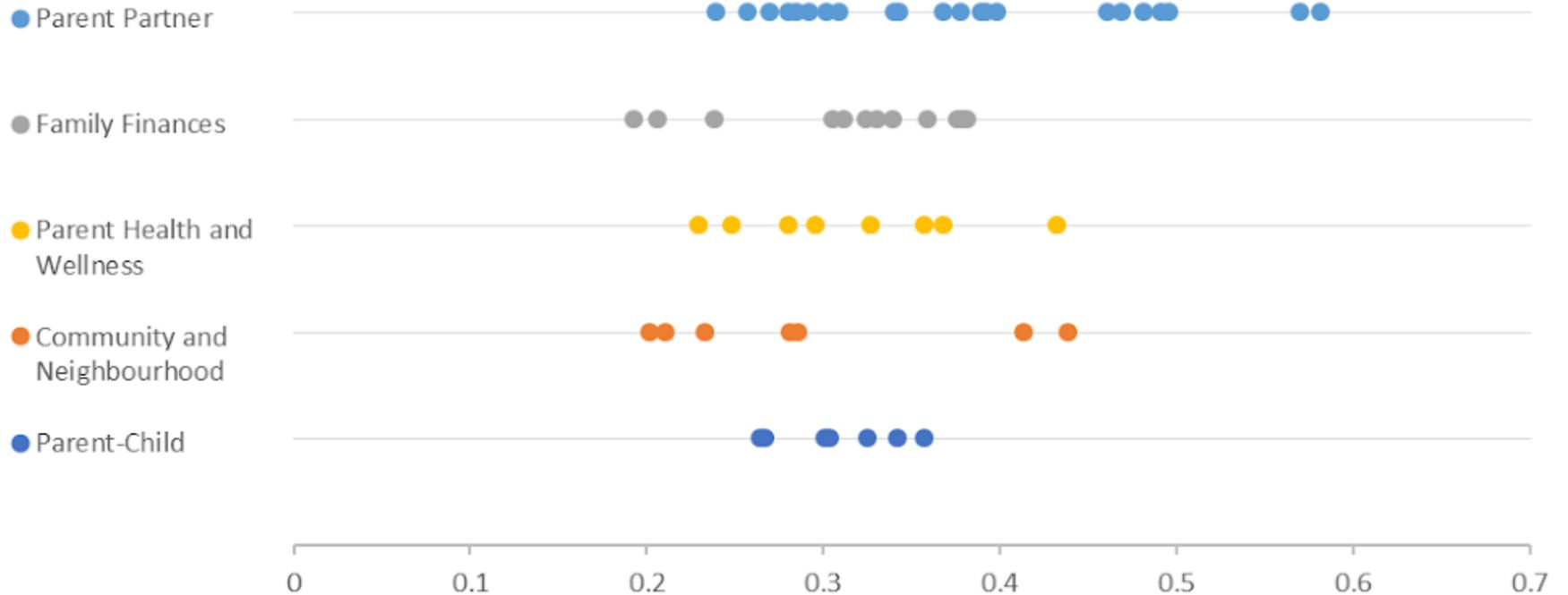
Percent of Children who end up having 2+ ACEs at 4.5 Years



Outcomes for Children at Highest Risk of 2+ ACEs by 4.5 Years

0	21%
1	24%
2+	55%

Univariate Results



Bivariate Results for all GUiNZ participants in the highest 20% risk category where partners completed the survey (N=767). Bivariate results show the standardized regression coefficient for all 54 variables with p-value <0.01.

School Readiness

I can spell it.

SEBASTIAN

I can trace it with my finger.

SEBASTIAN

I can make it.

S	E	B	A	S	T	I	A	N
---	---	---	---	---	---	---	---	---

I can write it.

Play to Learn
Preschool

School Readiness

School readiness outcomes

Luria-Nebraska Hand Clap Test: The hand clap test measures inhibitory control and the ability to stay focused (Golden, 1981).

