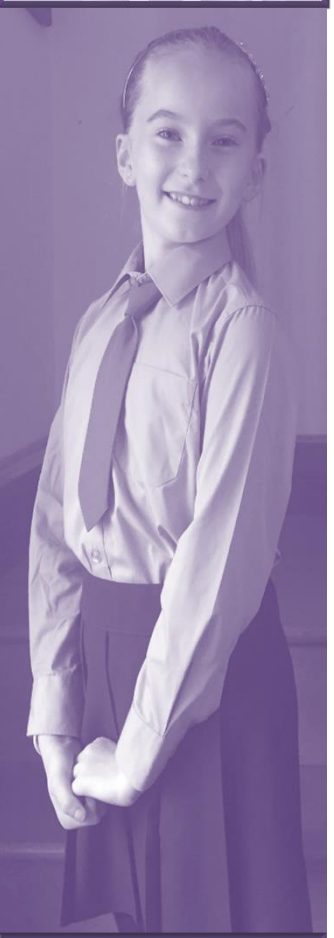
Growing Up in Ireland
National Longitudinal Study of Children



10th Annual Research Conference 2018

Precursors to Self-Regulation in Early Childhood:

Examining Socioeconomic differences in Ireland and Canada

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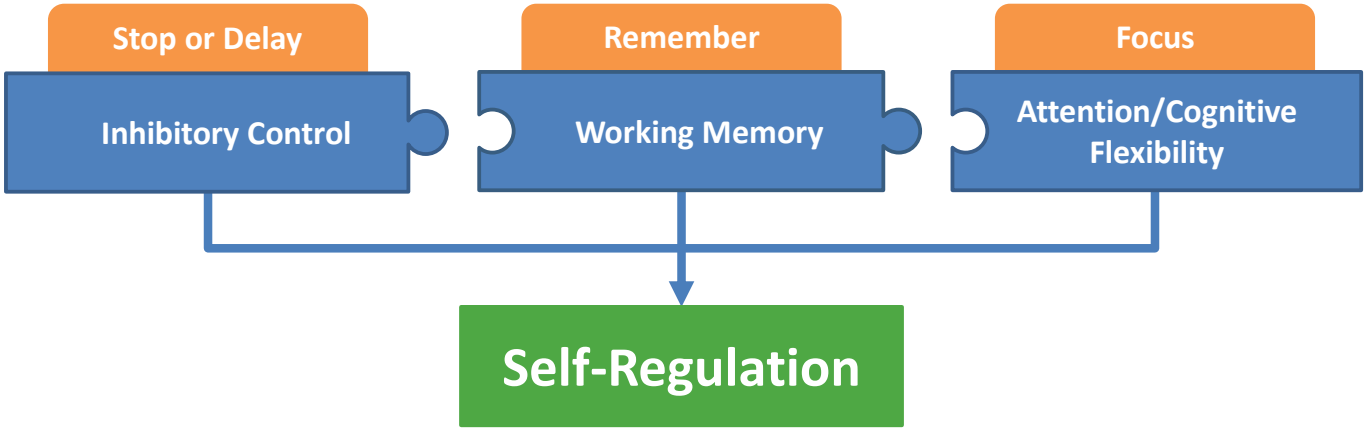
Self-Regulation

- Critical developmental ability (Blair & Raver, 2012; Kopp 1982; McClelland et al., 2015)

- Capacity to control/regulate responses to achieve a goal

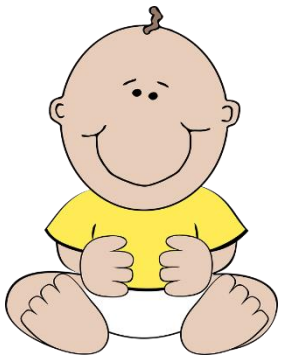


- Predictive of important outcomes across the lifespan
  - Academic performance, health, finances

    (e.g. Daly et al., 2015; Daly et al. 2016; Moffitt et al., 2011)

Self-regulation

Importance of Early Childhood



Background

- Early childhood period is critical for self-regulation (Kochanska et al., 2000)
- Variation in self-regulation development
  - Child's individual characteristics
  - Environmental influences
- Socioeconomic differences in self-regulation
  - Social & psychosocial stressors (Buckner et al., 2009; Evans & Kim, 2013; Blair & Raver, 2012)
  - Higher SES -> better self-regulation (e.g. Sammons et al., 2013; Sylva et al., 2007)
  - SES differences in early childhood predictors of self-regulation?

