Parental mediation of the relationship between media consumption and indicators of child mental health from 3-9 years

Dr. Desmond O'Mahony, GUI Study Team

Growing Up in Ireland
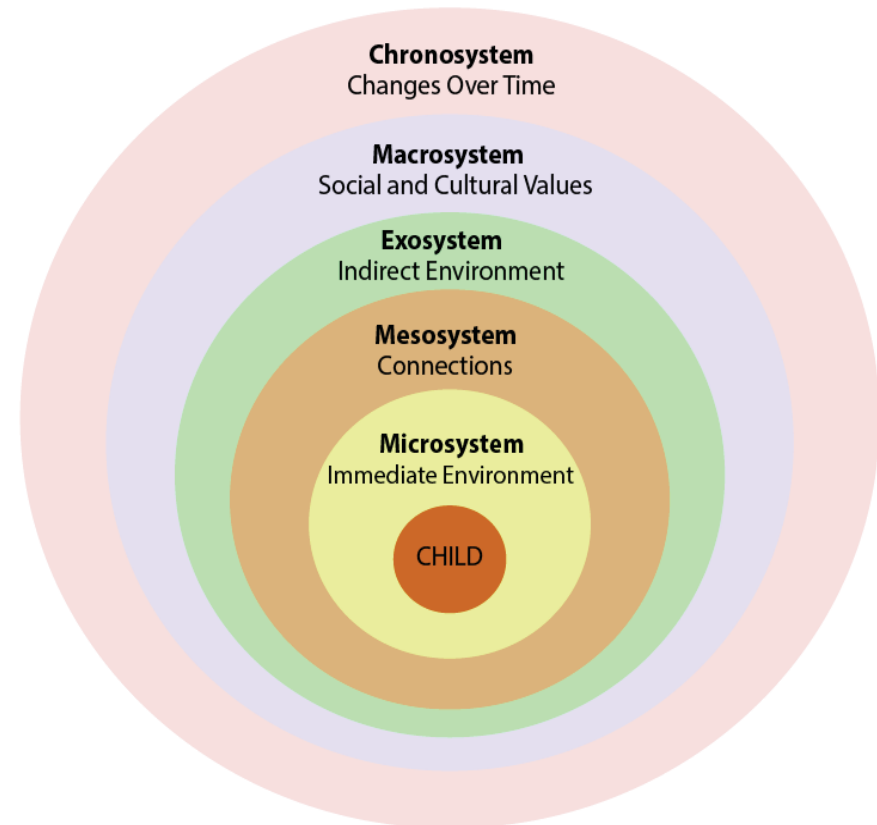National Longitudinal Study of Children

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ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

Trinity College Dublin
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An Roinn Leanaí, Comhionannais, Míchumais, Lánpháirtíochta agus Óige
Department of Children, Equality, Disability, Integration and Youth

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Overview

- Bronfenbrenner Ecological systems theory (Bronfebrenner & Morris, 2007)

- Parent mediates child's interaction with the Macrosystem

- Does higher technology use shortcut that system and potentially have undesirable outcomes (Blum-Ross & Livingstone, 2016)

- What do parents do to limit or mitigate these effects

Bronfenbrenner's Ecological Systems Theory

Chronosystem
Changes Over Time

Macrosystem
Social and Cultural Values

Exosystem
Indirect Environment

Mesosystem
Connections

Microsystem
Immediate Environment

CHILD

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Variables and Research questions

- **Outcome variable** Strengths and Difficulties Questionnaire total score

- **Connections to Exo/Macrosystem** operationalised as child screen time and internet access

- **Parental mediation** operationalised as rules about same and adult behaviour to limit and introduce technology to children