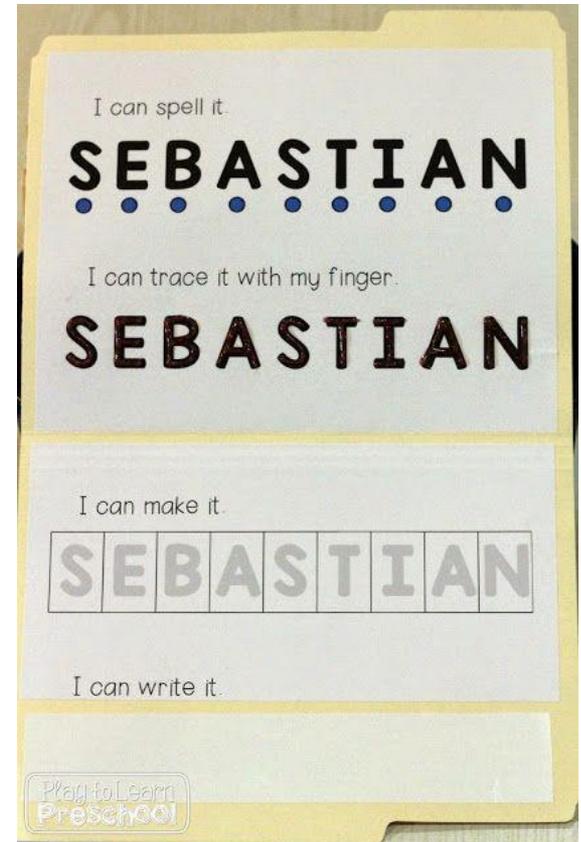
DIBELS Letter Naming Fluency Test: The DIBELS letter naming fluency test is correlated with reading level at the end of the first year of school (Schaughency and Suggate, 2008). The Grade K/Benchmark 1 version was used with randomly ordered lower-case and upper-case letters.

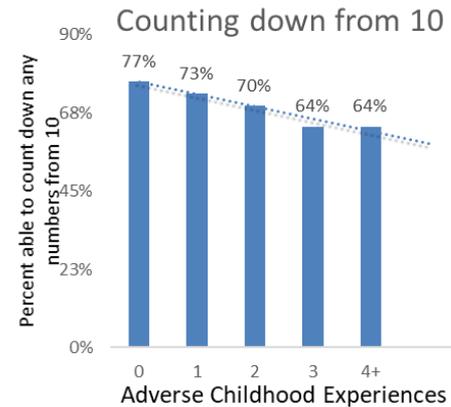
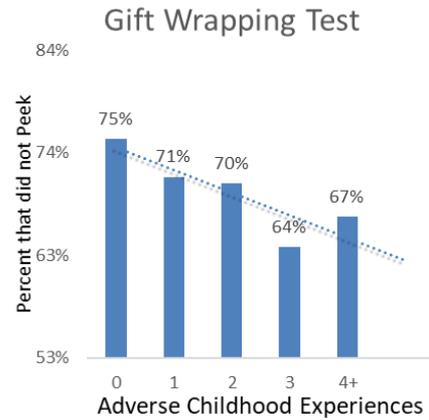
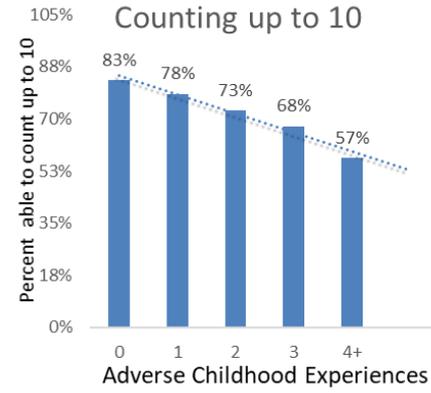
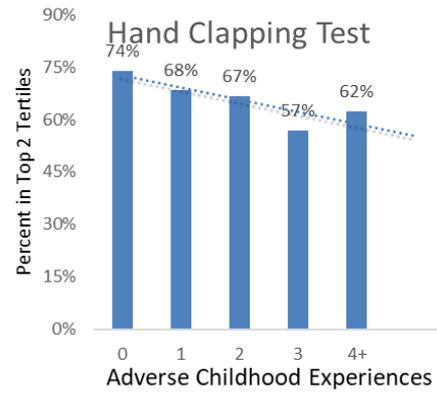
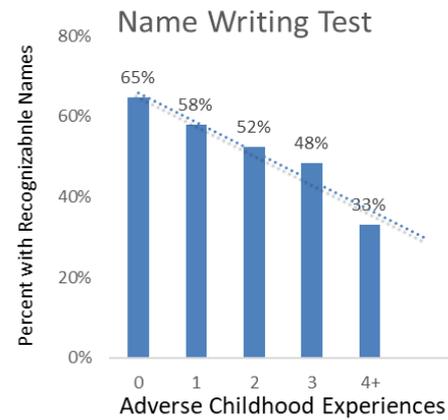
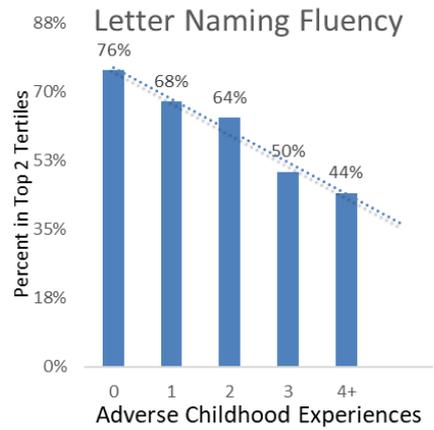
Gift Wrapping Test: A test of the ability to delay gratification was adapted from the original Marshmallow task by Ebbesen (Mischel, Ebbesen, & Raskoff Zeiss, 1972). Each child was requested to please not look or peek at the surprise while it was being wrapped for 60 seconds.