    (Bernier et al., 2010; Hughes & Ensor, 2005; Ispa et al. 2017)

This study

- Uses longitudinal data from two nationally representative studies
  - Ensures a broad distribution of income, education, and employment status
  - Sufficient sample size to detect differences across SES groups
  - Explore consistency of SES differences across two countries

Research Questions:

1. Are there SES differences in self-regulation problems?
2. Do the associations between the early home environment, child characteristics, and self-regulation problems vary according to SES?

The Data

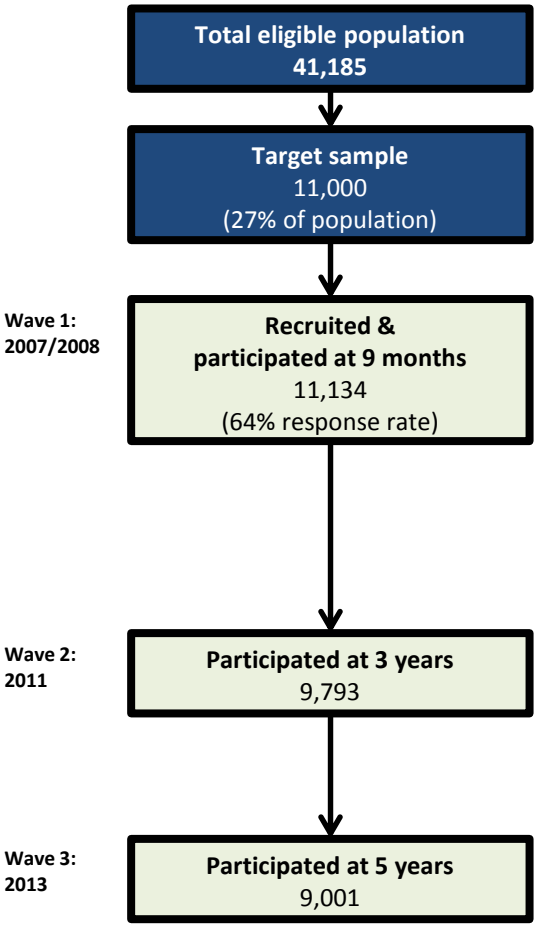
Two nationally representative cohort studies

Growing up in Ireland
Infant Cohort
(n = 8,454)

