



# Does time spent watching television in early childhood affect socio-emotional development?

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# Overview

- **Introduction**
  - Television and screen time use in children
  - Effects of television watching on children
- **Current Study**
  - Effects of television watching on socio-emotional development in Irish 3 year olds
- **Conclusions**



# Introduction

## Prevalence of televisions

- It has become the norm for there to be multiple television sets per household.
- Over two-thirds of families surveyed by the Broadcasting Commission of Ireland in 2008 had more than one television set.
- Many of these additional televisions are in childrens' bedrooms which may mean a lack of parental control over programme content.



# Introduction

## Prevalence of a television in child's own bedroom

- 22% of 3-4 year olds (Ofcom, 2013)
- Nearly 25% of 4 – 7 year olds (BCI, 2008)
- 37% of 5-7 year olds (Ofcom, 2013)
- 41% of 5 year olds (Mistry et al, 2007 – American data)
- 45% of 9 year olds (Williams et al, 2009 – GUI data)



# Introduction

## Amount of television watched

- American Academy of Pediatrics recommends no more than 1-2 hours per day for children aged 2 and over.
- Two thirds of Irish 9 year olds spent 1-3 hours per weekday during term time (Williams et al, 2009)
- This time may increase at weekends (Quail et al., 2013)



# Introduction

- Pagani et al. (2010) examined data from children aged 29 months and then again at 53 months from the Quebec Longitudinal Study
- Those aged 29 months watched an average of 8.82 hours tv per week,
- Those aged 53 months watched an average of 14.85 hours tv per week
- 11% at 29 months and 23% at 53 months view more than 2 hrs per day



# Introduction

- Jago et al. (2013) examined the viewing habits of 3-5 year old preschool children and their parents in the UK.
- Two thirds of preschool children and three quarters of parents watched two or more hours of tv per day.
- If the parent watched two or more hours per day then the child was more than 5 times likely to do the same.
- However, increased self efficacy of the parent to limit screen time was associated with a 77% reduction in the likelihood to watch 2 hours + per day



# Introduction

## Factors associated with increased television watching

- Hoyos et al (2010) reviewed 71 studies of media use among children aged 7 and under.
- Factors associated with increased screen-time were
  - lower parental education
  - maternal depression
  - high levels of family television viewing
  - non-White ethnicity
  - higher parental body mass
  - fewer parental rules
- Environmental factors included
  - increased access to media equipment (positive association)
  - perceived safety of the neighbourhood (negative association)





# Introduction

## Effects of watching television

- Watching television has been associated with effects on physical, cognitive and socio-emotional development
- Many of the effects are negative but some are positive. Few are very clear cut
- The amount and content of what is being watched seems to be important



# Introduction

## Physical development

- The Avon Longitudinal Study of Parents and Children (ALSPAC) in the UK found links between watching television and obesity (Reilly et al, 2006).
- 3-year-olds who spent 4-8 hours per week were 37% more likely to be obese at age 7 years than those who watched less than four hours.
- Those with more than 8 hours of viewing were 55% more likely (potentially confounding variables family characteristics and lifestyle factors were controlled for).



# Introduction

- Quebec Longitudinal Study - increased television exposure at age 29 months was associated with (Pagani et al, 2010)
  - increases in BMI at age 10 years
  - decreased physical activity
  - higher consumption of soft drinks and snacks
- A systematic review of papers on the topic of television viewing and BMI in pre-school children (i.e. aged 2-6 years) found that 23 of the 26 papers included reported evidence of a positive association (Cox et al, 2012).



# Introduction

## Cognitive development

- Many studies have looked at the effect of television watching on attention and on language
- Effects are mixed



# Introduction

## Attention

- Swing et al., (2010) examined children in middle childhood.
- Concluded that television and video game exposure was associated with the development of attention problems
- Suggest the pattern is less clear in young children however.



# Introduction

- Anderson & Pempek (2005) distinguish between background and foreground television in young children.
- Foreground television is designed for them and children pay attention to it.
- Background television is not designed for them and they do not attend to it overtly.
- However, toddlers spend less time in focused play and more time in unfocused movement around the room than when the tv is not on.



# Introduction

## Language:

- Linebarger & Walker (2005) report a longitudinal study of 51 children.
- TV use was recorded by parents every 3 months from age 6 months to age 30 months
- Some types of programmes supported language development (e.g., Dora the Explorer, Blue's Clue's)



# Introduction

- Chonchaiya & Pruksananonda (2008) report on Thai children aged 15-48 months (56 with language delay and 110 with normally developing language).
- Children with language delays started watching tv earlier than normal children (7 months vs 12 months) and also spent more time per day watching (3 hrs vs 1.2 hrs).
- Those that watched before 12 months and for more than 2 hrs per day were 6 times more likely to have language delay.
- Most of the programme content was not educational.





# Introduction

## Socio-emotional development

- Much research has focused on violence and tv
- In their review Comstock and Scharrer (2006) note the evidence supports a clear link between exposure to violent media content and behaviour in children and adolescents
- US Surgeon General reports (1972, 1982, 2001) conclude that there is a causal link between watching violence on television and subsequent violent behaviour.