Affective Knowledge Test: A modified Affective Knowledge Task (Morgan, Izard & King, 2010; Denham, 1986) was administered by giving children six face cards and asking how the person in the face cards feels. The emotions portrayed were 'happy', 'sad', 'scared', 'angry', 'surprised', and 'disgusted'.

Number and Name Writing Test: Children were asked to write their name on a sheet of paper and write some numbers on a sheet of paper. GUINZ study staff were trained to code the number and name writing tests according to a standard scoring protocol (GUINZ, 2017).

Counting up from 1-10 and down from 10-1: Children were asked, "Please can you count up from 1 to 10?" and "Please can you count down from 10 to 1?" The interviewer wrote down exactly what the child said, and a score was assigned based on the longest correct number sequence given by the child.





Round 3 Work – Due April 2020: Current GUiNZ - CSDA Work with OT Partners:

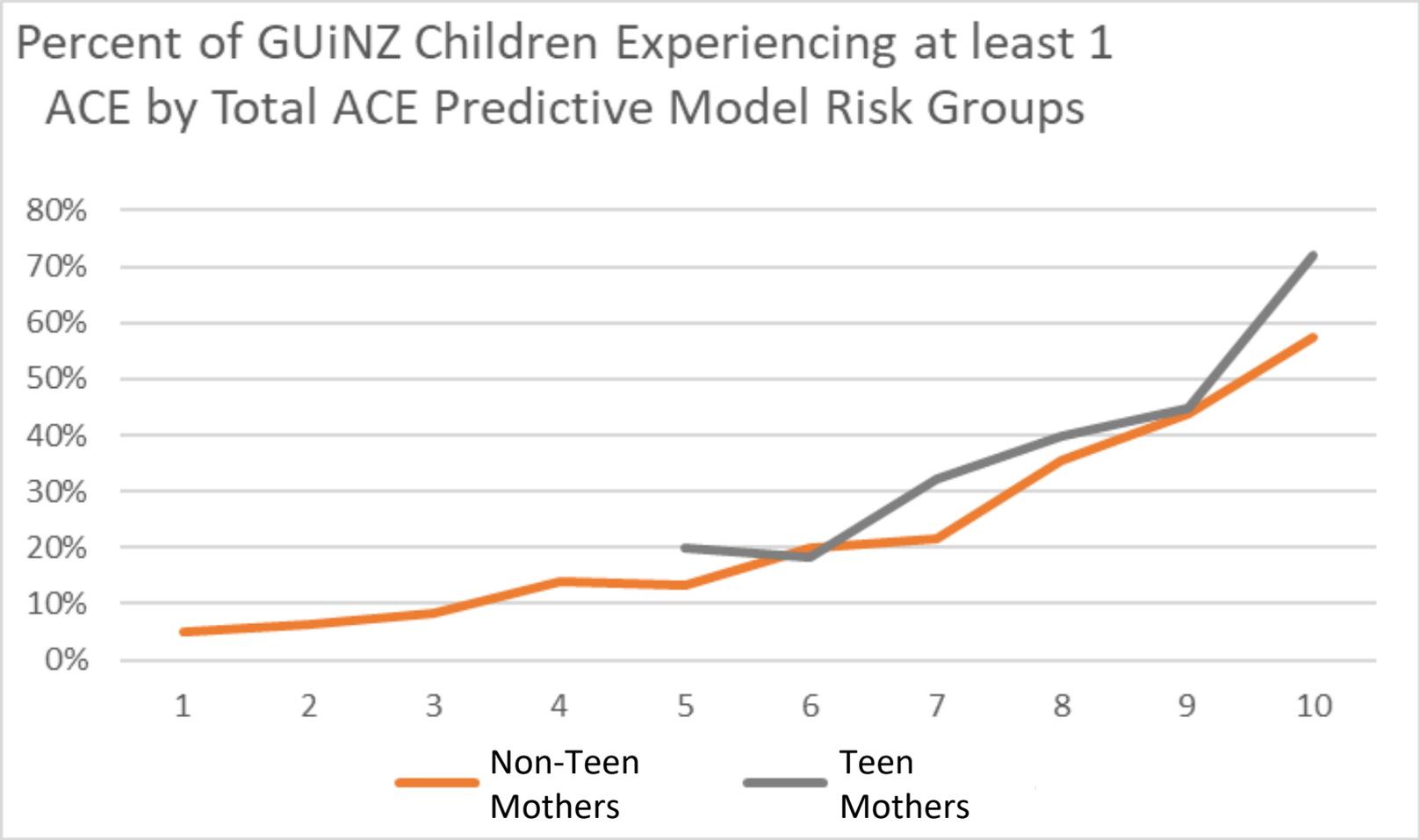
1. Recreate School-Readiness Results in Children born to Teen Mothers
2. Focus on additional factors that might improve school readiness in children with ACEs (with focus on quality, access, utilization, and preference of):
 - a. Health Care
 - b. Social Service
 - c. Early Care and Education

