
Overweight, obesity and activity

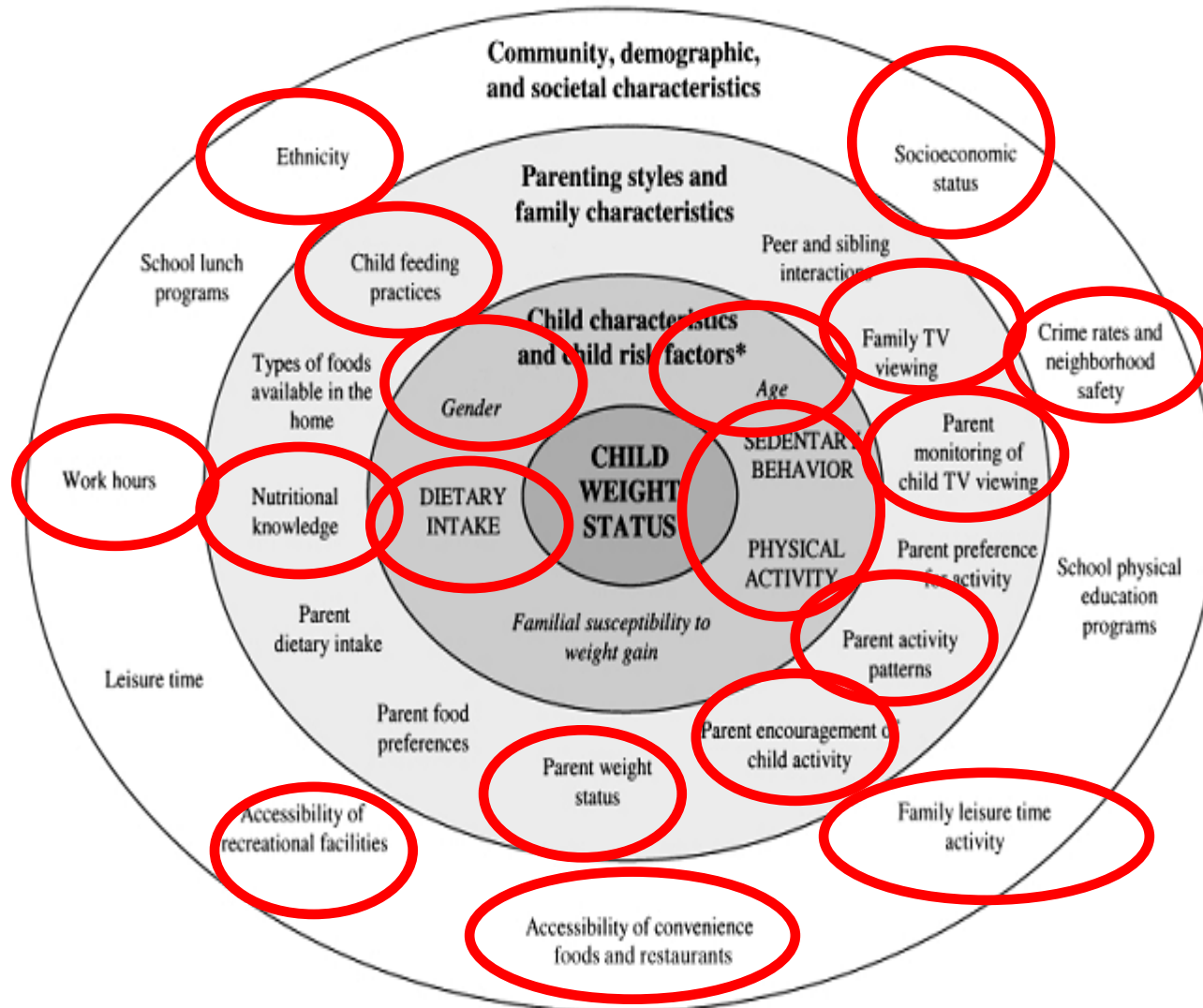