Hypotheses
- Screen time affects a child's emotional health

- Parental rules and behaviours affect child emotional health

- Parent rules and behaviours affect screen time

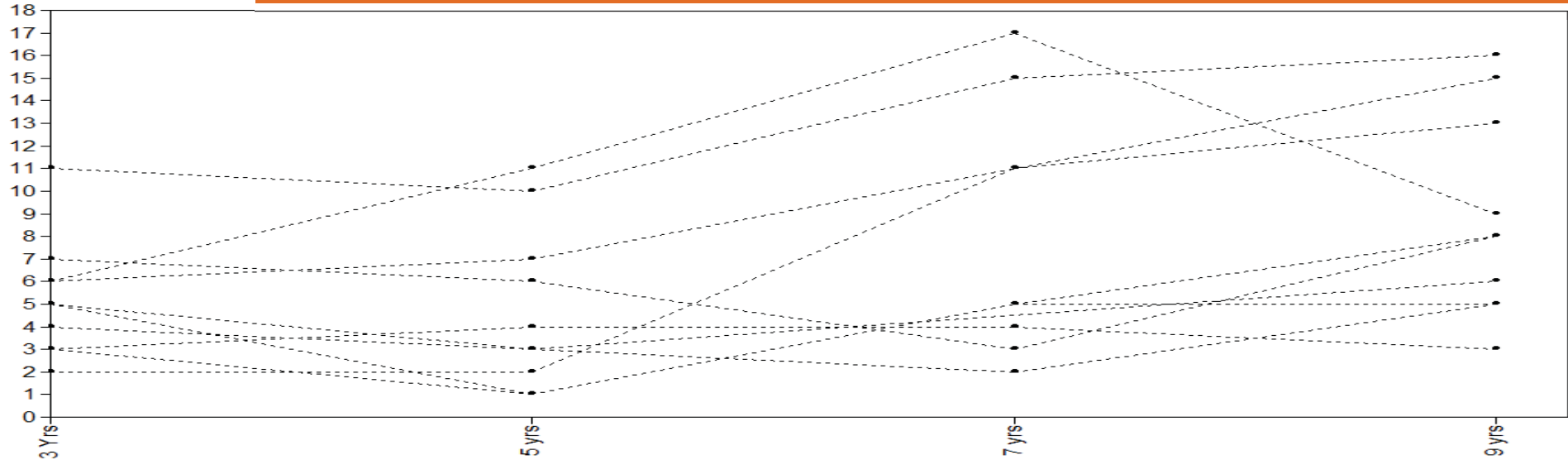- Exploration of direct and indirect effects in this process

Data source for the Current Study

- GUI Infant Cohort Anonymised Microdata Files (AMF)

- Wave 1   9mths   Unweighted sample of – 11,134   2008
- Wave 2   3yrs   Unweighted sample of –   9,793
- Wave 3   5yrs   Unweighted sample of –   9,001
- Wave 4   7yrs   Unweighted sample of –   5,344
- Wave 5   9yrs   Unweighted sample of –   8,032   2018

- Pure fixed panel design

- Evidence of differential attrition across waves (Williams et al., 2009).
- Longitudinal weight gives a representative sample of ~7,500 across all waves (~ 4,730 in wave 4)

Model 1: Baseline growth model

- Strengths and difficulties questionnaire (Goodman and Goodman 2011)

- Waves 2, 3, 4 and 5

- Intercept captures starting point. Positive numbers = more initial problems

- Slope captures change over time. Positive numbers = problems worsening over time
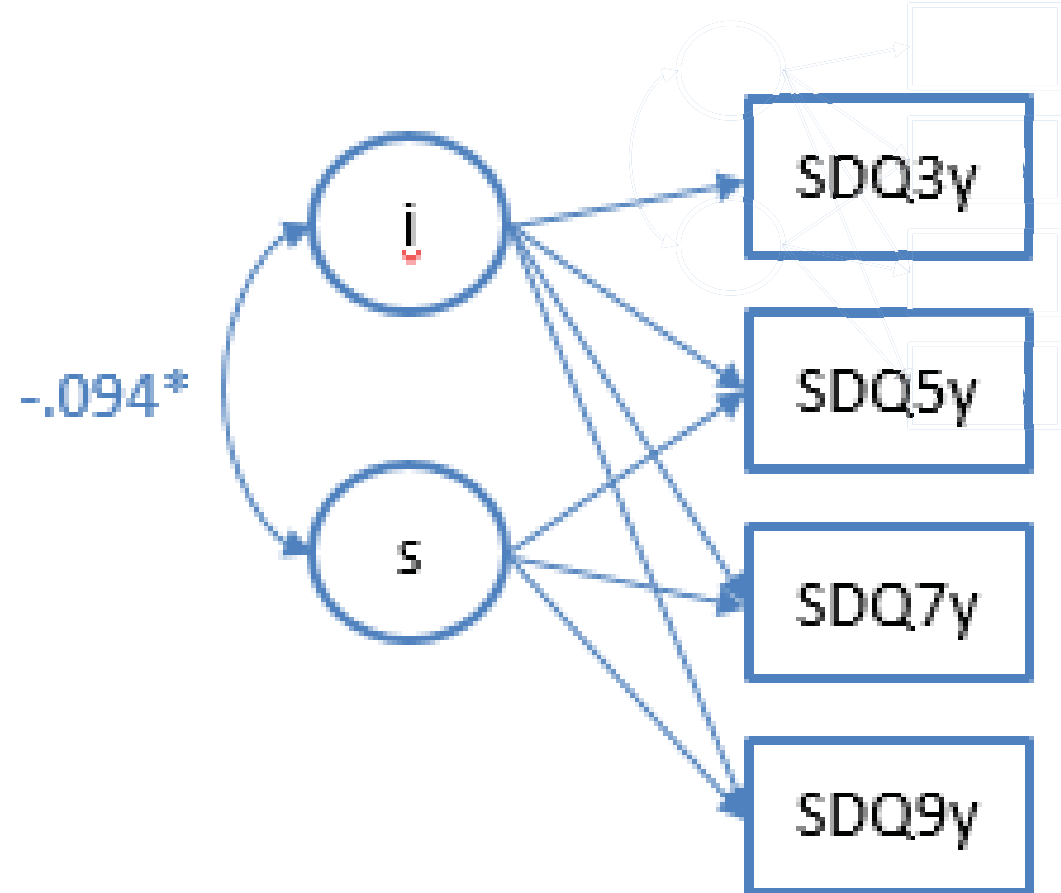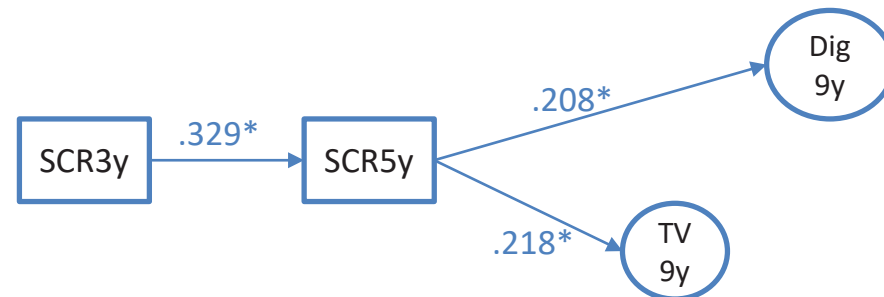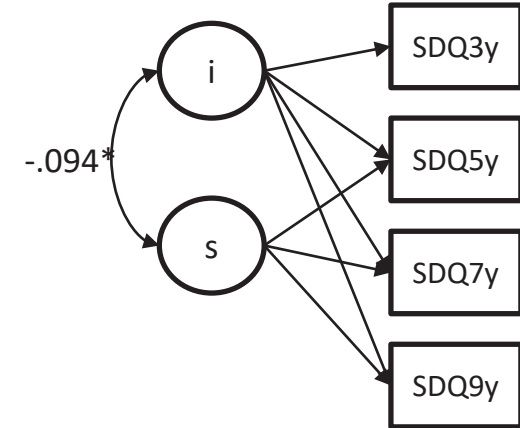
Model 2: Screen-time