# Introduction

- UK's Millennium Cohort Study
- Parkes et al. (2013) examined the link between daily hours of watching television and playing electronic games at age 5 years, and emotional well-being and behaviour at age 7 years.
- Used the Strengths and Difficulties Questionnaire (also used by GUI)



# Introduction

- Three or more hours per day was associated with higher (i.e., worse) scores on all the problem sub-scales of the SDQ
  - conduct problems
  - hyperactivity/inattention
  - emotional symptoms
  - peer problems
- Also poorer scores on the pro-social scale, when the models were adjusted for gender and age in months at follow-up.



# Introduction

- The negative effect of screen-time on conduct problems remained statistically significant when adjustment was made for a wide range of other variables:
  - socio-demographic factors
  - maternal characteristics
  - measures of family functioning
  - other child characteristics such as cognitive ability and sleeping difficulties
- Higher exposure to screen-time may be a proxy for other characteristics that are the main driver of poor behavioural outcomes or alternatively one mediates the other



# Introduction

- Similarly, a Scottish study (Hamer et al, 2009) found that, cross-sectionally, three hours or more of screen entertainment was associated with worse scores on the SDQ measure among children aged 4-12 years and was robust to:
  - a range of socio-demographic characteristics
  - medical conditions
  - diet
  - activity measures



# Introduction

- However, there can be socio-emotional benefits to screen-time (and negative effects can be diminished).
- Christakis et al. (2013) conducted a home-based intervention to replace aggressive and violent media content with pro-social and educational content without reducing the total amount of screen-time in 3-5 year olds.
- Found improvement in the externalising behaviour and social competence, but not internalising behaviour.



# Current Study

## Aim

- To investigate the effect of television on socio-emotional development in Irish 3 year olds.
- Families of 11,100 children were interviewed in 2008/2009 when the Study Child was nine months old and then re-interviewed in 2011 when the children were three years old (subsequent follow up at 5 years old).
- Completed a number of different measures.



# Current Study

## Variables of interest used in analysis

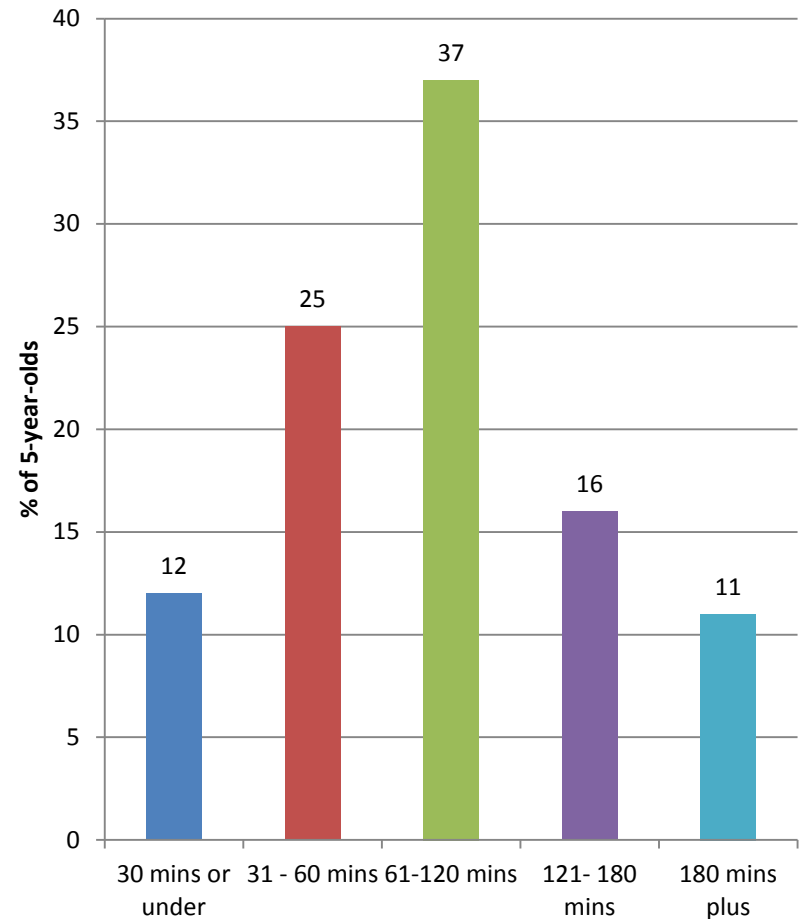
- Time spent watching television per day (parent report)
- Rules about television (parent report)
- Strengths and Difficulties Questionnaire (SDQ)
  - 5 subscales: Prosocial, Emotional, Conduct, Hyperactivity, Peer Problems
- Demographic variables (e.g., SES, Parental education levels)