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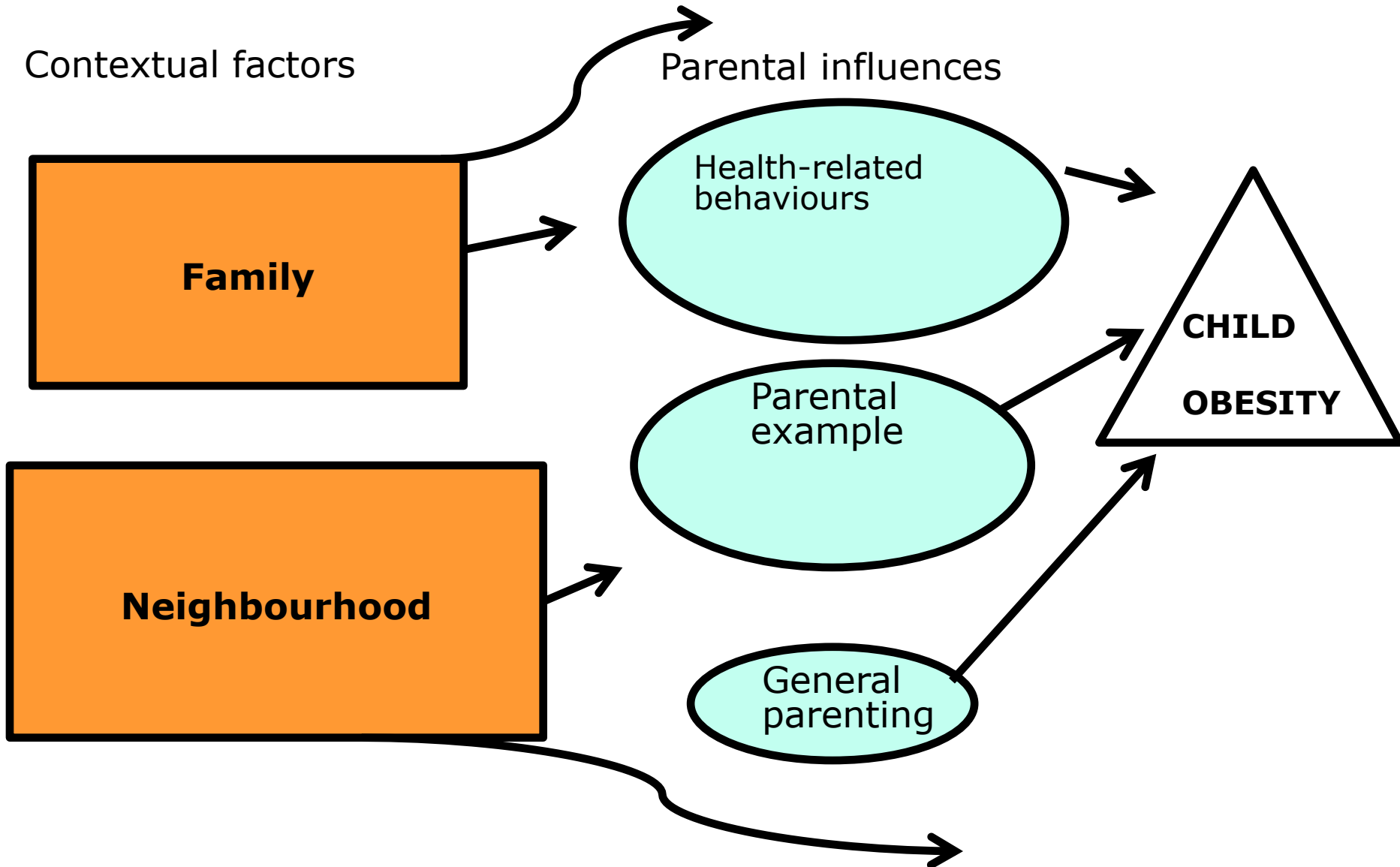
Objectives