- 3Y and 5Y questions are TV & screen-time based

- Complexity increases

- 9Y Weekend/Weekday TV + Digital screen time

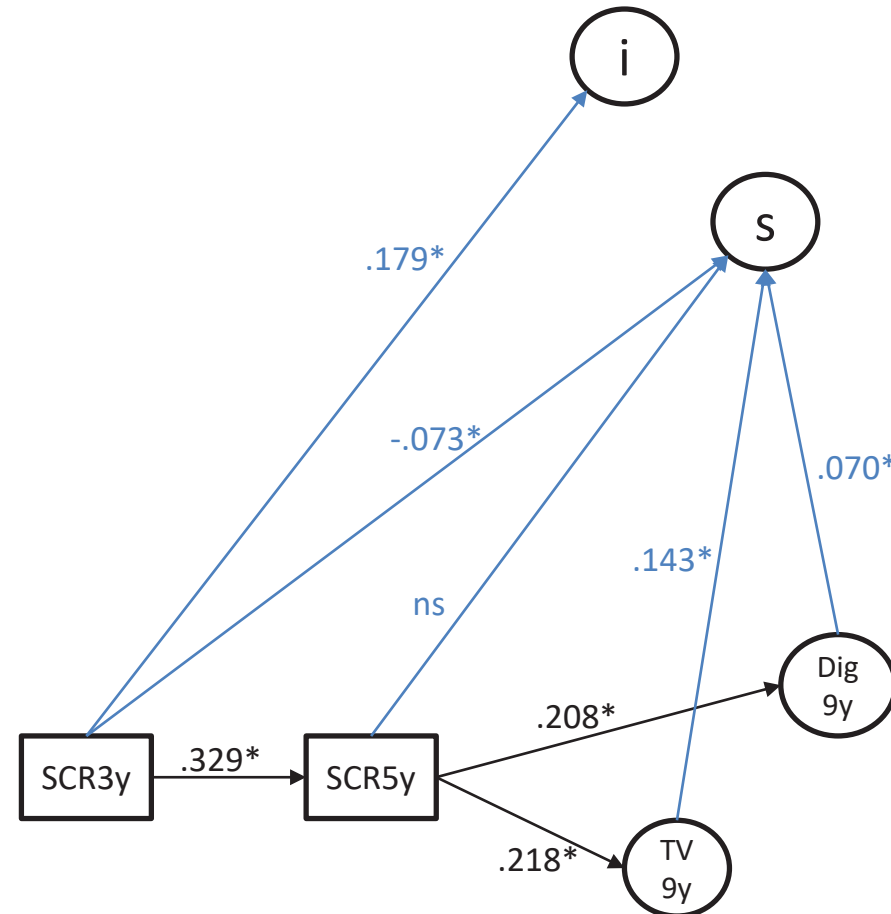- Paramaterized with latent variables at 9Y
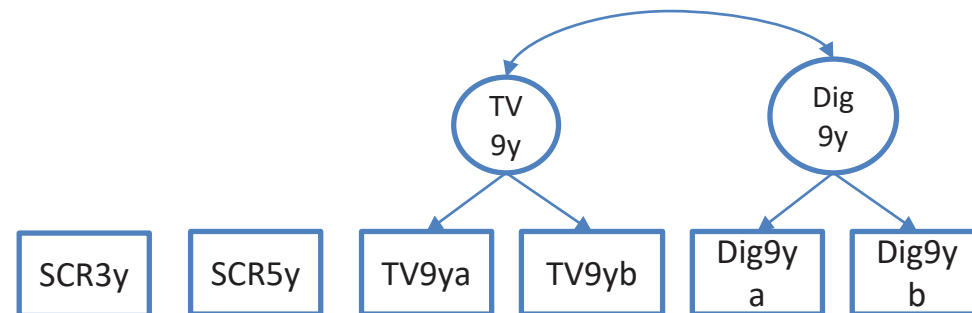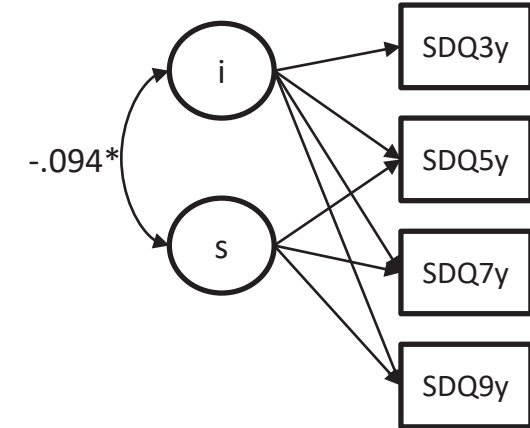
Model 2: Screen-time