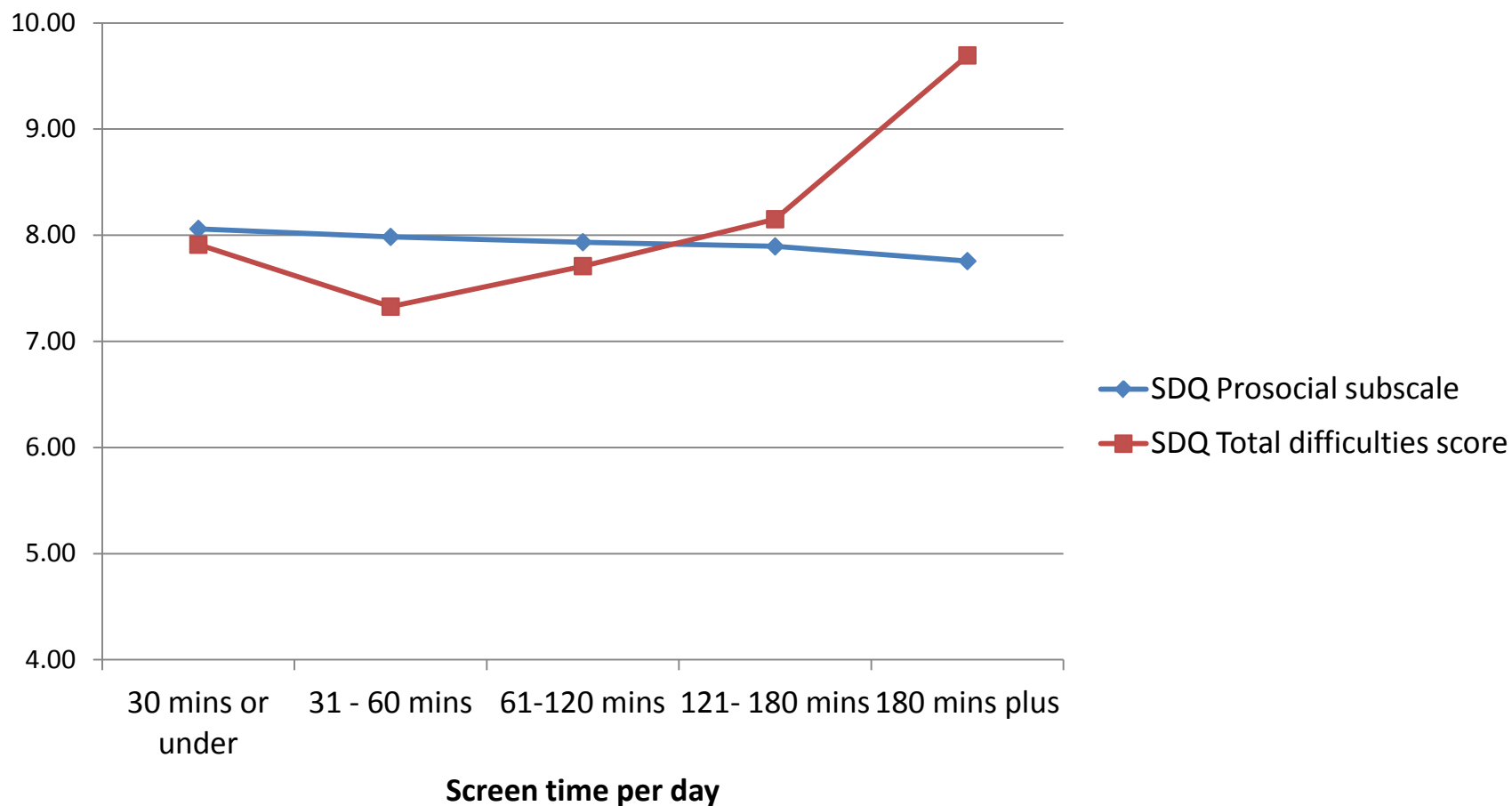
# Descriptives

- Mean time spent watching television per day was 112 mins
- Most frequent category was between 1 and 2 hours
- 27% watched TV for more than 2 hours
- 85% of families had rules about what child could watch
- 16% of 3-year-olds had a TV, computer or games console in their bedroom