1. What are the potentially modifiable determinants of childhood obesity?
2. What are the potentially modifiable determinants of low physical activity in young children?

Ecological model (Davison and Birch 2001)

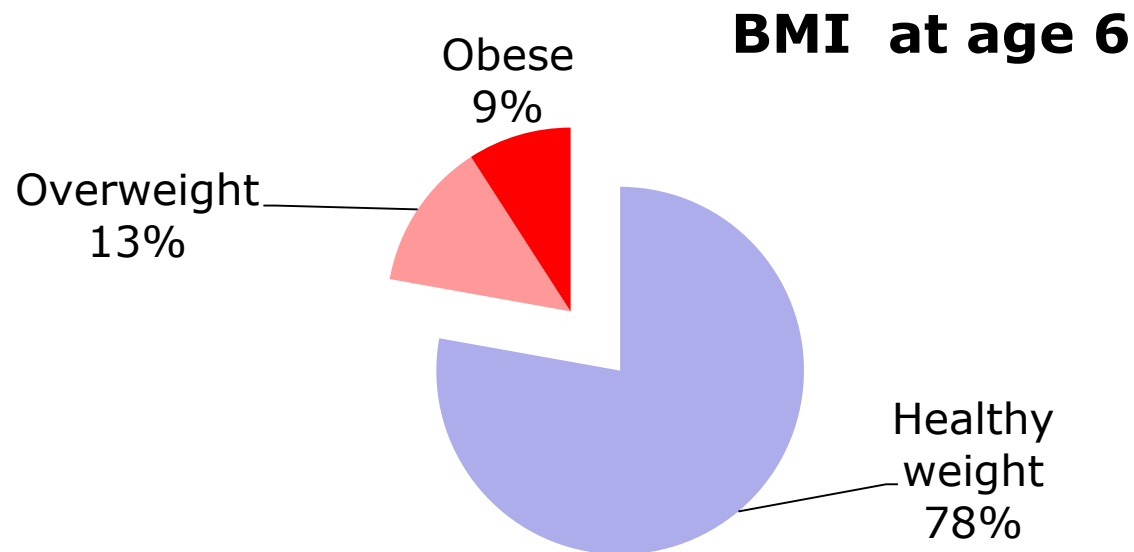


Determinants of childhood obesity – simplified ecological model



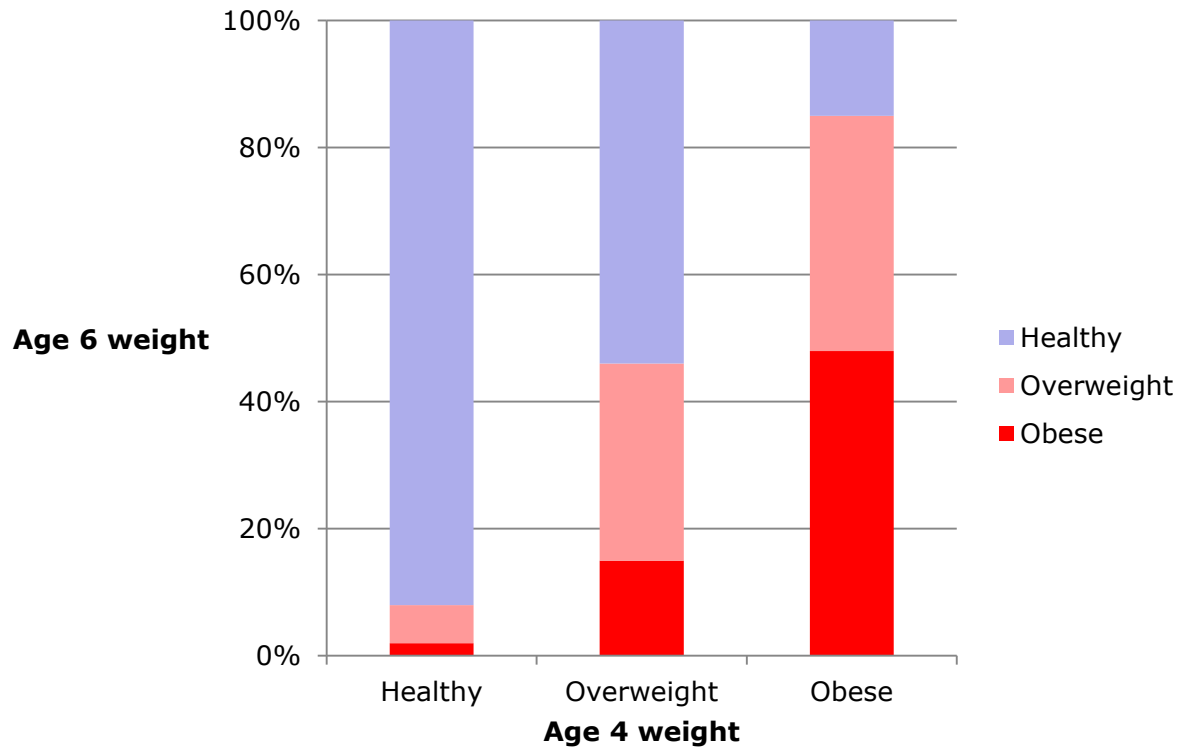
Measuring overweight and obesity

- BMI scores from height and weight (measured by interviewers) N=2,992 at age 6
- BMI classified using UK 1990 growth curves