- SEM based causal structure imposed on the data
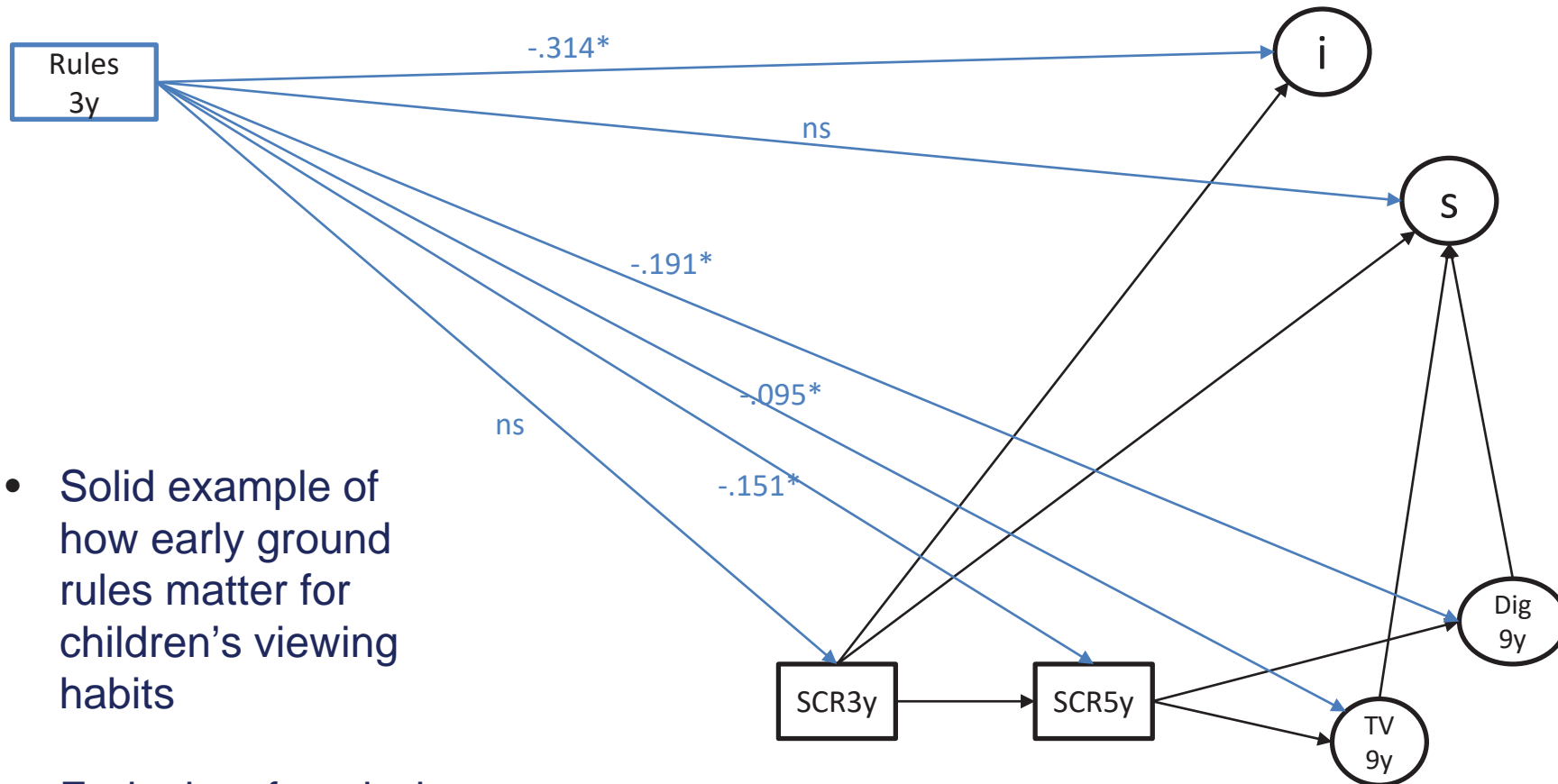
- Past experiences influence future behaviour

