



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

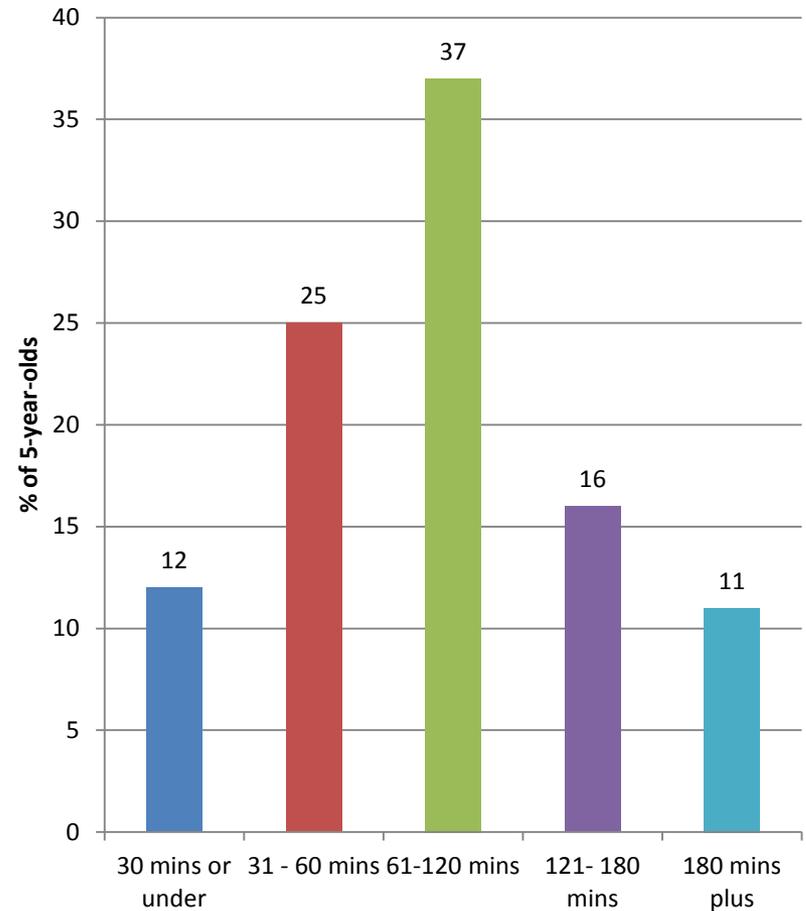
Variables of interest used in analysis

- 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)