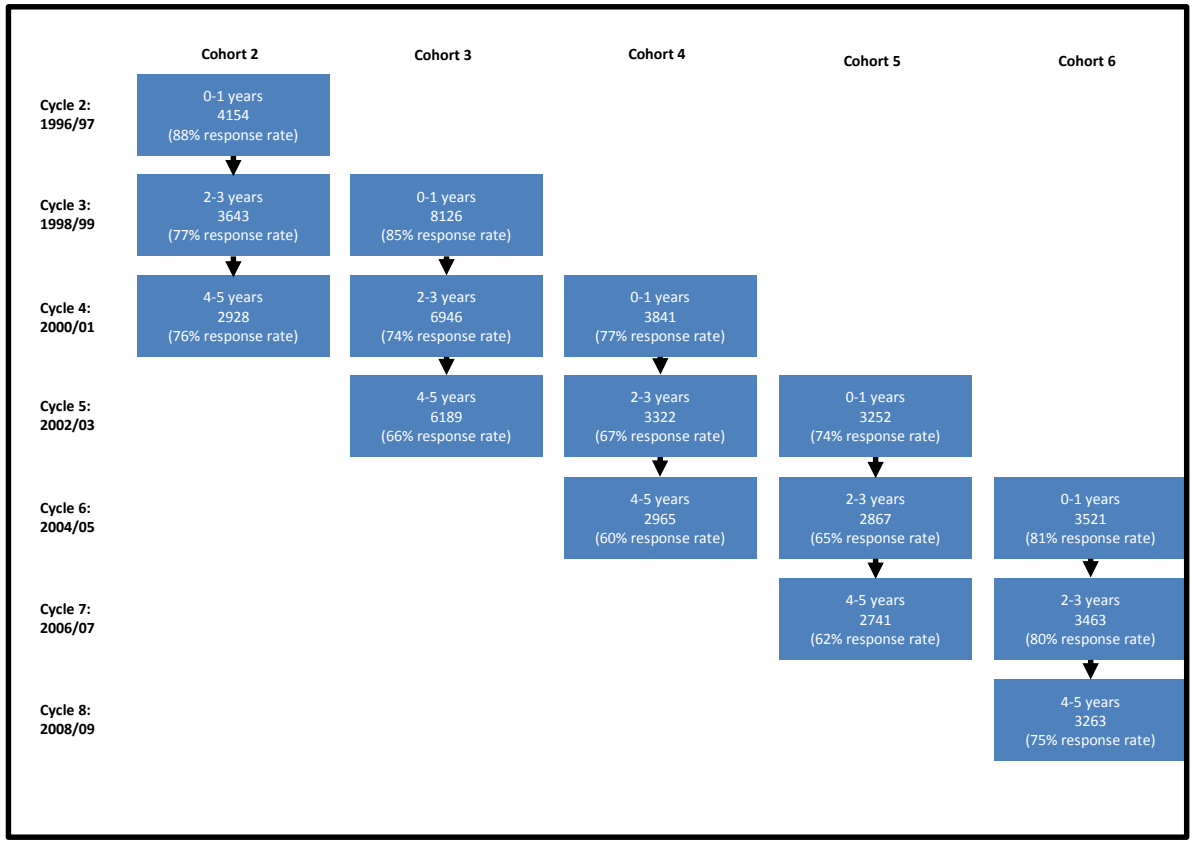
National Longitudinal Survey of Children and Youth
Early Childhood Cohorts
(n = 12,168)