Model 2: Screen-time

- SEM based causal structure imposed on the data

- Past experiences influence future behaviour

- Causal logic follows through on intercept (i) and slope (s)

.179*
-.073*
.070*
.143*
ns
.208*
.329*
.218*

i
s
SCR3y
SCR5y
Dig 9y
TV 9y

Model 3: Parental rules at 3 years

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-.314*

ns

-.191*

-.095*

ns

-.151*

i

S

Rules
3y

SCR3y

SCR5y

TV
9y

Dig
9y
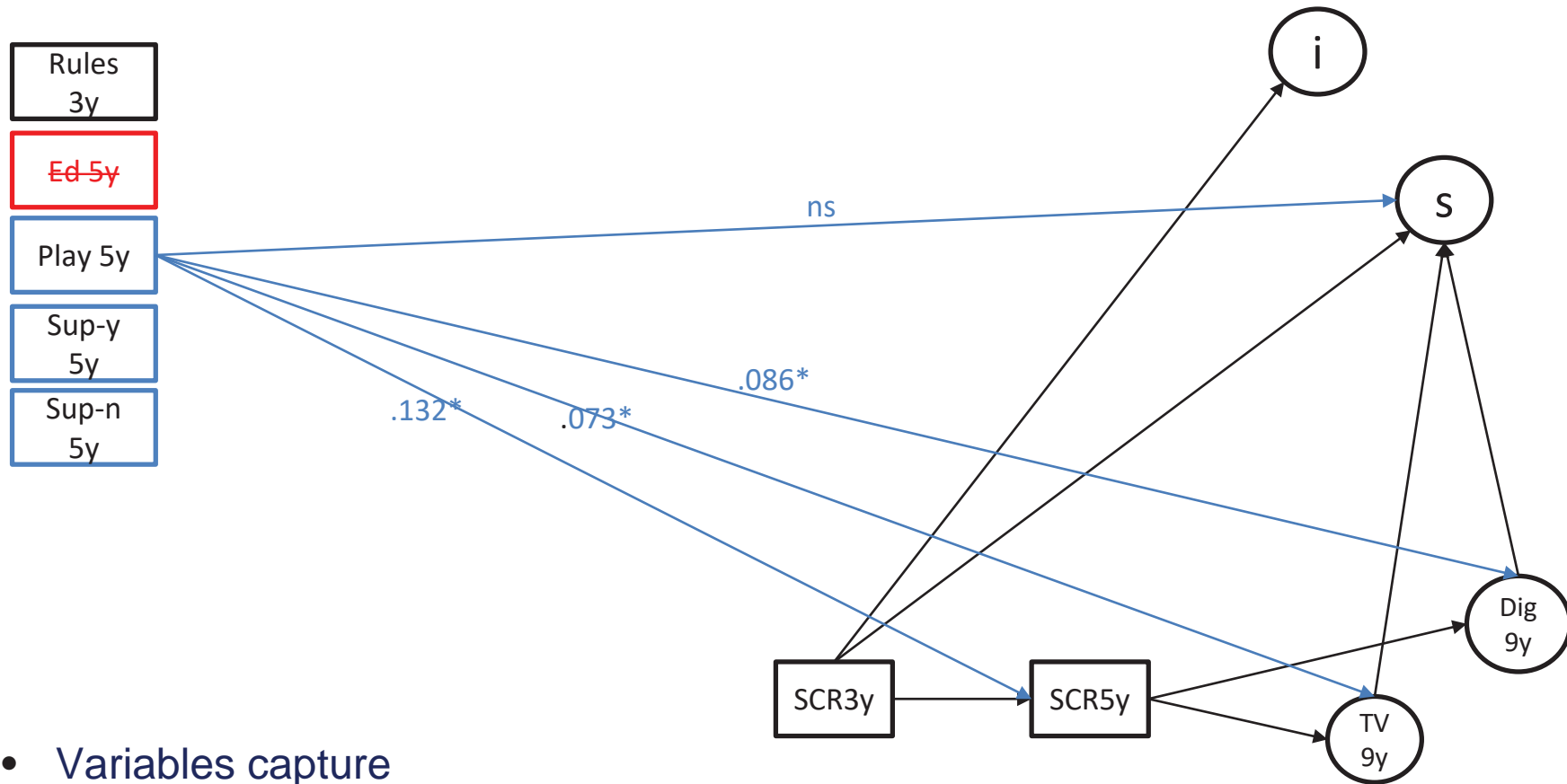