Findings: overweight and obesity

“Tracking” of overweight and obesity from age 4 to age 6



Overweight and obesity in GUS

Analysis

- Looked at predictors of overweight and obesity at age 6
- Models took account of
 - Child's gender (NS)
 - Ethnic group (white/minority) – (NS)
 - Birth weight 
 - Number of children in family 

Parental influences associated with overweight and/or obesity

	Measures	Sweep
Parental example	Mother overweight/obese	6
	Mother's physical activity	5
	Mother's screen time	5
Health-related practices	Infant feeding	1
	Patterns of eating	2, 5
	Snacking	2, 5
	Fast food	3,5
	Fruit and vege	2
	Active behaviours	2,5,6
	Sedentary behaviour	3,4,5,6
	Sleep	1,2,3,4,5,6
General parenting	Warm relationship	5
	Joint activities	2,3,4
	Supervision	4
	Rules	2, 5
	Home chaos	5
	Conflict	5

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Rules		2, 5	
Home chaos		5	
Conflict		5	

Parental influences associated with overweight and/or obesity

	Bivariate	Multivariate	
Parental example	Measures	Sweep	
	Mother overweight/obese	6	Mother overweight or obese (age 6)
	Mother's physical activity	5	
	Mother's screen time	5	
Health-related practices	Infant feeding	1	
	Patterns of eating	2, 5	Skips Breakfast (age 5) Eats main meal away from dining area (ages 2 and 5)
	Snacking	2, 5	Sweets/crisps once a week or more (age 2)
	Fast food	3,5	
	Fruit and vege	2	
	Active behaviours	2,5,6	
	Sedentary behaviour	3,4,5,6	
	Sleep	1,2,3,4, 5,6	
General parenting	Warm relationship	5	
	Joint activities	2,3,4	
	Supervision	4	Low supervision (age 4)
	Rules	2, 5	
	Home chaos	5	
	Conflict	5	

Family/neighbourhood context – associations with overweight and/or obesity

Family	Measures	Sweep
Time	Mother's employment	5
	Food preparation, mealtimes	2,5
Other resources (income, knowledge)	Mother's age	1
	Mother's education	1
	Father in household	1 to 6
	Household income	1 to 6
	Limits on food preparation	2,5
	Recognition and concern for child's weight	4,6
	Knowledge of PA needs	6
Mother's health	Mental health	1,3,5
	Physical health	1,3,5
	Smoking	1
Neighbourhood	Deprivation	1 to 6
	Urban-rural	1 to 6
	Access	1, 2,6
	Quality	6
	Safety	3,6

Family/neighbourhood context – associations with overweight and/or obesity

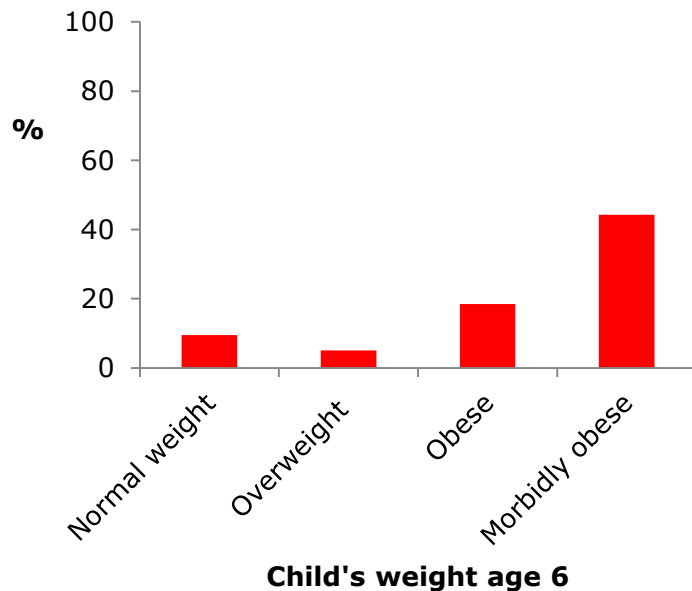
	Bivariate	
	Measures	Sweep
Family Time	Mother's employment	5
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	Recognition and concern for child's weight	4,6
Mother's health	Knowledge of PA needs	6
	Mental health	1,3,5
	Physical health	1,3,5
	Smoking	1
Neighbourhood	Deprivation	1 to 6
	Urban-rural	1 to 6
	Access	1, 2,6
	Quality	6
	Safety	3,6