The Data

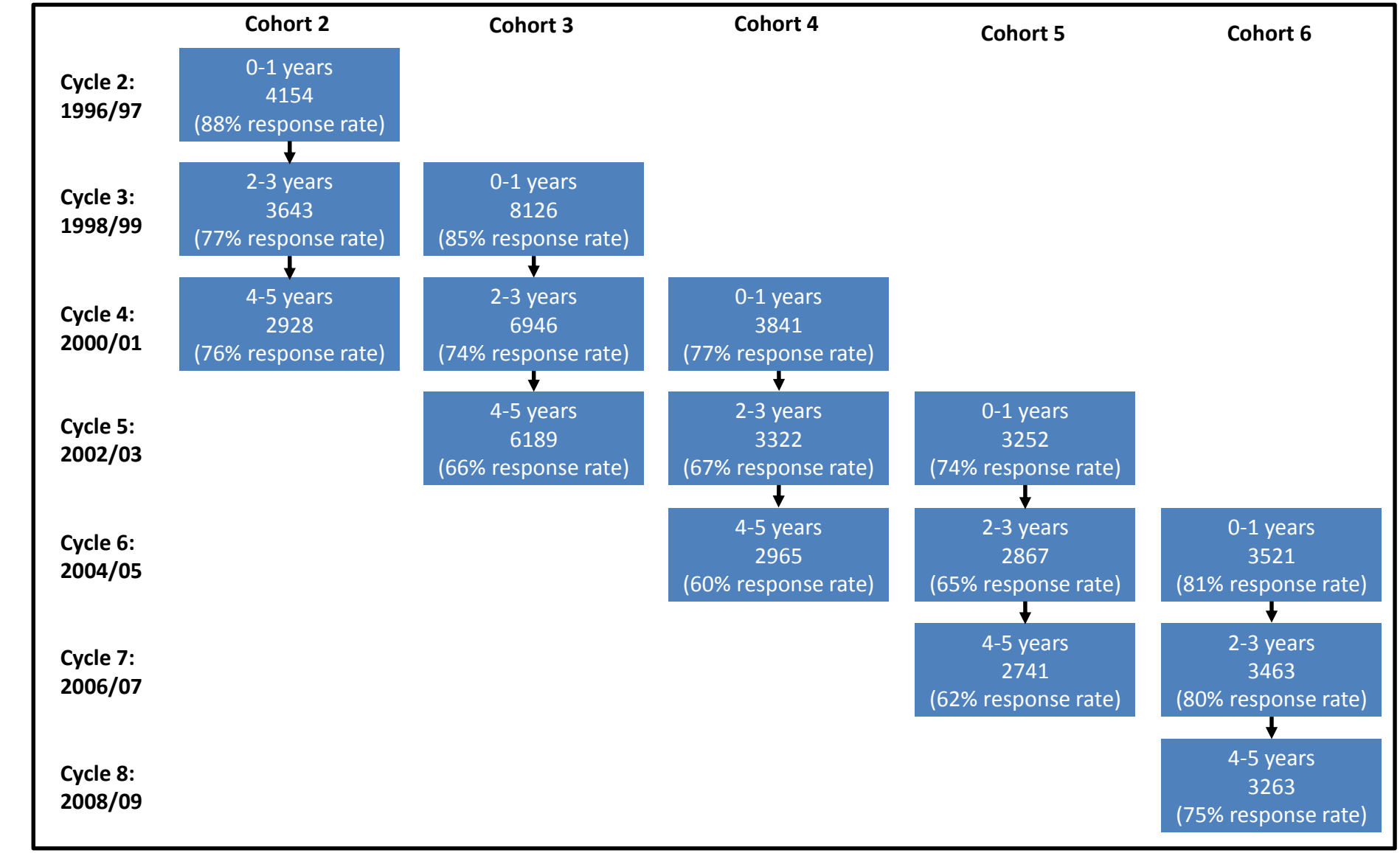
Growing up in Ireland Infant Cohort



National Longitudinal Survey of Children and Youth Early Childhood Cohorts



NLSCY: Early Child Development



Measures

Variable	GUI
Early Home Environment	
Parenting	QoA Scale (Condon & Corkindale, 1998)
Depression	CES-D (8 item) (Melchior et al., 1993)
Siblings	Yes/No has siblings
Child Characteristics	
Gender	Male/Female
Temperament	ICQ Fussy-Difficult (Bates et al., 1979)
Cognitive ability	BAS Picture Similarities BAS Naming Vocabulary
Self-Regulation	SDQ-DP (Holtman et al., 2011) • Total: Sum of 5 SDQ items • Cut-off >= 5

Measures

Variable	GUI	NLSCY
Early Home Environment		
Parenting	QoA Scale (Condon & Corkindale, 1998)	Positive parenting Ineffective parenting
Depression	CES-D (8 item) (Melchior et al., 1993)	CES-D (12-item) (Radloff, 1977)
Siblings	Yes/No has siblings	✓
Child Characteristics		
Gender	Male/Female	✓
Temperament	ICQ Fussy-Difficult (Bates et al., 1979)	✓
Cognitive ability	BAS Picture Similarities BAS Naming Vocabulary	PPVT-R (Dunn & Dunn, 1981)
Self-Regulation	SDQ-DP (Holtman et al., 2011) • Total: Sum of 5 SDQ items • Cut-off >= 5	Behaviour Rating Scale-DP • Total: Sum standardised scores (hyp, pa, ed) • Cut-off > 95th %ile