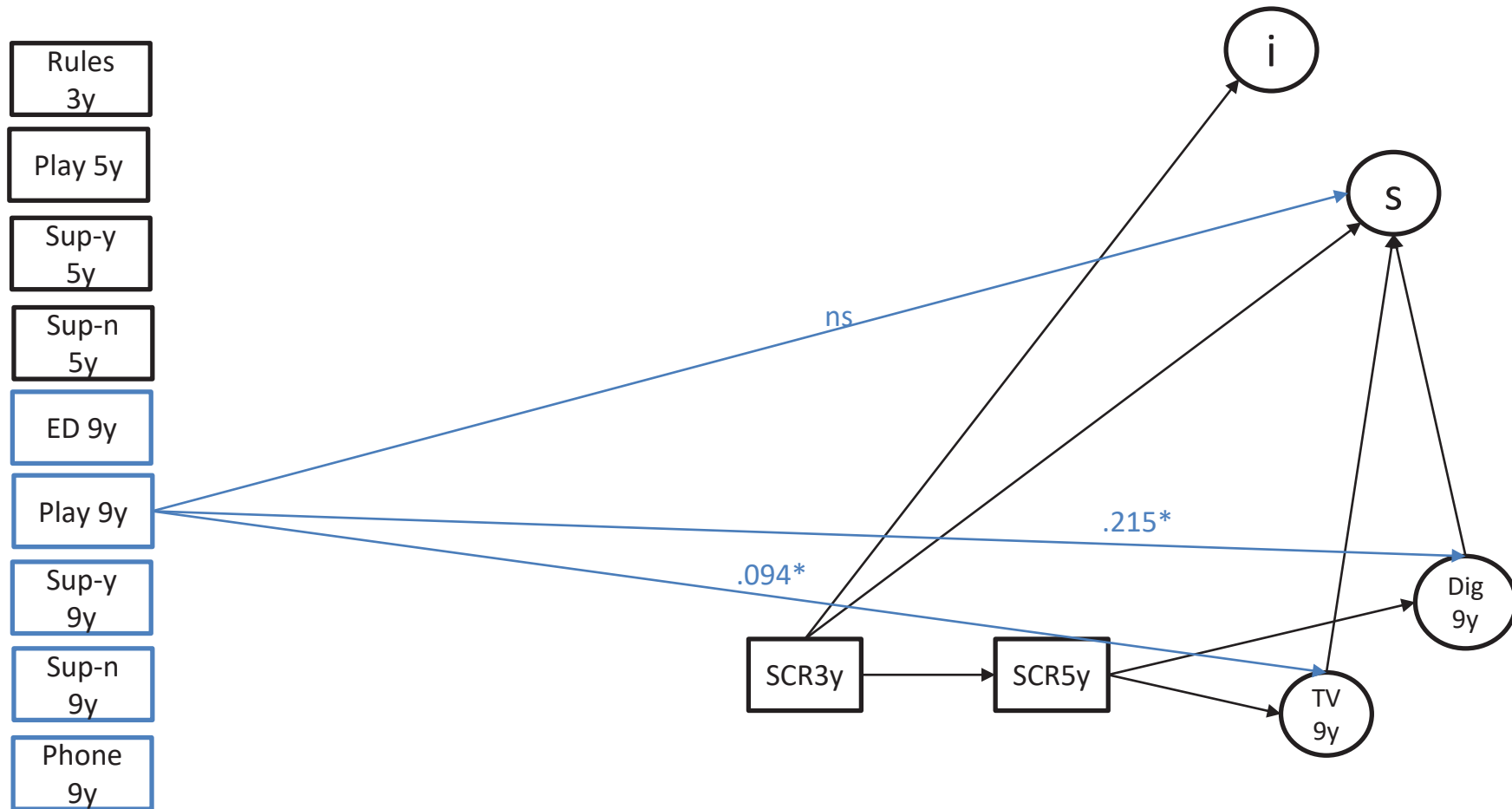- Solid example of how early ground rules matter for children's viewing habits

- Endpoint of analysis aims to explore both direct and indirect effects

Model 3: Parental rules at 5 years

Rules 3y

Ed 5y

Play 5y

Sup-y 5y

Sup-n 5y

i
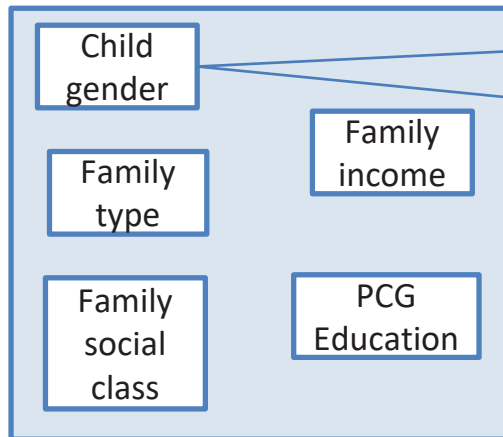
S

ns

.086*

.132*

.073*

SCR3y

SCR5y

TV 9y

Dig 9y

- Variables capture household rules and direct parental mediation of media through play and supervision