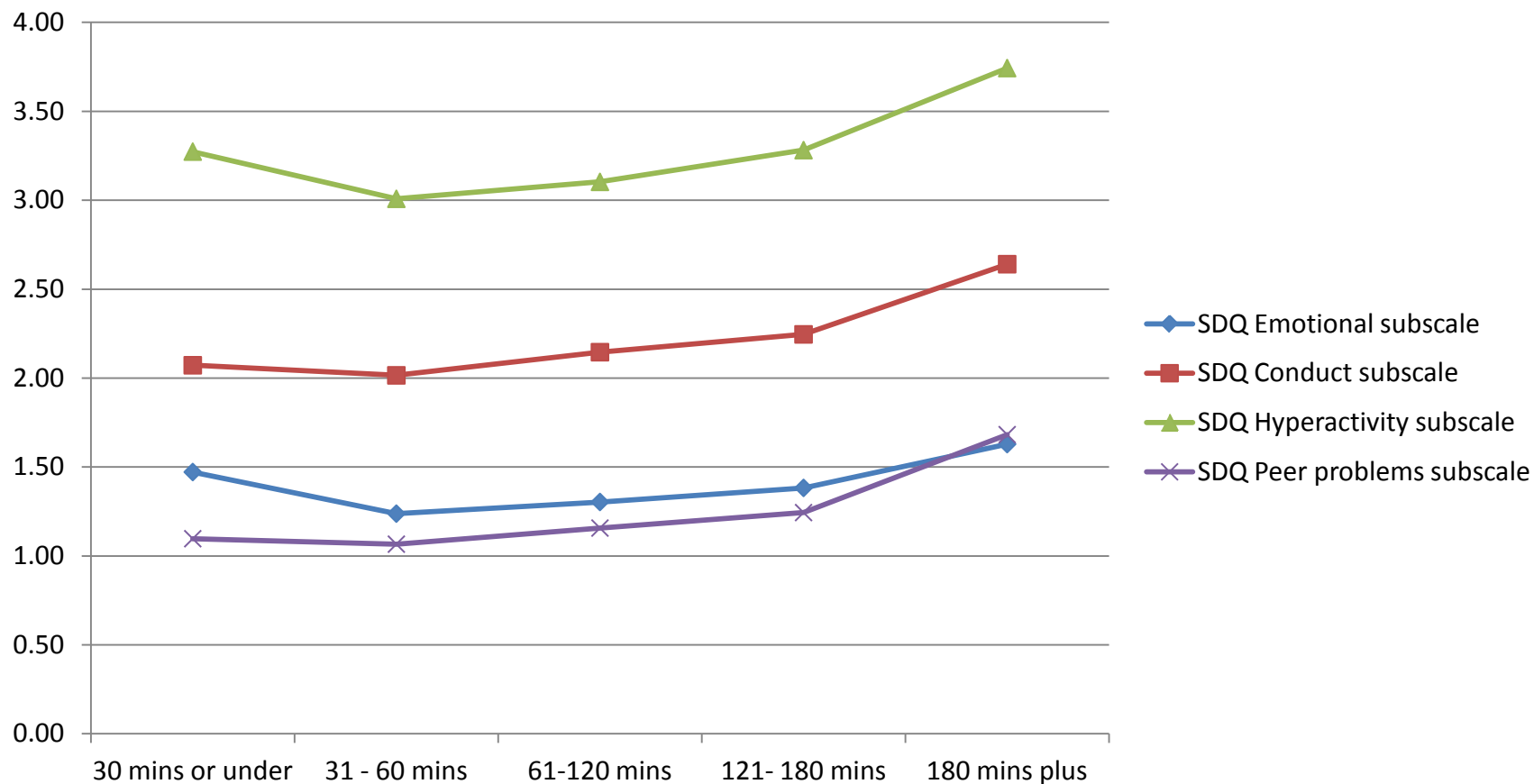
# Effect of screen time on SDQ scores



Longer periods of television associated with higher (worse) behaviour scores



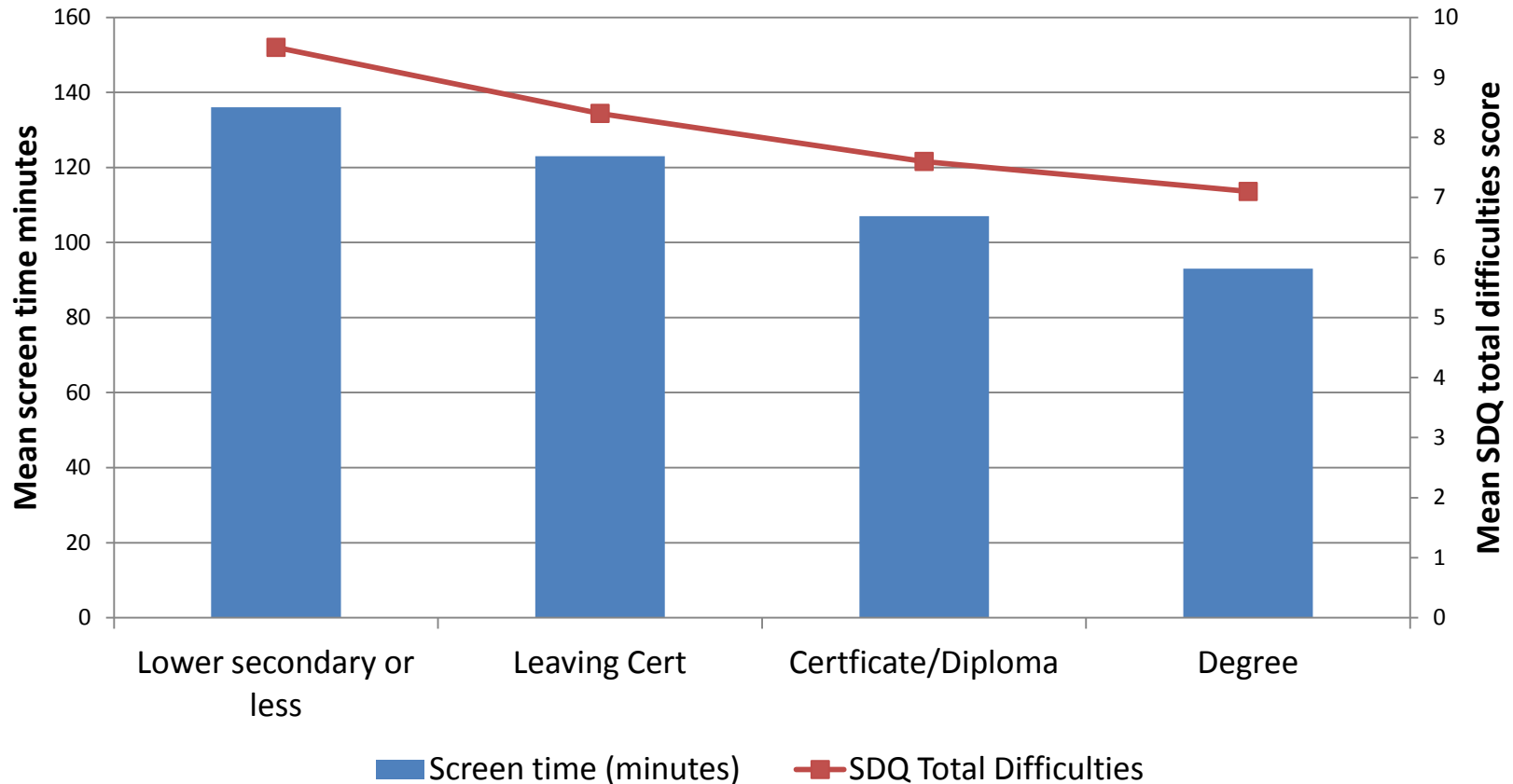
# Effect of screen time on SDQ scores



Also associated with worse scores on each of the individual problem subscales



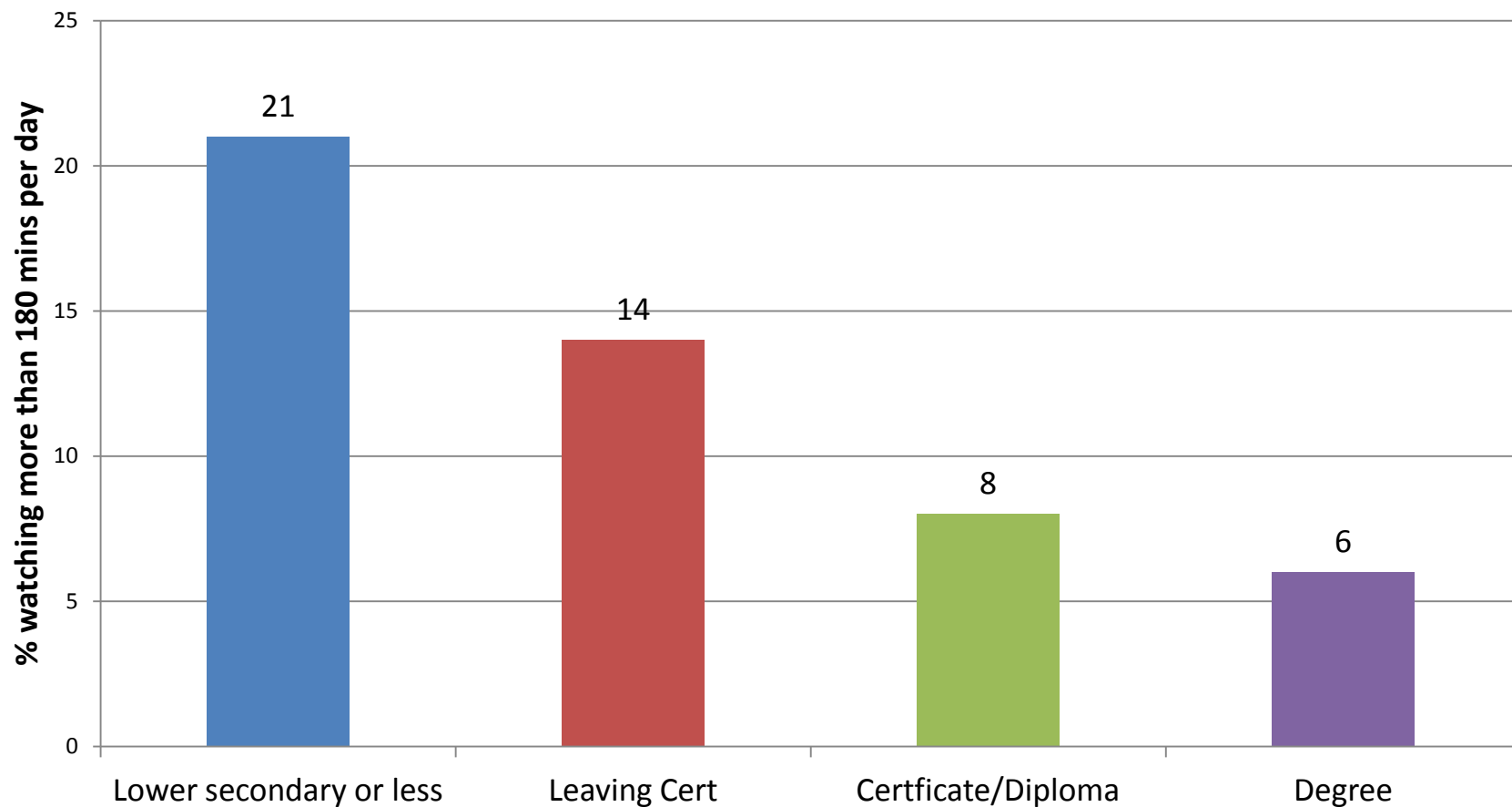
# Problem of confounding variables



However, both longer screen time and high SDQ scores associated with other measures of SES disadvantage such as lower parental education



# Problem of confounding variables



Lowest parental education has highest likelihood of being in longest screen time category



# Other potential confounders

- Which comes first? Are children with socio-emotional/behavioural problems more likely to choose to watch more television?
- Infant temperament measured at age 9 months using the Infant Characteristics Questionnaire (i.e. ‘fussy-difficult’, ‘unadaptable’ and ‘unpredictable’)
- All three infant scales significantly correlated with later measures of screen time and SDQ total difficulties score at age 3 years

		Temperament measures at 9 months		
		fussy-difficult subscale of ICQ	unadaptable subscale of ICQ	unpredictable subscale of ICQ
<b>Measures at 3 years</b>	Screen time per day (mins)	.06***	.07***	.04***
	SDQ Total difficulties score	.25***	.16***	.17***