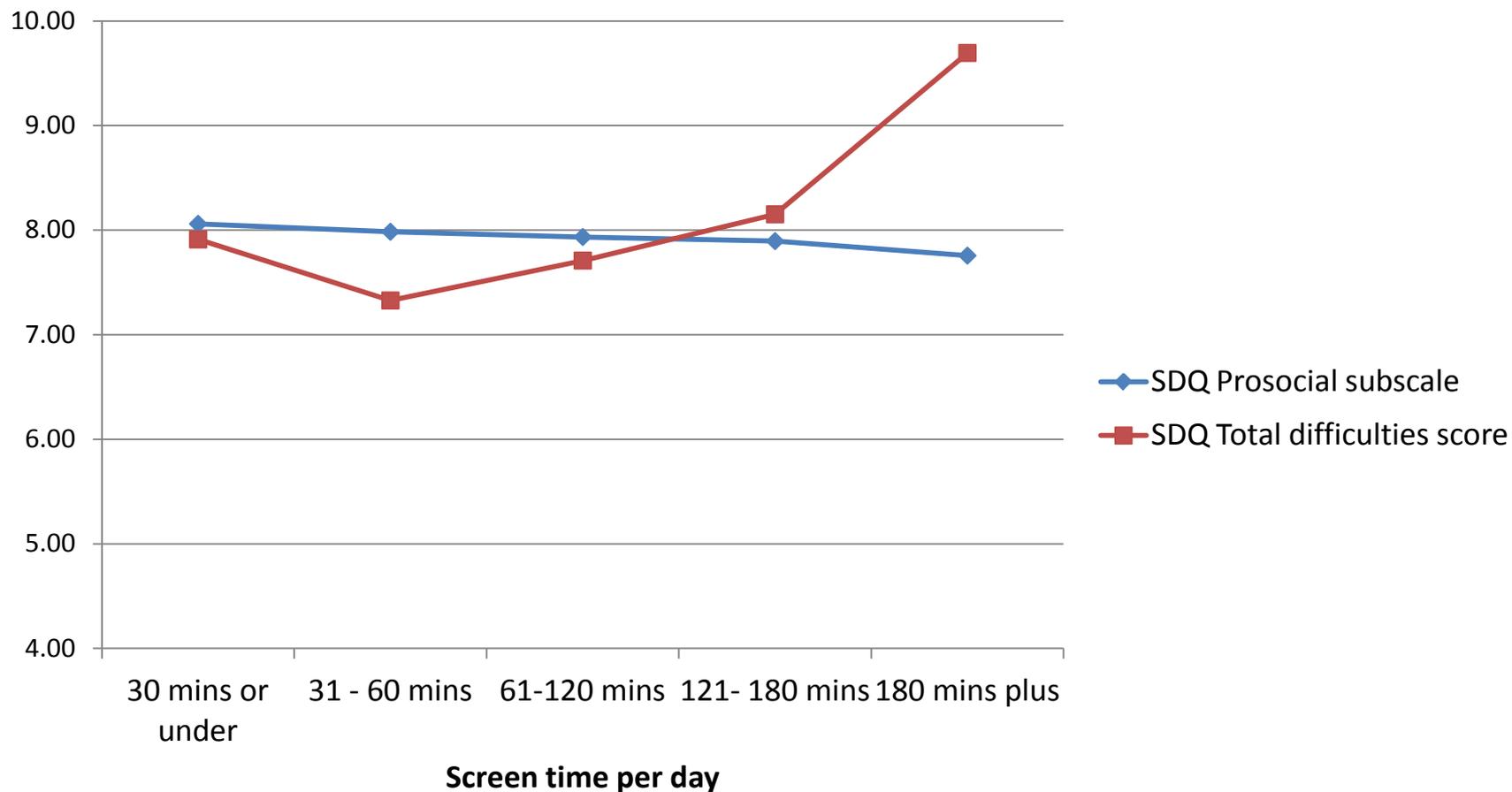
Descriptives

- 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





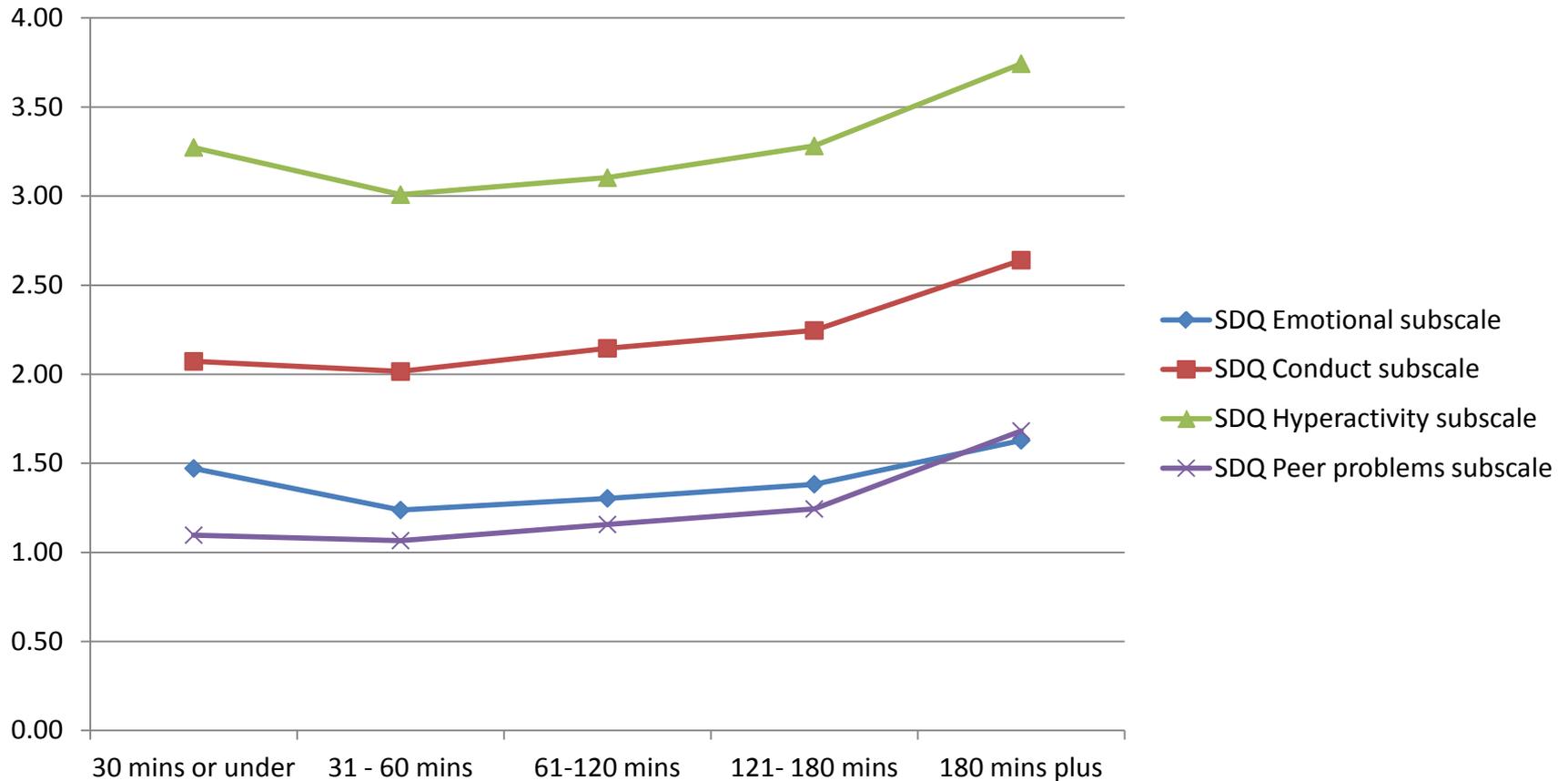
Effect of screen time on SDQ scores