SES

Composite indicator

→ **Income**
- Equivalised household income

→ **Education**
- Maternal level education
- Paternal level of education

→ **Occupational Status**
- Maternal occupation
- Paternal occupation

Two parent families:

Mean of five standardised vars

One parent families:

Mean of three applicable vars

High SES: Top 2 quartiles

Low SES: Bottom 2 quartiles

Analysis

- Inclusion Criteria
  - ✓Outcome data at end point
  - ✓Main covariates at BL
  - ✓Maternal caregiver responses
- Preliminary analyses (SES differences in sample characteristics)
  - Two-tailed independent samples t-tests
- Main analysis (SES differences in the predictors of self-regulation)
  - OLS regression model with self-regulation & predictors
    - + with interaction terms for SES & each predictor
    - + Control variables: childcare, child age, one parent family, mother's age (+ cohort)
- Weights
  - GUI: Longitudinal weights
  - NLSCY: Longitudinal weights & bootstrap weights for variance

GUI Results

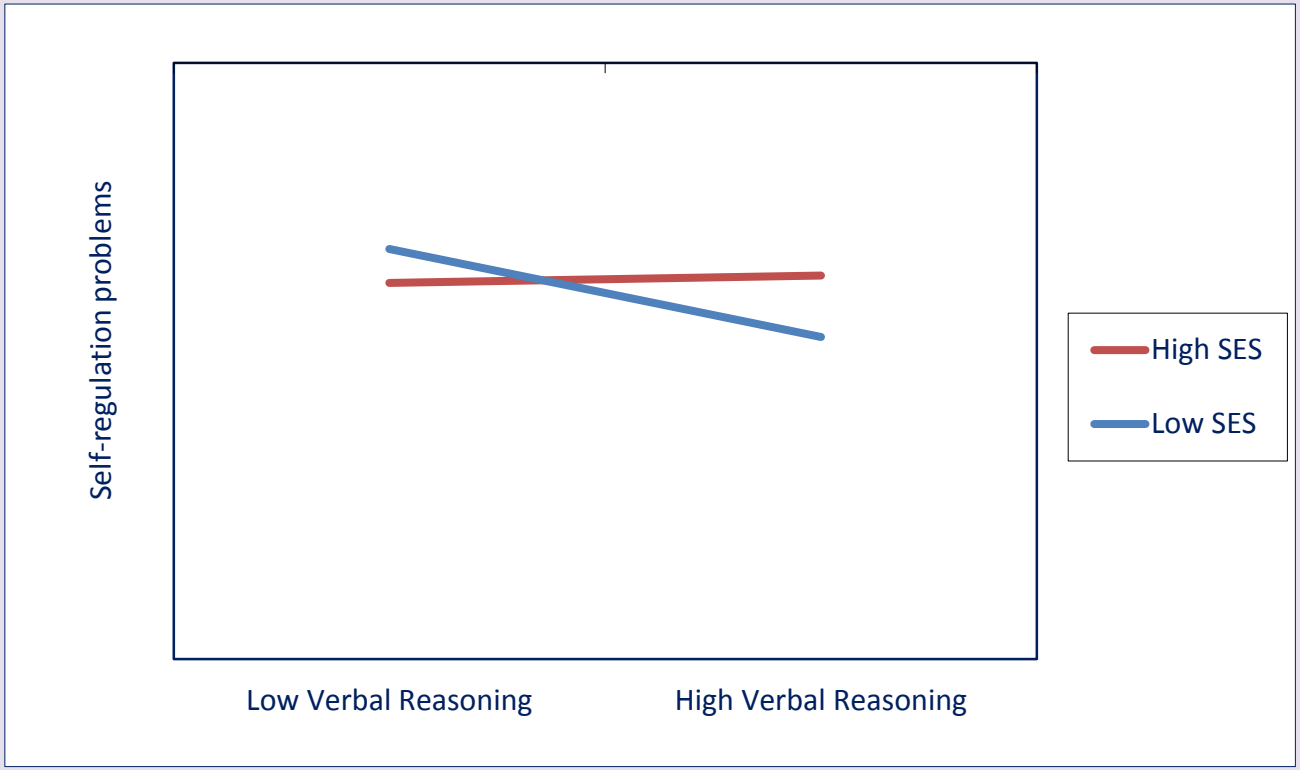
- **SES differences in family demographics**
  - Discriminatory power of SES variable
  - Expected differences between groups
- **SES difference in self-regulation**
  - Low SES more self-regulation problems
  - x2 odds of significant regulatory impairment
  - Persisted with the inclusion of controls
- **SES difference in associations**