Model 3: Parental rules at 9 years

Rules
3y

Play 5y

Sup-y
5y

Sup-n
5y

ED 9y

Play 9y

Sup-y
9y

Sup-n
9y

Phone
9y

i

S

ns

.215*

.094*

SCR3y

SCR5y

Dig
9y

TV
9y

- Extends to 9Y variables
  and phone ownership at 9Y

Model 3: Child and family level Controls

Rules 3y

Play 5y

Sup-y 5y

Sup-n 5y

~~ED 9y~~

Play 9y

Sup-y 9y

Sup-n 9y

Phone 9y

Child gender

Family type

Family income

Family social class

PCG Education

.133*

.212*

i

S

SCR3y

SCR5y

TV 9y

Dig 9y
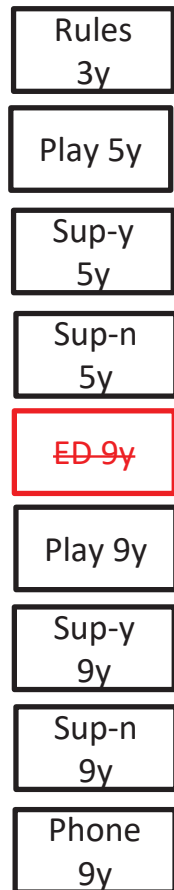
- A wide array of controls introduced at final step of model

- Expectations based on previous findings upheld

- Some predictors drop out of model
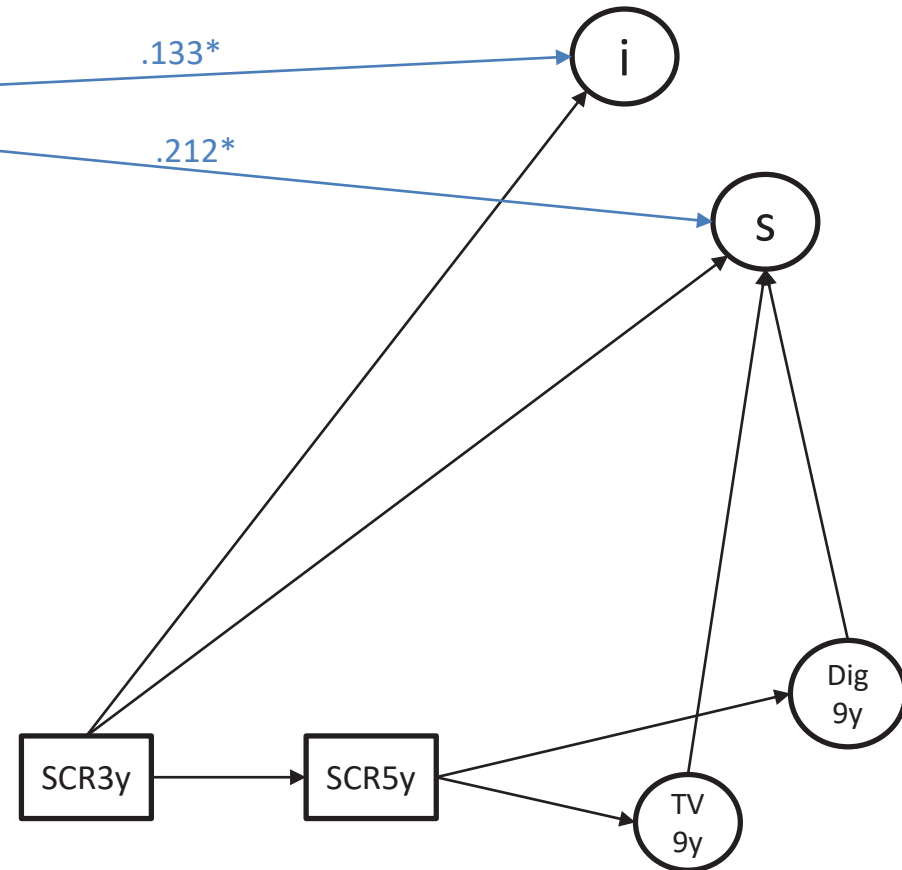
Endogenous and Exogenous variables (Standardised Betas)

|		SCR 3Y	SCR 5Y	TV 9Y	Dig 9Y
Screen time	SCR 3y	-	.316***	.199***	-
	SCR 5Y	-	-	-	.175***
Parental rules	RUL 3Y	-.035	-.151***	-.095*	-.193***
	SUP-y 5Y		.084**	-0.008	.163***
	SUP-n 5Y		.446*	0.229	.416
	PLAY 5Y		.133***	.075*	.089*
	ED 5Y		-.020	-0.059	-.066
	SUP-y 9Y			-0.119	.61***
	SUP-n 9y			-0.114	.82***
	PLAY 9Y			.093**	.216***
	ED 9Y			-0.021	-.055
	PHONE 9Y			0.061	.365***

- Path diagram illustrated that screen time has a relatively weak relationship with SDQ scores.