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



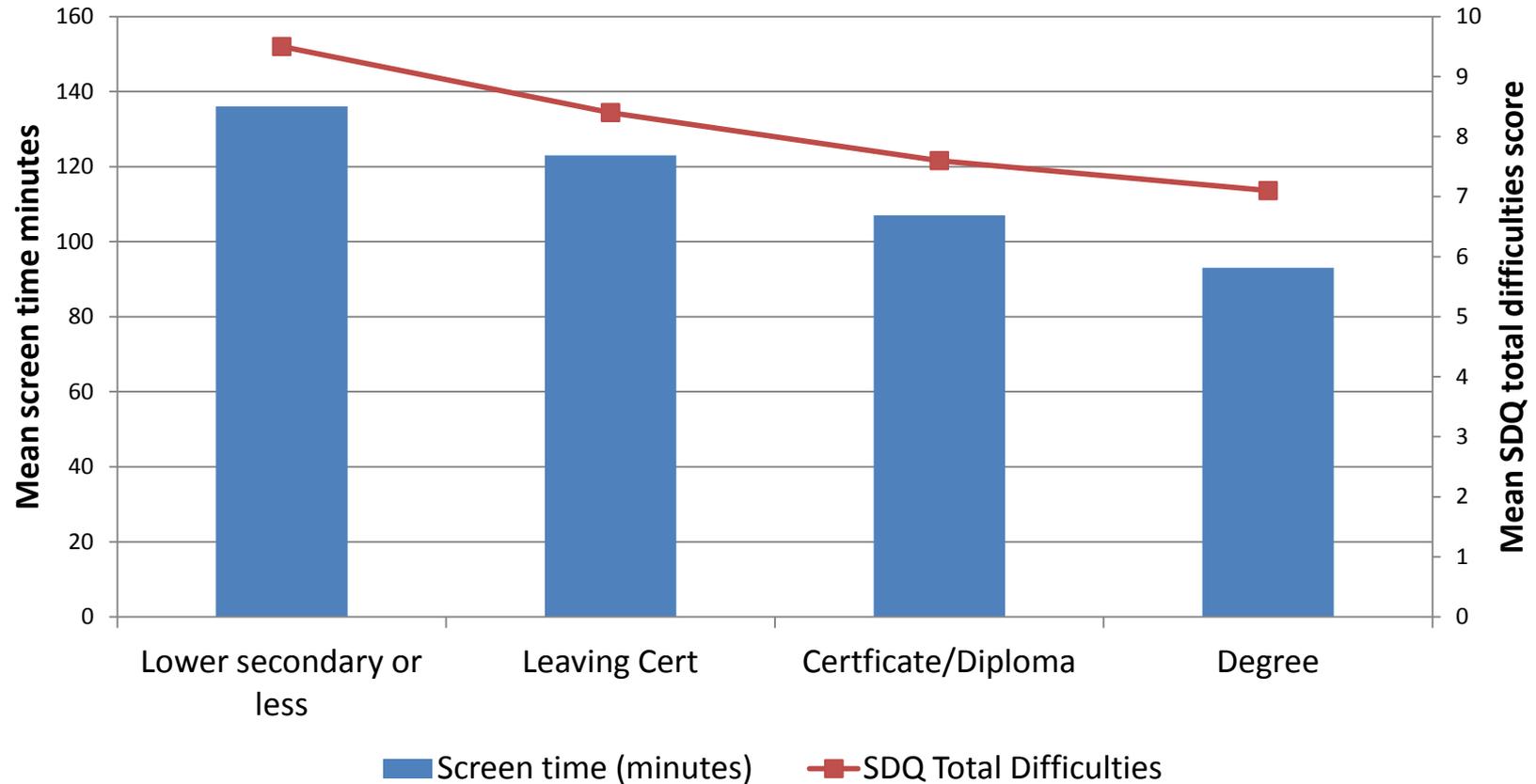
Effect of screen time on SDQ scores



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



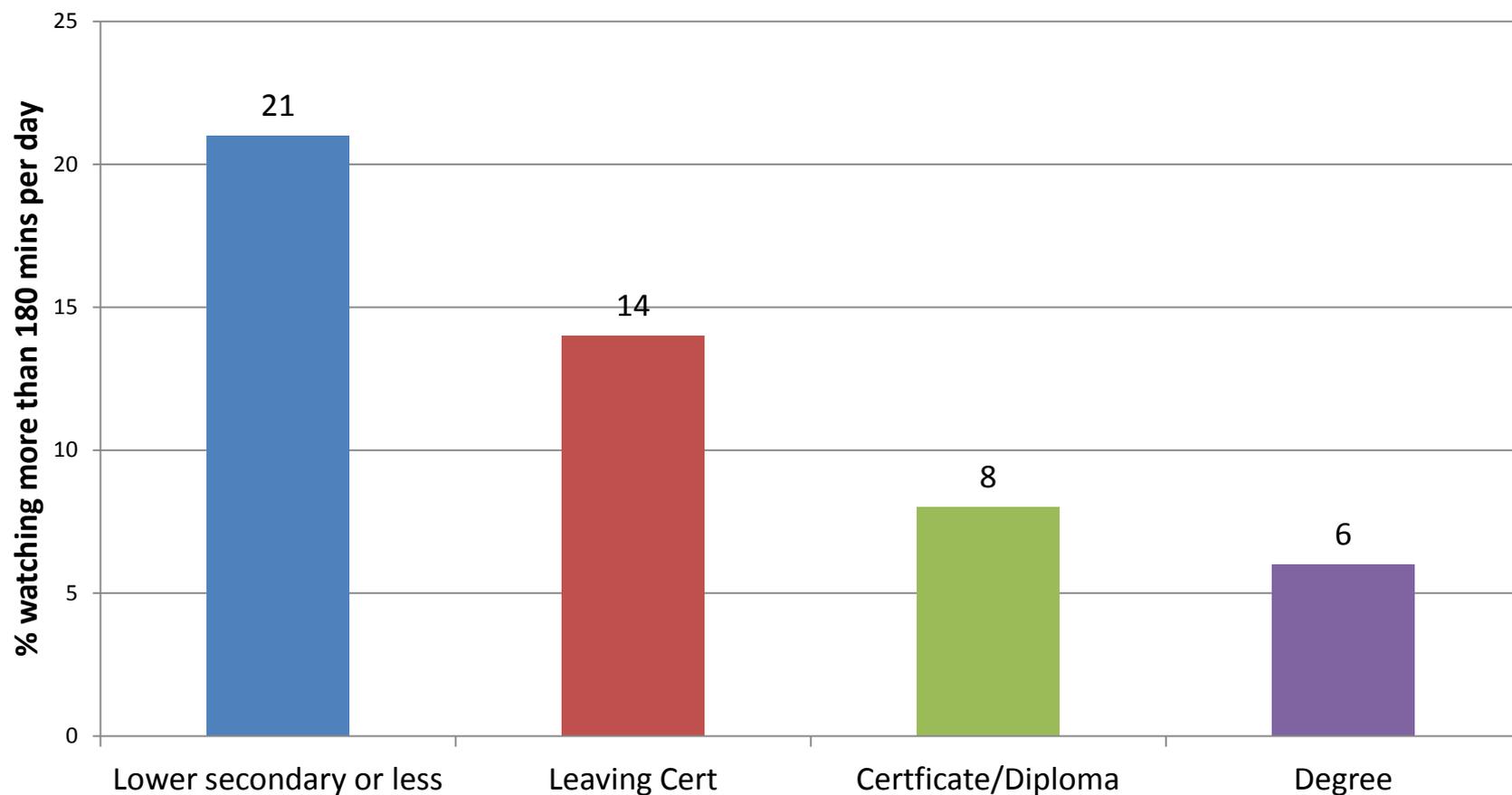
Problem of confounding variables



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
Measures at 3 years	Screen time per day (mins)	.06***	.07***	.04***
	SDQ Total difficulties score	.25***	.16***	.17***