ACEs Experienced by Age of Mother at Birth of Child

Percentages of Growing Up in New Zealand Child Study Participants Experiencing Adverse Childhood Experiences by the 54 Month Interview by Age of Mother at Birth, New Zealand 2009-2015, n=5,562

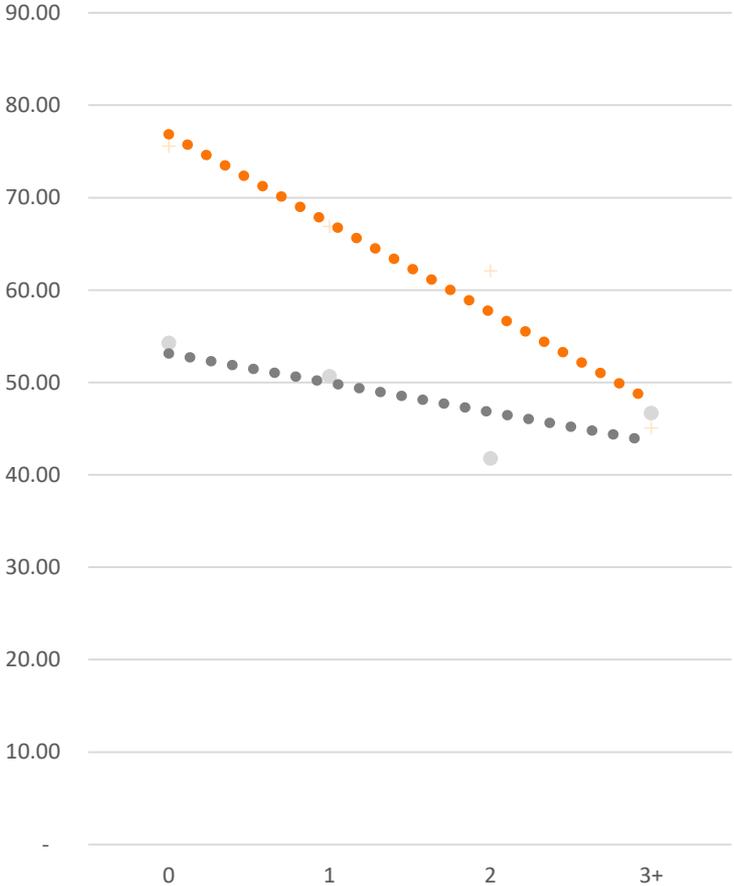
Adverse Childhood Experience (ACE)	Age of Mother at Birth			
	Less than 18 (N=104)	18-19 (N=197)	20-21 (N= 259)	>21 (N = 5,002)
0	 30.8% (32)	 30.5% (60)	 32.8% (85)	 57.6% (2,879)
1	 30.8% (32)	 24.4% (48)	 31.3% (81)	 27.0% (1,351)
2	 16.4% (17)	 21.8% (43)	 21.6% (56)	 11.0% (548)
3	 15.4% (16)	 16.8% (33)	 9.7% (25)	 3.5% (176)
4 or more	 6.7% (7)	 6.6% (13)	 4.6% (12)	 1.0% (48)

Who best to approach: Teen Mothers or Children Predicted to be at highest risk?