Family/neighbourhood barriers – associations with overweight and/or obesity

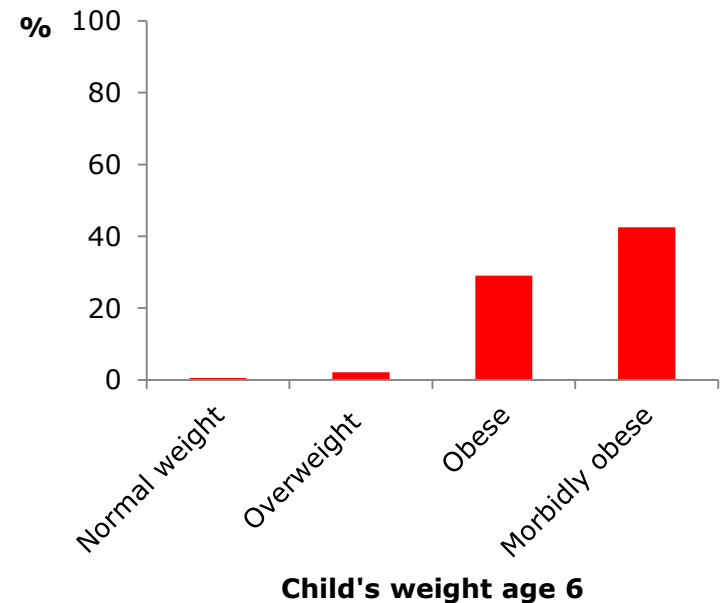
	Bivariate		Multivariate
Family	Measures	Sweep	
	Time	Mother's employment Food preparation, mealtimes	5 2,5
Other resources (income, knowledge)	Mother's age	1	
	Mother's education	1	
	Father in household	1 to 6	
	Household income	1 to 6	
	Limits on food preparation	2,5	
	Recognition and concern for child's weight	4,6	
Mother's health	Knowledge of PA needs	6	
	Mental health	1,3,5	
	Physical health	1,3,5	Mother's poor physical health
	Smoking	1	
Neighbourhood	Deprivation	1 to 6	
	Urban-rural	1 to 6	
	Access	1, 2,6	
	Quality	6	
	Safety	3,6	Neighbourhood not "child-friendly"

Parental recognition of child's weight problem, age 6

**% mothers
"concerned" about
child's weight**

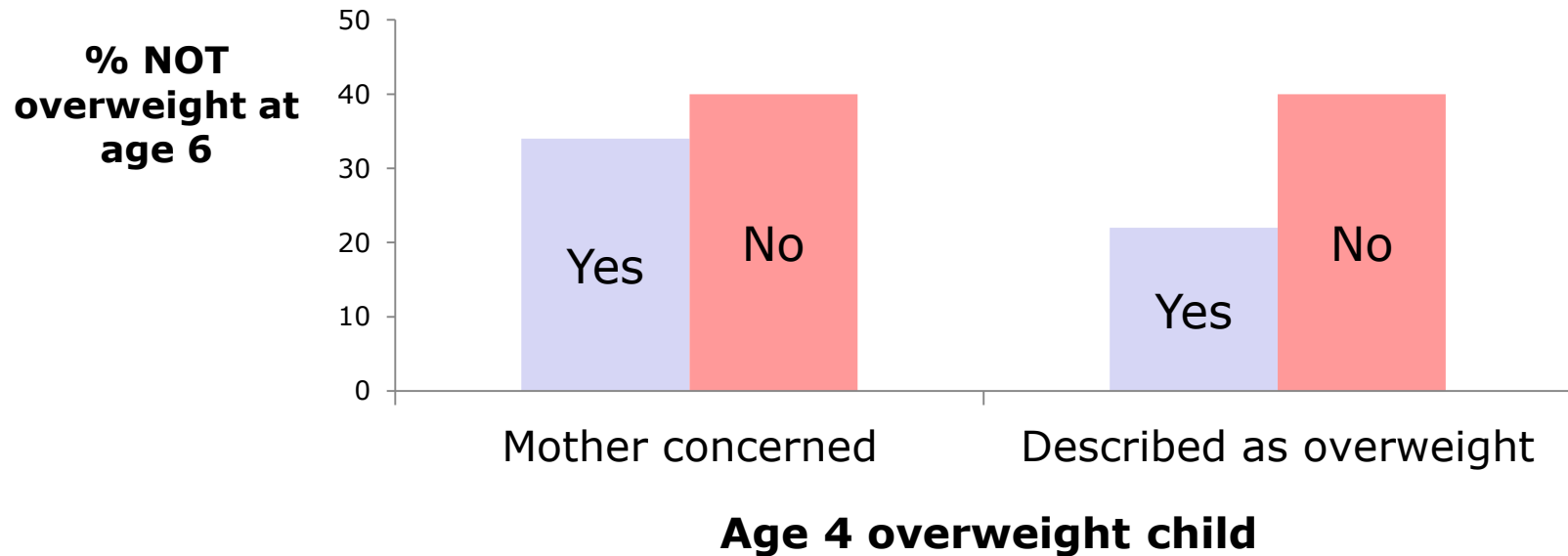


**% mothers saying
child "overweight"**



Does better parental recognition lead to child weight loss?