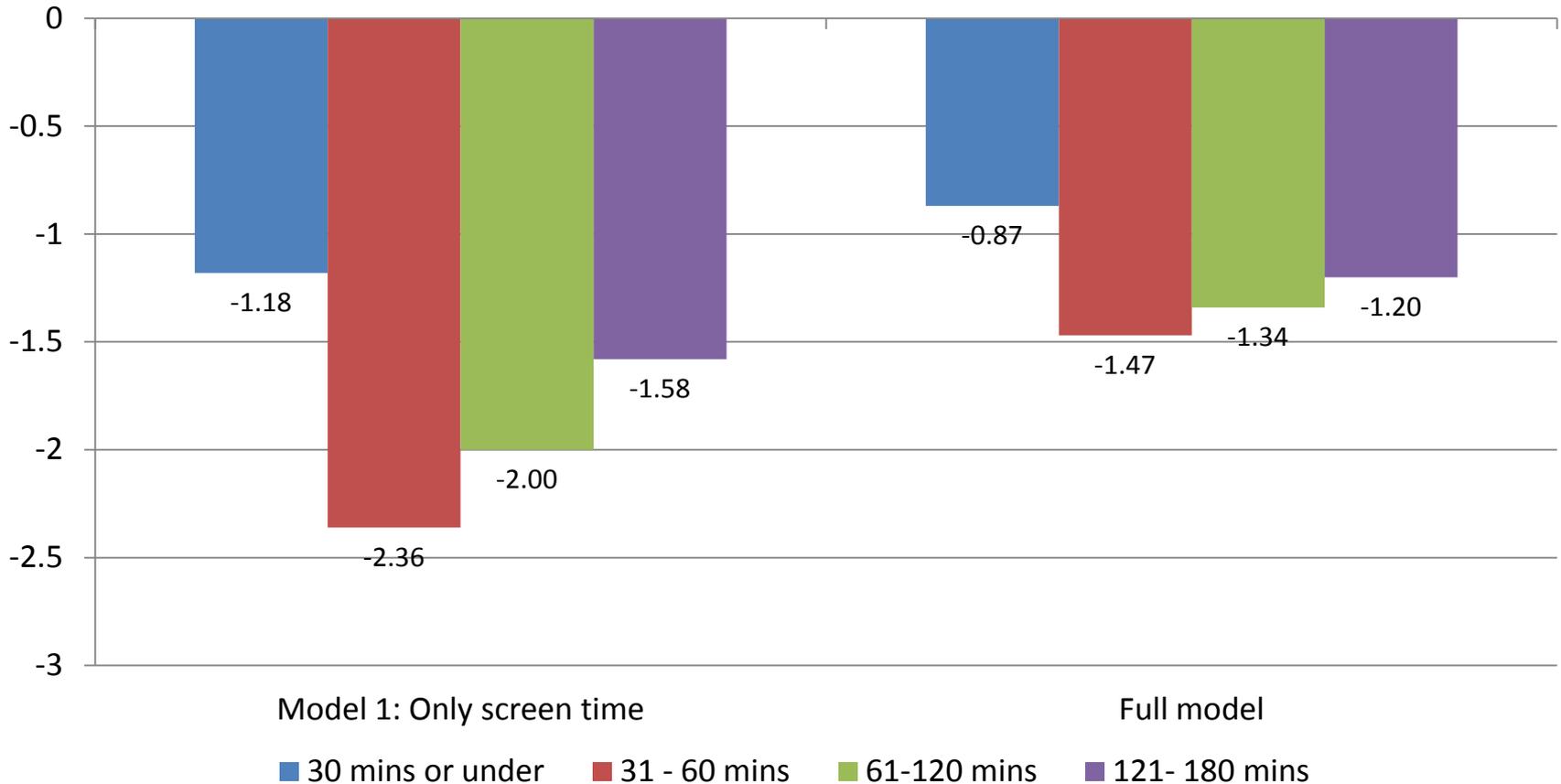


Developing a model

- 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