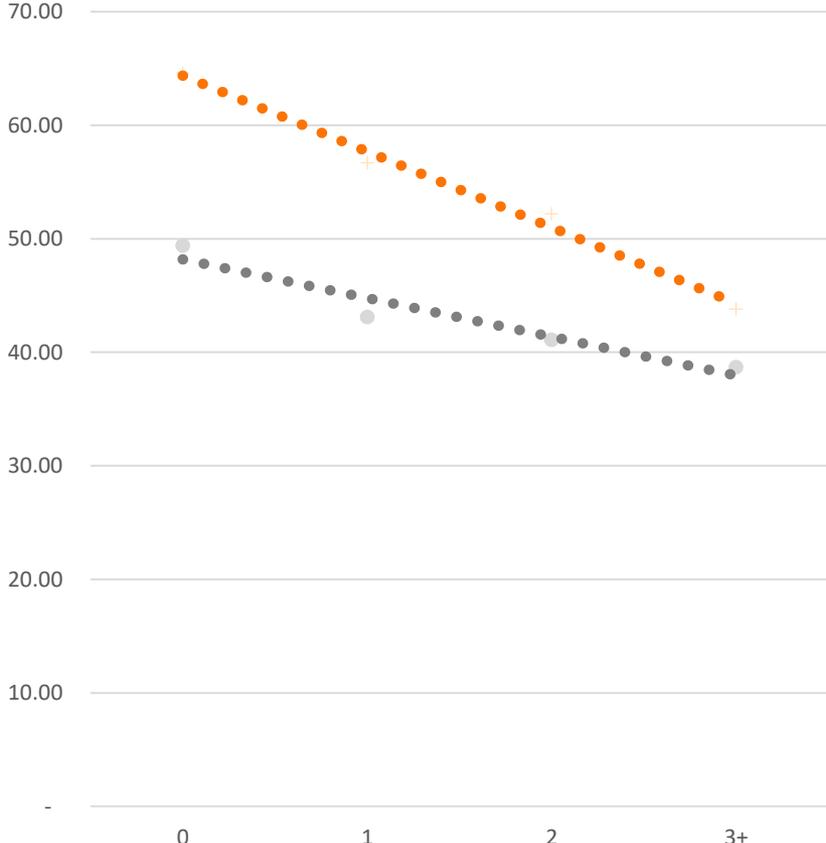
Percent of GUiNZ children in the mid-high performance categories for each school readiness test by the number of ACEs Stratified by Age of the Mother at the time of the GUiNZ child's birth

Diebels Letter Test



● Teen Mom (<20) + Not Teen Mom (>=20)
●●● Linear (Teen Mom (<20)) ●●● Linear (Not Teen Mom (>=20))