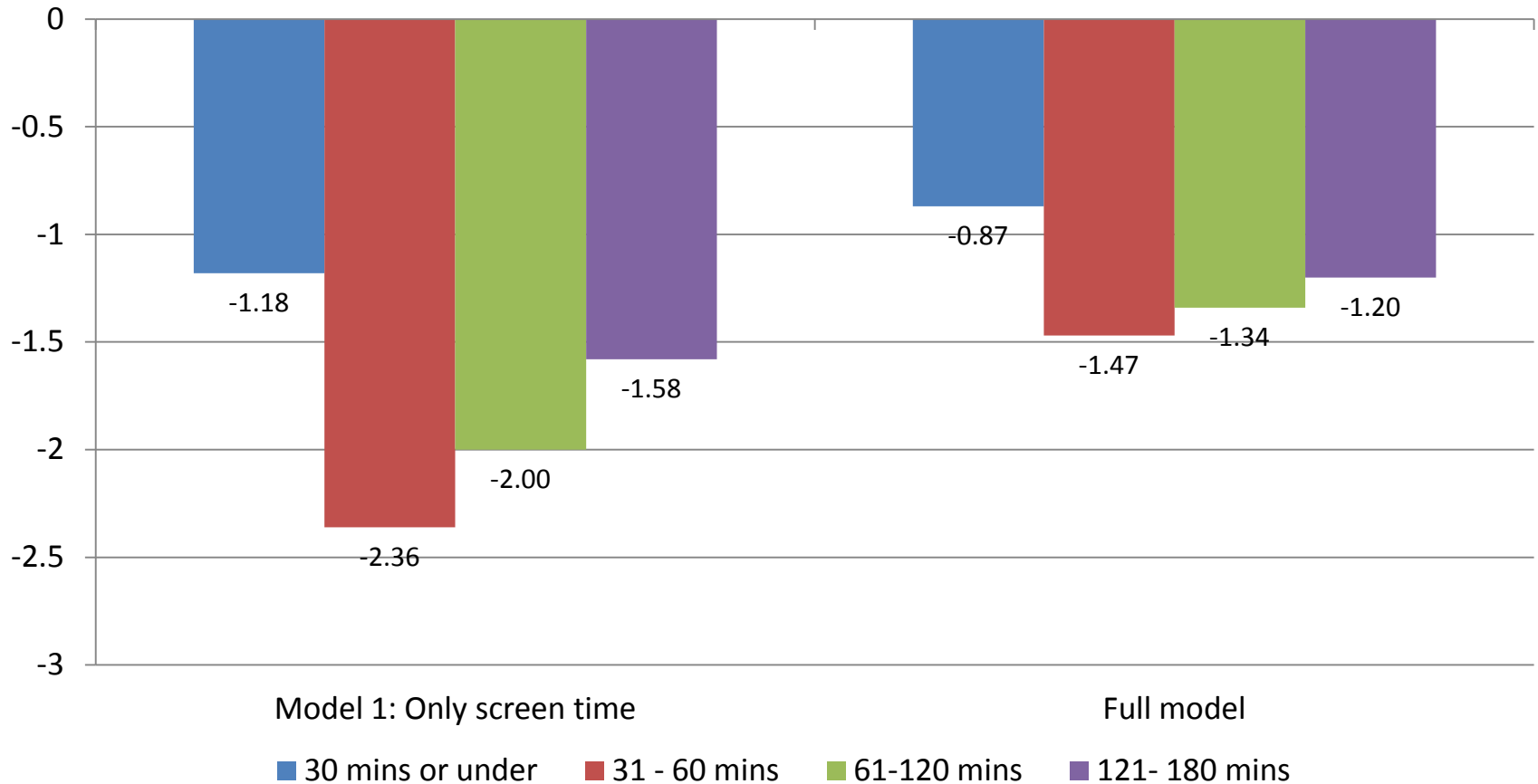


# Developing a model

- Important to control for potential confounding variables when examining cross-sectional relationship between screen time and socio-emotional development/behaviour
- Model structure
  - Dependent variable = SDQ total difficulties score (also subscale scores)
  - Screen time per day in categories (ref: more than 180 mins)