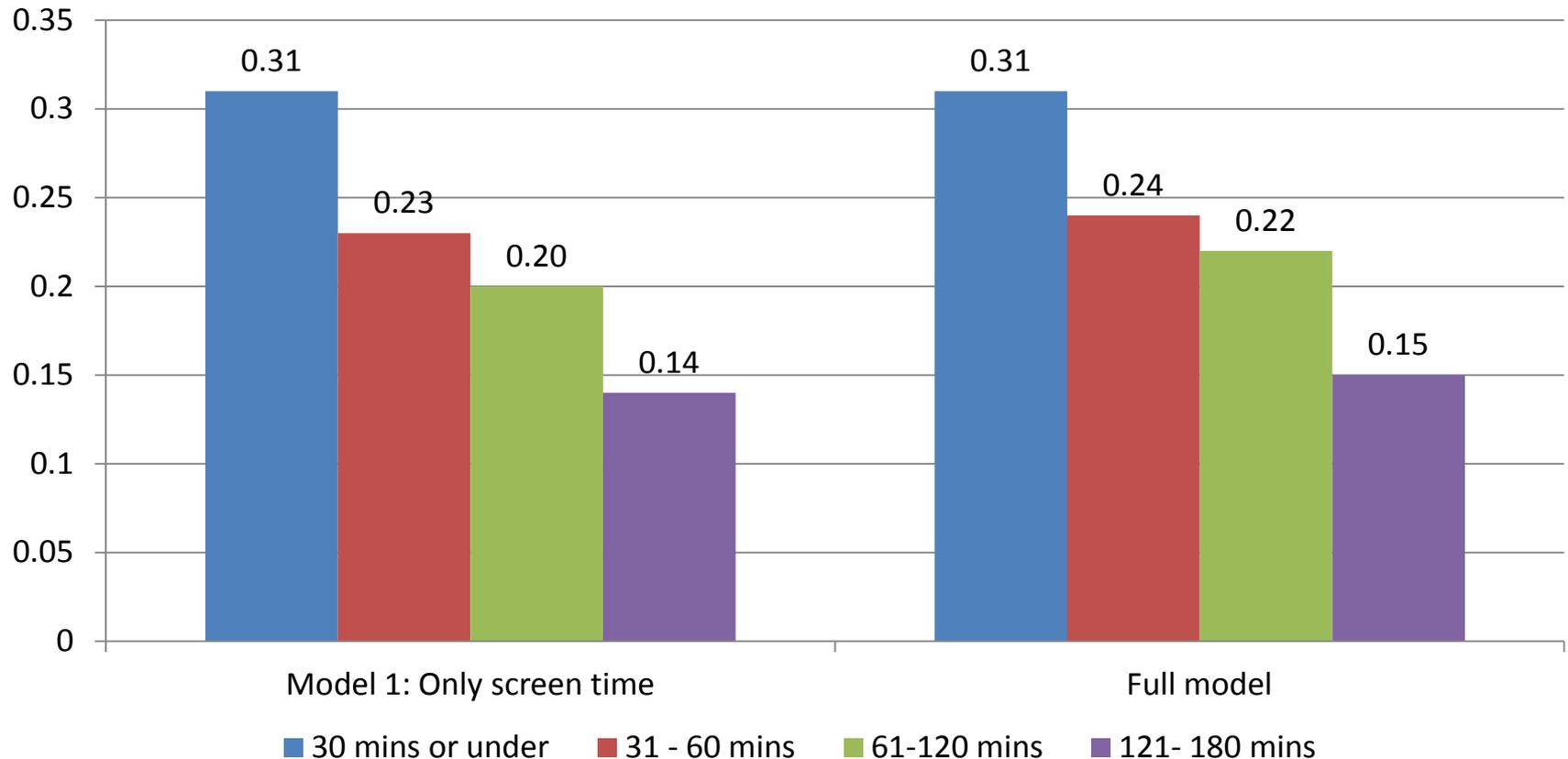
SDQ total difficulties



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