Early home environment
Parenting sensitivity
Depression
Siblings

Child Characteristics
Gender
Temperament
Non-verbal reasoning
Verbal ability **

GUI Results

Two-way interaction effect for verbal reasoning



High SES group (B = .01, p = .72)
Low SES group (B = -.07, p = .001)

NLSCY Results

- **SES differences in family demographics**
  - Discriminatory power of SES variable
  - Expected differences between groups
- **SES difference in self-regulation**
  - Low SES more self-regulation problems
  - x2 odds of significant regulatory impairment (> 95th %ile)
  - Did not persist with the inclusion of controls
- **SES difference in associations**

Early home environment
Positive parenting
Ineffective parenting
Depression
Siblings

Child Characteristics
Gender
Temperament
Cognitive ability

Summary

	Ireland GUI	Canada NLSCY
SES Differences…		
Self-regulation - controls	✓	✓
Self-regulation + controls	✓	✗
SES Differences in associations between…		
Early home environment & self-regulation	✗	✗
Child characteristics & self-regulation	✓ verbal ability	✗

Interpreting the results

Research Questions:

1. **Are there SES differences in self-regulation problems?**

   Yes, some evidence across both cohorts but…

2. **Do the associations between the early home environment, child characteristics, and self-regulation problems vary according to SES?**

   Limited evidence

- **Implications**
  - Early parenting & child characteristics predicted later self-regulation
  - Similar patterns across high and low SES
  - Expressive vocabulary as protective factor for children in Ireland?

- **Inconsistencies across samples**
  - SES inequalities in social and behavioural development lower in Canada (Bradbury et al., 2011)
  - Expressive vs receptive verbal ability (Ripley & Yuill, 2005)

Conclusion

- Results inform knowledge of SES differences in self-regulation
  - Somewhat consistent with previous results (e.g. Evans & Rosenbaum, 2008; Howse et al., 2003)
  - SES does not appear to overwhelm early childhood predictors (Ispa et al., 2017)
  - Sample ensured broad distribution of SES & sufficient sample size
  - Composite measure in keeping with conventional definitions of SES

- Study limitations
  - Maternal-report vs observation
  - Other factors that influence self-regulation development

→ Factors influencing self-regulation may be universal in nature
  - Potential for early intervention
  - Child centred

Thank you

Questions?

IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn

Northside Partnership

GUI Results

Discriminatory Power of SES Variable

Variable	Low SES (n = 3945) Mean (SD)		High SES (n = 4470) Mean (SD)		p-value	Effect Size *Cohen's d* *Odds ratio (odds)*
Maternal Education						
Less than secondary	6%	*(0.23)*	0%	*(0.02)*	**<.001*** **	*105.91 (odds)*
Some secondary school	64%	*(0.48)*	11%	*(0.31)*	**<.001*** **	*15.15 (odds)*
Beyond high/secondary school	11%	*(0.31)*	5%	*(0.22)*	**<.001*** **	*2.21 (odds)*
College or University degree	19%	*(0.40)*	84%	*(0.37)*	**<.001*** **	*0.05 (odds)*
Equivalised income (€)	14774.16	*(6351.65)*	29547.41	*(14747.23)*	**<.001*** **	*1.28*
Mother employed (yes)	70%	*(0.46)*	94%	*(0.24)*	**<.001*** **	*0.16 (odds)*