  - Controls for whether or not family has rules about TV watching, PCG education, child gender, low birth weight, family structure, English as first language, infant temperament



# SDQ total difficulties

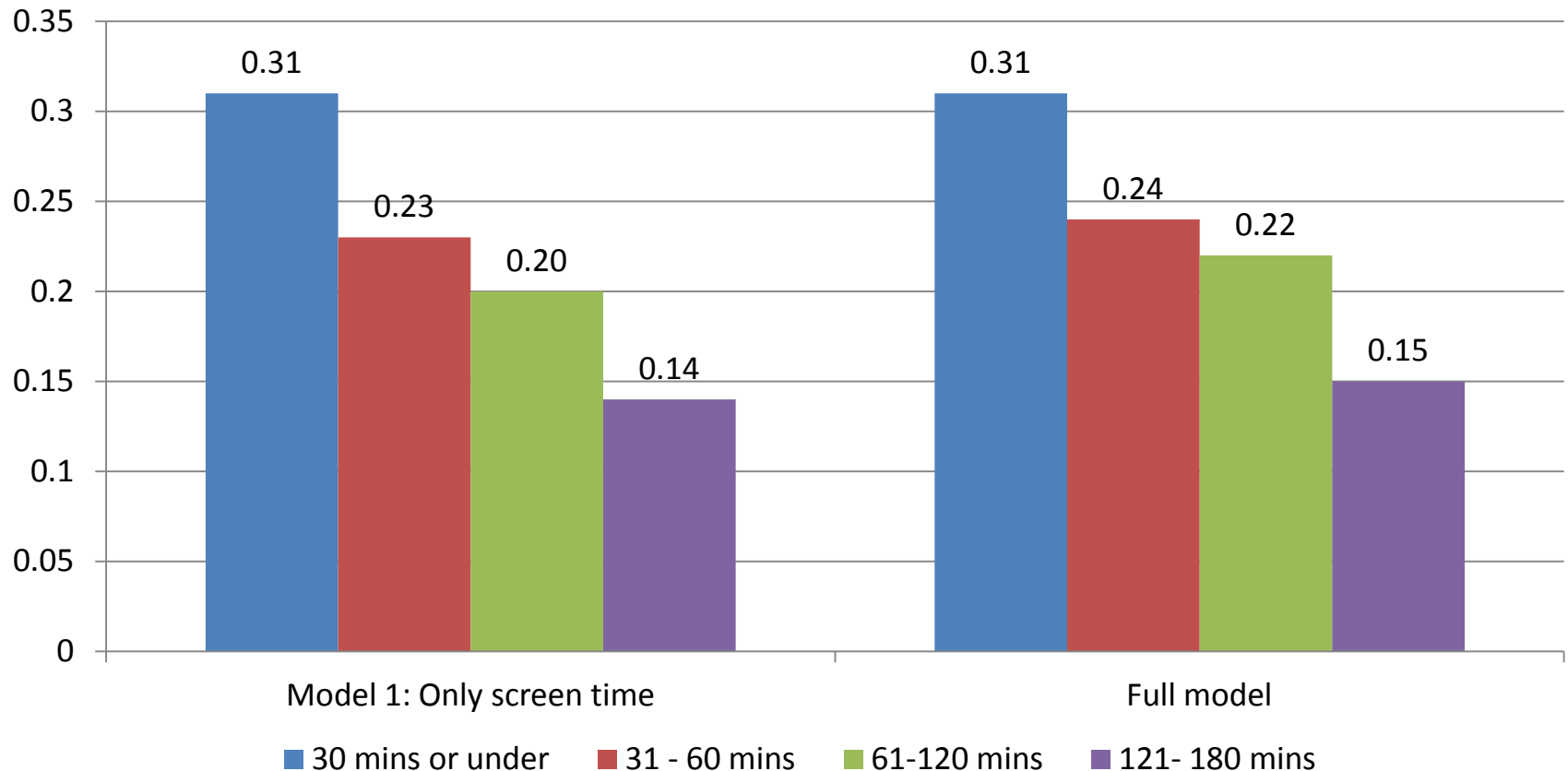


All shorter durations of screen time have lower SDQ total difficulties scores in comparison to the 'greater than 180 minutes reference category'