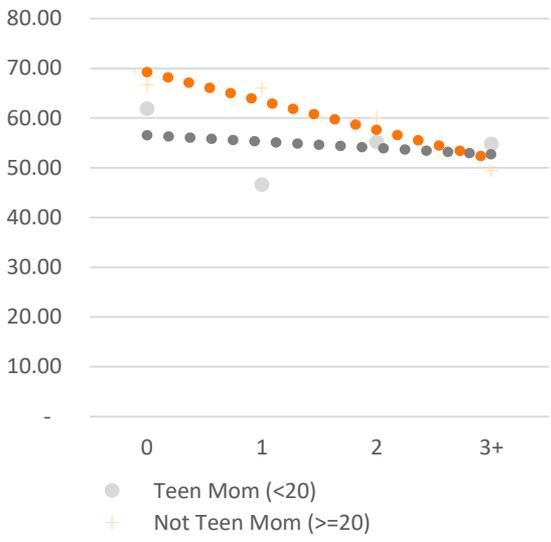
Name Test



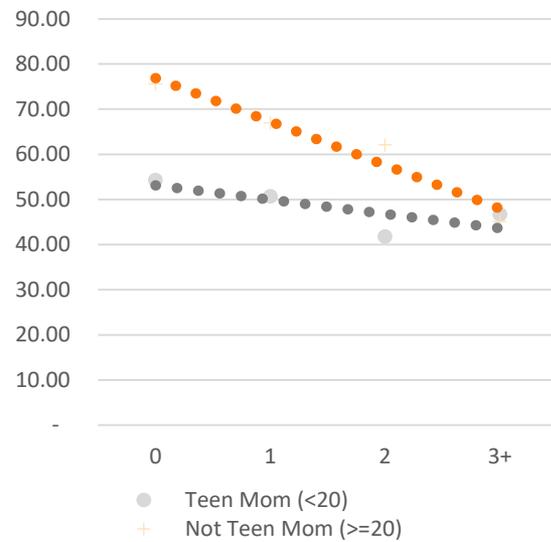
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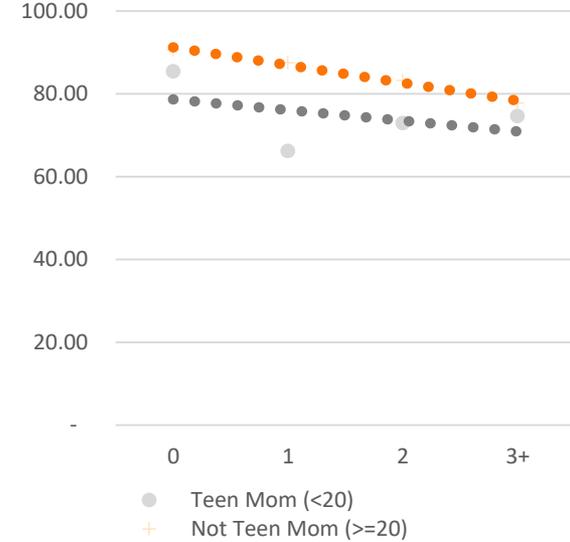
Affective Knowledge:



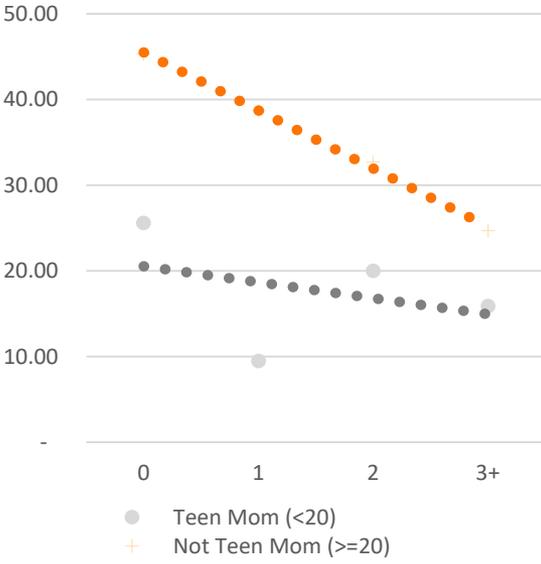
Diebels Letter Test:



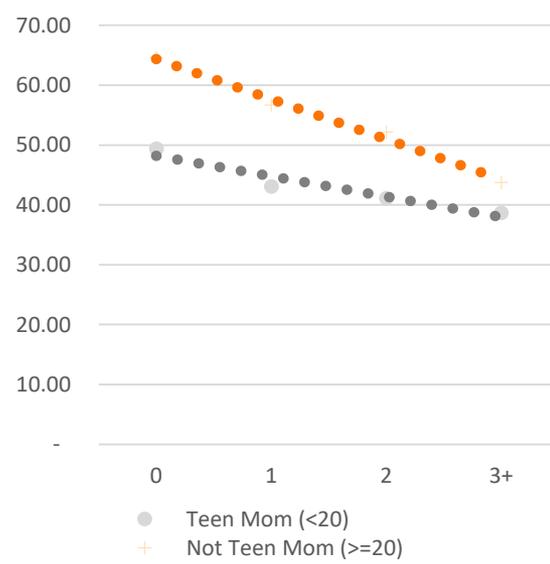
Count Up Test:



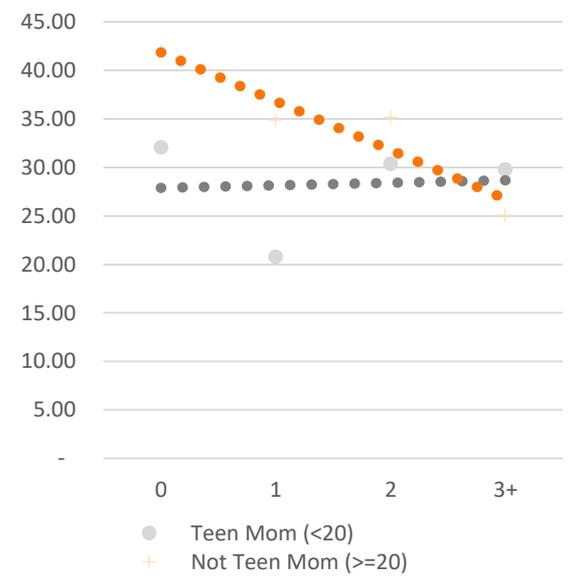
Count Down Test:



Name Test:



Number Test:



Number of School Readiness Tests Associated with Specific ACEs in the Growing Up in New Zealand Cohort; Multivariate Results, New Zealand 2009-2015

ACE Indicator	Full Sample	Teen Sample
Physical Abuse	7	3
Domestic Violence	3	*
Mental Abuse	1	0
Alcohol Use	1	*
Maternal Drug Use	1	0
Maternal Depression	0	1
Divorce/Separation	0	0
Maternal Jail Time	*	*
Total ACEs	6	1

*: Sample Size Restrictions

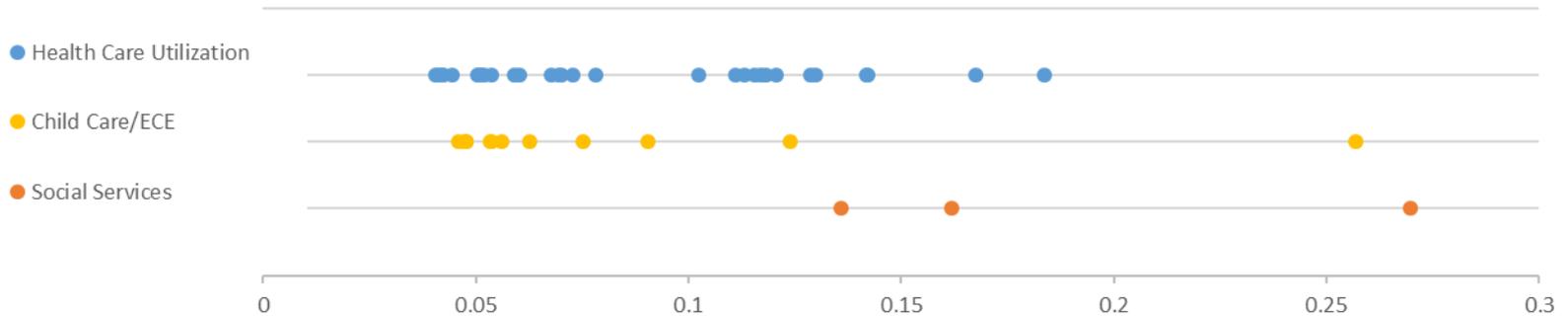
Categorisation of 372 'Mutable' Factors Collected by Growing Up in New Zealand, 2009-2015

	Utilisation	Access	Quality	Preference	
Health Care	135	57	7	7	206
Early Care and Education	59	21	33	12	125
Social Services	41	0	0	0	41
	235	78	40	19	372

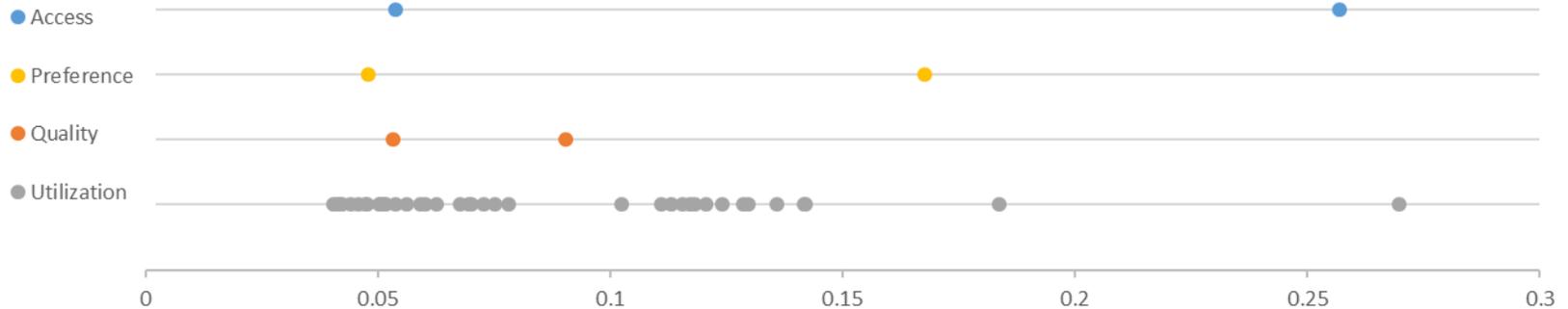
Which of these 372 Factors are associated with:

School Readiness differently in children with and without ACEs

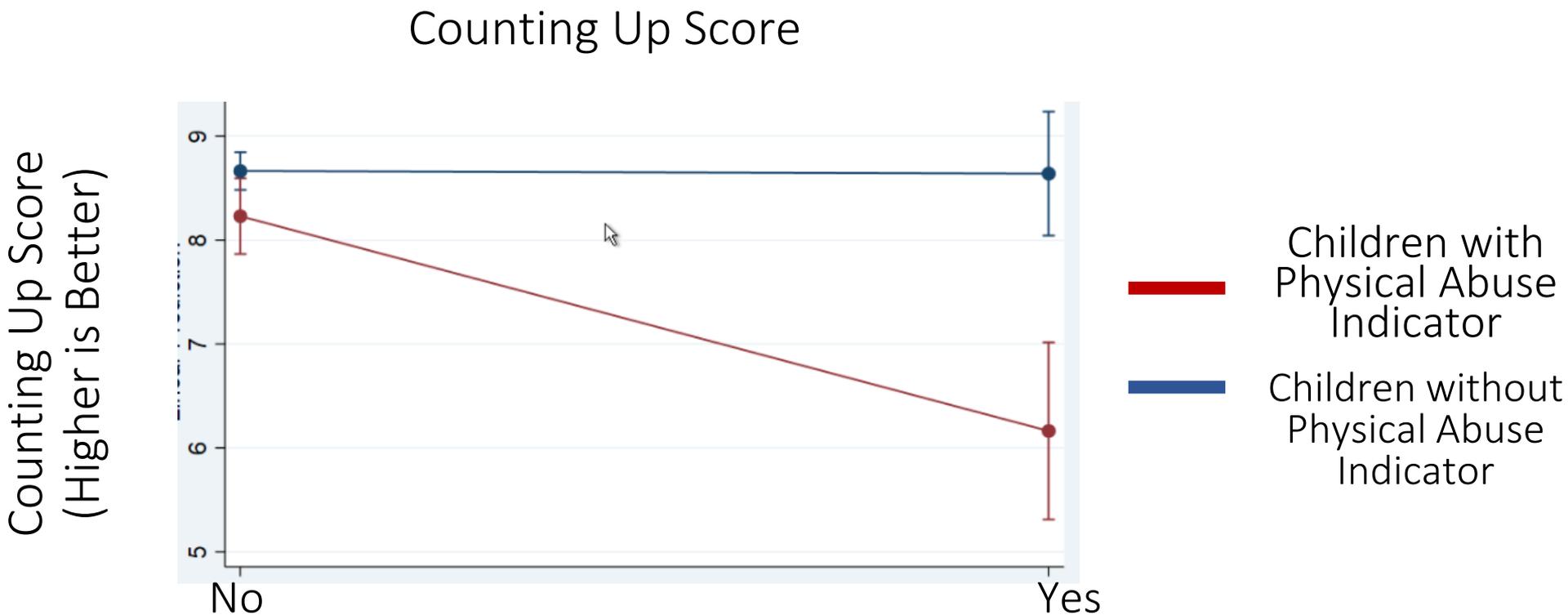
Physical Abuse Indicator: Interactive Significant Results by Domain
ACEs with School Readiness Outcomes: Univariate Results



Physical Abuse Indicator: Interactive Significant Results by Domain
ACEs with School Readiness Outcomes: Univariate Results



Physical Abuse Interactions Significant: 45
Total ACEs Interactions Significant: 42



Report of Using GP for 21-24 Month Well-Child Examination

Counting Up Score

Counting Up Score
(Higher is Better)



- Children with Physical Abuse Indicator
- Children without Physical Abuse Indicator

Report of Using GP for 21-24 Month Well-Child Examination

Using the GP for the 24M Well-Child Exam by itself may not indicate if child will be able to count up to 10 before school starts, but it seems to be correlated with worse performance in children with an indication of abuse.



Possible Intervention?
More services to children at 24 Month Appointment with GP that screen positive for potential abuse?

Major Limitation

Data Exploration: No a priori hypotheses, erroneous findings due to simultaneous testing. Need replication in other settings/surveys.



Research Dissemination Goals

- Increased Awareness of ACEs in New Zealand
- Set up strengths-based discussion to protect children as opposed to a risk factor-based discussion
- Discuss and test possible strategies to develop mother-partner relationship
- Focus more on mutable factors in the context of policy and interventions. Choose an example of an interaction and evaluate a slight program modification.
- Explore and Inform Programs and Policies Interacting with Teen Mothers



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Collaborators:

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CSDA-AUT: Tim Maloney, and Rhema Vaithianathan

Thanks



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