GUI Results

Descriptive Statistics and Group Differences Based on SES

Variable	Low SES Mean *(SD)*		High SES Mean *(SD)*		p-value	Effect Size+
Mother's age at wave 1	31.52	*(6.03)*	33.42	*(4.21)*	**<.001*** **	*0.56*
Partner (yes)	78%	*(0.41)*	96%	*(0.20)*	**<.001*** **	*0.16 (odds)*
One parent household	22%	*(0.41)*	4%	*(0.20)*	**<.001*** **	*6.17 (odds)*
Child gender (male)	50%	*(0.50)*	53%	*(0.95)*	**.021***	*0.89 (odds)*
Fussy temperament	14.91	*(5.09)*	14.56	*(4.65)*	**.006****	*0.07*
Non-verbal reasoning	57.53	*(10.84)*	59.75	*(10.42)*	**<.001*** **	*0.21*
Verbal ability	53.74	*(12.25)*	57.46	*(11.07)*	**<.001*** **	*0.32*
Mothers depression score	2.86	*(4.05)*	1.97	*(3.00)*	**<.001*** **	*0.25*
Parenting sensitivity	42.72	*(2.56)*	42.44	*(2.55)*	**<.001*** **	*0.11 (odds)*
Has siblings (yes)	88%	*(0.33)*	90%	*(0.30)*	**.002****	*0.77 (odds)*
Childcare used at wave 1						
None	73%	*(0.44)*	45%	*(0.50)*	**<.001*** **	*3.43 (odds)*
Other	22%	*(0.41)*	38%	*(0.49)*	**<.001*** **	*0.46 (odds)*
Centre-based	5%	*(0.21)*	18%	*(0.38)*	**<.001*** **	*0.23 (odds)*
Self-regulation problems score	1.29	*(1.37)*	1.00	*(1.16)*	**<.001*** **	*0.23*
Significant regulatory impairment	3%	*(0.17)*	2%	*(0.12)*	**<.001*** **	*1.96 (odds)*

GUI Results

Interaction Model Predicting Self-Regulation Problems

	B	*Std. Error*	p-value	95% Confidence Interval Lower Bound	Upper Bound
Intercept	-0.36	*0.86*	.672	-2.04	1.32
Parenting sensitivity	-0.05	*0.02*	**.007****	-0.08	-0.01
Depression score	0.11	*0.02*	**<.001*****	0.07	0.15
Has siblings (yes = 1)	-0.06	*0.06*	.326	-0.17	0.06
Fussy temperament	0.11	*0.02*	**<.001*****	0.08	0.15
Child gender (male = 1)	0.16	*0.03*	**<.001*****	0.10	0.21
Non-verbal reasoning	-0.07	*0.02*	**<.001*****	-0.10	-0.04
Verbal ability	0.01	*0.02*	.727	-0.03	0.04
Low SES (Low SES = 1)	-0.02	*0.09*	.791	-0.20	0.15
Low SES * parenting sensitivity	-0.01	*0.03*	.810	-0.07	0.05
Low SES * depression score	-0.03	*0.03*	.396	-0.09	0.03
Low SES * has siblings	0.15	*0.09*	**.085**	-0.02	0.32
Low SES * fussy temperament	-0.04	*0.03*	.136	-0.10	0.01
Low SES * child gender	0.03	*0.05*	.522	-0.07	0.14
Low SES * Non-verbal reas.	0.03	*0.03*	.254	-0.03	0.09
Low SES * Verbal ability	-0.08	*0.03*	**.004****	-0.13	-0.03
(Controls Inc.)					