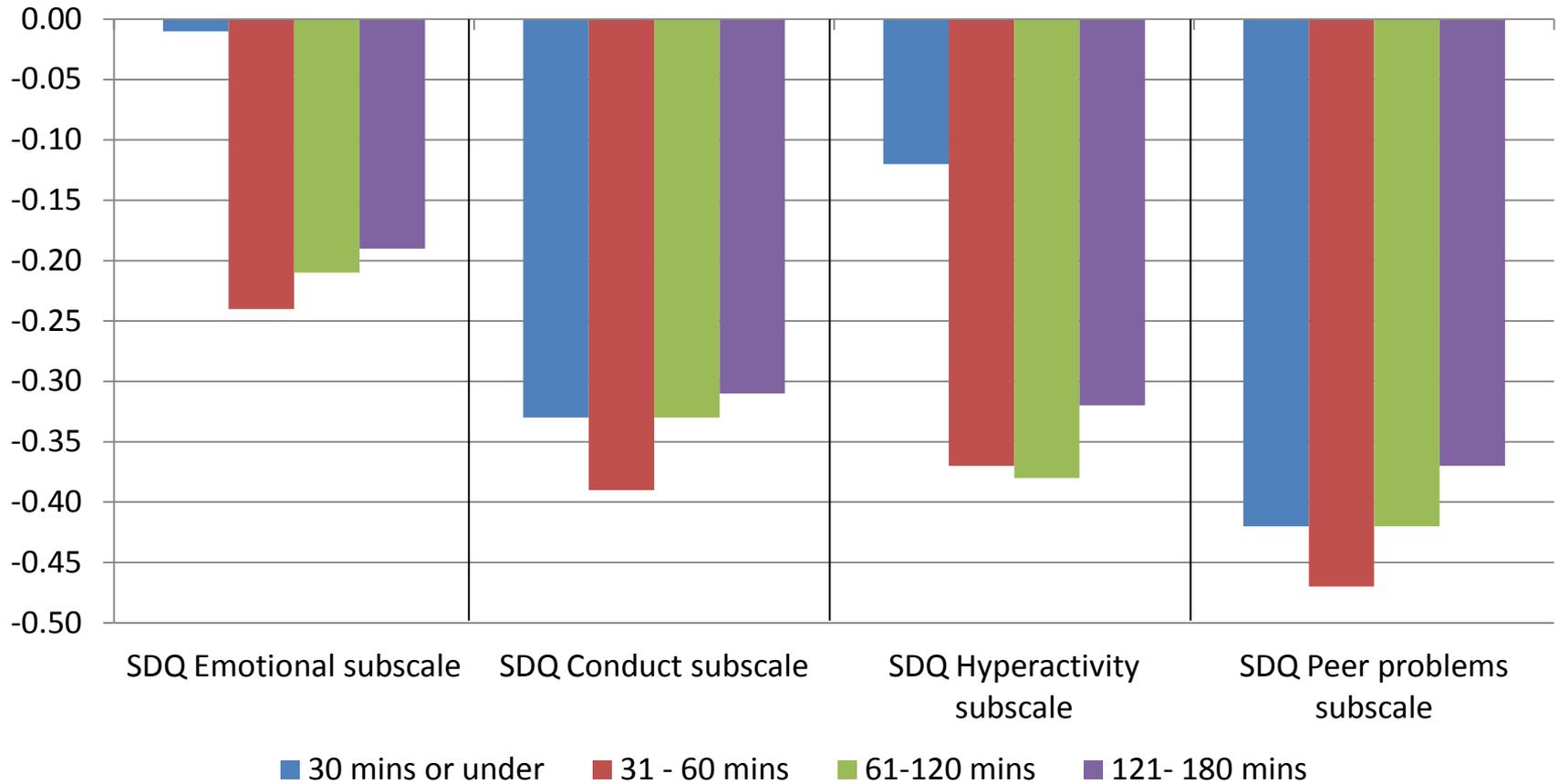
SDQ prosocial scale



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.