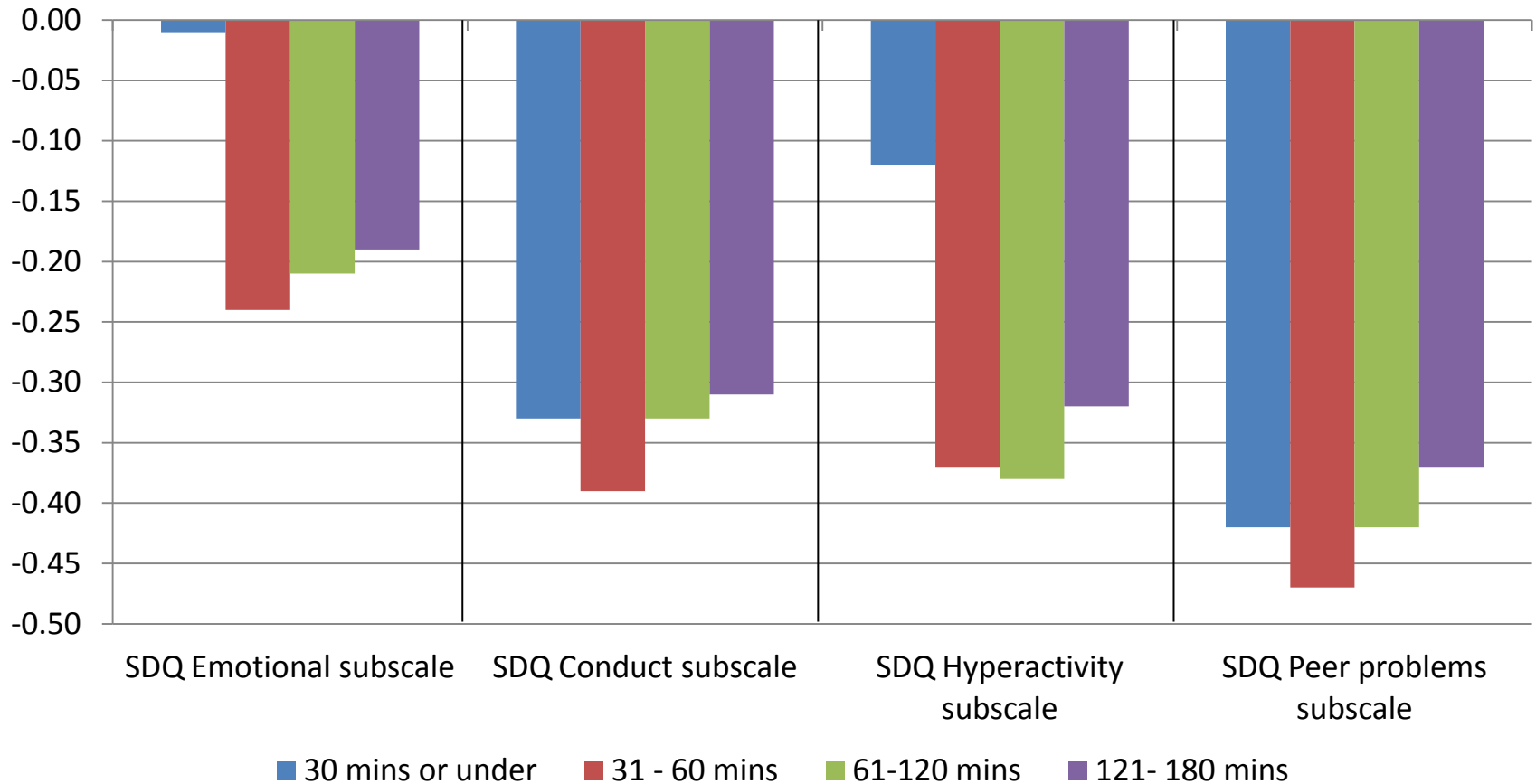
# SDQ prosocial scale



Similar pattern observed for prosocial scale (less screen time associated with higher scores) but little change between initial and final models



# SDQ problem scales



Same trends observed for all individual problem subscales as for total difficulties score – particularly pronounced for ‘peer problems’



# Summary of results

- 3-year-olds who watched more than 3 hours (180 mins) of television per day had worse scores on each of the individual SDQ problem scales, the total difficulties score and the prosocial scale
- With some minor exceptions these differences were robust to controls for measures of SES disadvantage, infant temperament and other factors
- However, screen time explains only a small percentage of the variance in the SDQ score
  - Just 2% of total SDQ total difficulties score in isolation; full model accounted for 14%



# Limitations

- Cross-sectional relationship (for now)
- No measure of content
  - except for whether or not there are family rules and TV in bedroom
- At 3 years, questions refer just to television watching
  - However, research elsewhere suggests this is the primary screen time for children in this age group
- Cannot control for social desirability effects in responding



# Conclusions

- There are some negative effects of watching television on socio-emotional development in 3 year olds.
- The more television that is watched the greater the negative effects.
- Ideally, will examine effect of screen time at 3 years on SDQ scores at age 5 years.
- Television watching is highly amenable to intervention.
- Important that parents set rules about the amount and content of television viewing.