- Parental rules and mediation variables have a significant relationship with screen-time

- Decomposition of **direct** and **indirect** effects may reveal true impact of rules and parenting behaviours.
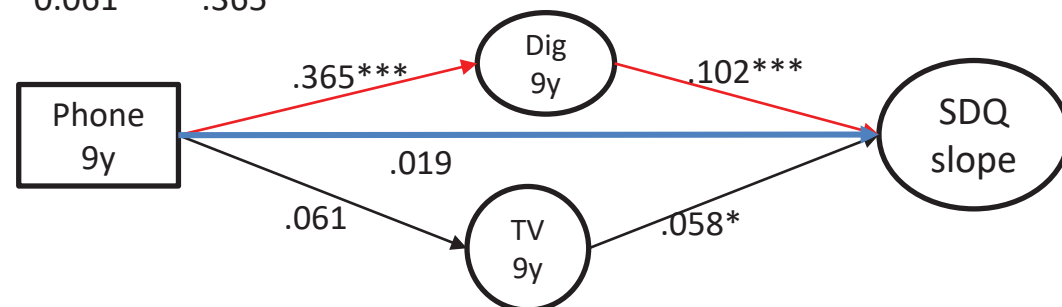
Early TV rules and SDQ			Standardised Beta
Parents set early content rules	Rules 3Y to Intercept	**Direct**	**-.248***
		Indirect	-.001
	Rules 3y to slope	Direct	.046
		Indirect	**-.245***

Effects of un/supervised internet access slope of SDQ			Standardised Beta
Supervised Internet access Ref - No access	Supervised access 5y	Direct	.017
		Indirect	**.019***
	Unsupervised access 5y	Direct	-.066
		Indirect	.071
	Supervised access 9y	Direct	-.178
		Indirect	**.055***
	Unsupervised access 9y	Direct	-.082
		Indirect	**.077***

Effects of play with computers on slope of SDQ			Standardised Beta
Parent plays computer games with child	Play 5Y	Direct	-.055
		Indirect	**.018** **
	Play 9y	Direct	.013
		Indirect	**.028***

Phone ownership and slope of SDQ			Standardised Beta
Child owns a mobile phone	Phone 9y	Direct	.019
		Indirect	**.041***

- Majority of parenting rules and behaviours have significant **indirect effects** on model slope

Implied mechanism:

- Screen time is a mediator between parental rule setting and indicators of child mental health

Indirect   .041*
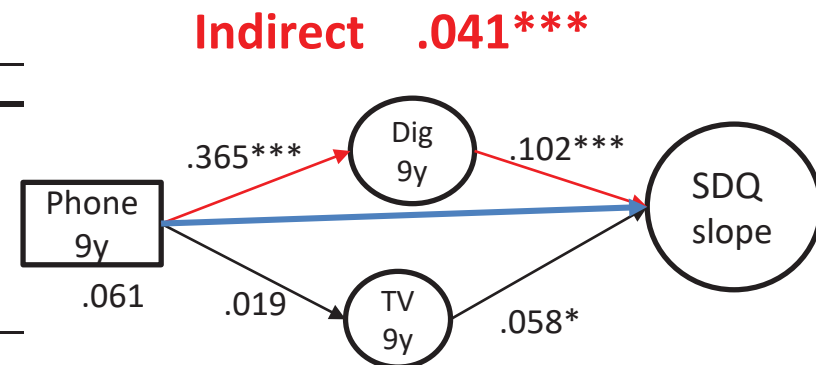
Summary

- **Screen time effects on child emotional health** – associated with weakly increasing SDQ scores over time

- **Parental rules and behaviours affect child emotional health** – Some rules had a moderate dampening effect on change in SDQ scores

- **Parental rules and behaviours affect screen time** – Rules tended to reduce screen time, parental mediation behaviours were associated with elevated screen time

- **Exploration of direct and indirect effects in this process** – Significant indirect effects observed for many predictors. Highlights the need for breakdown of mediation/moderating effects on child behaviour.

Strengths and limitations

- Longitudinal structure facilitates causal modelling

- Explore effects of early rule setting and adult mediation of experiences with technology

- Highlight indirect effect difficult to target with other methodologies

- Current paper focuses on an amount of screen-time, also need to look at quality of activity

- Many ways to parameterize data which highlights the need to systematise approaches

- Screen time research in a time of lockdown? 'Go online and play with your friends…'

Future research

- More explicit modelling of gender based differences in SDQ trajectories

- Time-invariant and time-varying covariates in model

- Extend findings with further exploration of family rule setting and role of secondary caregiver in mediating access

- Cross cohort comparisons

Thanks to all GUI participants

None of this work would be possible without your contributions

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