NLSCY Results

Discriminatory Power of SES Variable

Variable	Low SES (n = 5639) Mean (SD)		High SES (n = 6529) Mean (SD)		p-value	Effect Size
Maternal Education						
Less than secondary	23%	*(0.42)*	1%	*(0.09)*	***<.001****	*35.94 (odds)*
Secondary school graduation	25%	*(0.43)*	6%	*(0.25)*	***<.001****	*4.80 (odds)*
Beyond high/secondary school	30%	*(0.46)*	17%	*(0.38)*	***<.001****	*2.06 (odds)*
College or University degree	23%	*(0.42)*	76%	*(0.43)*	***<.001****	*0.09 (odds)*
Equivalised income (CAD)	10036.19	*(3444.17)*	13556.53	*(2389.42)*	***<.001****	*1.19*
Mother employed (yes)	41%	*(0.49)*	71%	*(0.45)*	***<.001****	*0.28 (odds)*

NLSCY Results

Descriptive Statistics and Group Differences Based on SES

Variable	Low SES Mean (SD)		High SES Mean (SD)		p-value	Effect Size+
Mother's age at wave 1	28.58	*(5.70)*	31.51	*(4.50)*	***<.001****	*0.57*
Married (yes)	57%	*(0.50)*	82%	*(0.39)*	***<.001****	*0.30 (odds)*
One parent household	19%	*(0.40)*	3%	*(0.17)*	***<.001****	*7.75 (odds)*
Child gender (male)	50%	*(0.50)*	51%	*(0.50)*	*.487*	*0.96 (odds)*
Fussy temperament	14.51	*(5.28)*	14.79	*(5.20)*	***.040****	*0.05*
Cognitive ability	98.18	*(14.88)*	104.26	*(14.43)*	***<.001****	*0.42*
Mothers depression score	5.06	*(5.18)*	3.71	*(4.18)*	***<.001****	*0.29*
Positive parenting	17.69	*(2.43)*	17.96	*(2.03)*	***<.001****	*0.12*
Ineffective parenting	1.97	*(1.72)*	1.99	*(1.66)*	*.405*	*0.02*
Has siblings (yes)	68%	*(0.47)*	74%	***(0.44)***	***<.001****	*0.74 (odds)*
Childcare used at wave 1						
None	68%	*(0.47)*	49%	*(0.50)*	***<.001****	*2.24 (odds)*
Other	26%	*(0.44)*	42%	*(0.49)*	***<.001****	*0.49 (odds)*
Centre-based	6%	*(0.24)*	9%	*(0.29)*	***<.001****	*0.62 (odds)*
Self-regulation problems score	0.355	*(2.45)*	0.05	*(2.16)*	***<.001****	*0.13*
95th percentile of dysregulation scores	8%	*(0.27)*	4%	*(0.20)*	***<.001****	*1.90 (odds)*

NLSCY Results

Interaction Model Predicting Self-Regulation Problems

	B	*Std. Error*	p-value	95% Confidence Interval Lower Bound	Upper Bound
Intercept	0.27	*0.10*	**.005****	0.08	0.46
Positive parenting	-0.07	*0.02*	**<.001*****	-0.11	-0.03
Ineffective parenting	0.10	*0.02*	**<.001*****	0.06	0.13
Depression score	0.14	*0.02*	**<.001*****	0.10	0.18
Has siblings (yes = 1)	0.00	*0.04*	.994	-0.07	0.07
Fussy temperament	0.14	*0.02*	**<.001*****	0.10	0.18
Child gender (male = 1)	0.17	*0.03*	**<.001*****	0.10	0.23
Cognitive ability	-0.04	*0.02*	**.022***	-0.07	-0.01
Low SES (Low SES = 1)	-0.07	*0.05*	.198	-0.17	0.04
Low SES * positive parenting	0.04	*0.03*	.163	-0.02	0.09
Low SES * ineffective parenting	-0.02	*0.03*	.541	-0.07	0.04
Low SES * depression score	0.02	*0.03*	.549	-0.04	0.07
Low SES * has siblings	0.10	*0.06*	**.064**	-0.01	0.21
Low SES * fussy temperament	0.04	*0.03*	.225	-0.02	0.10
Low SES * child gender	0.06	*0.05*	.303	-0.05	0.16
Low SES * cognitive ability	0.00	*0.03*	.981	-0.05	0.06
(Controls Inc.)					