Weight loss according to mother's recognition of weight problem

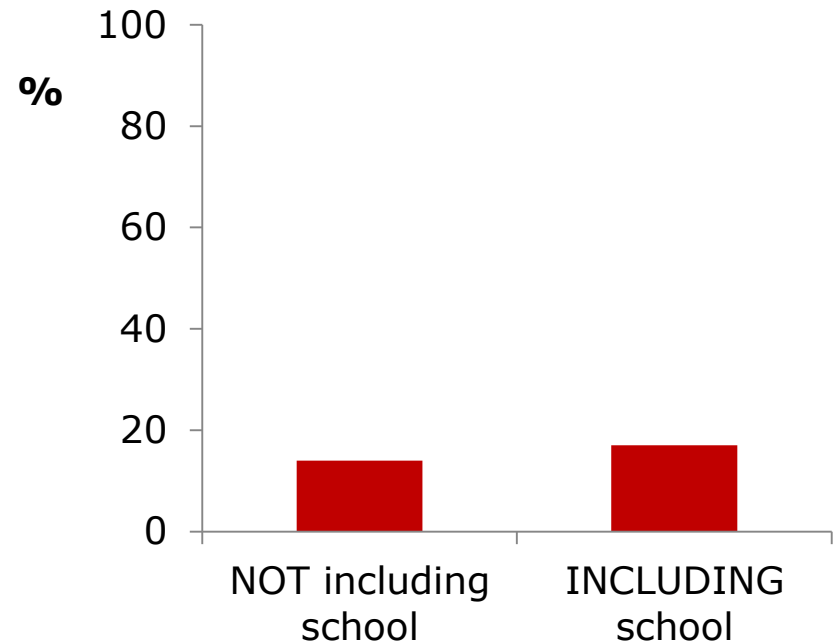


Measuring activity levels: (1) Low PA

Mother-reported for child:

- Walking
- Organised sport/exercise, eg swimming lessons
- Other active behaviour, eg running about, kicking a ball
- Any of these at school

% with low PA at age 6

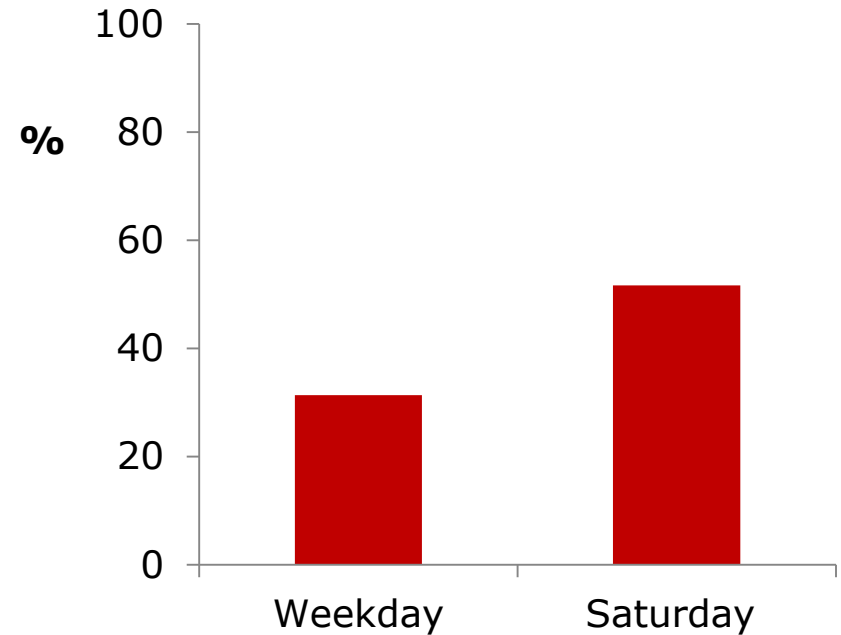


Measuring activity levels: (2) High sedentary

Screen time reported by mothers

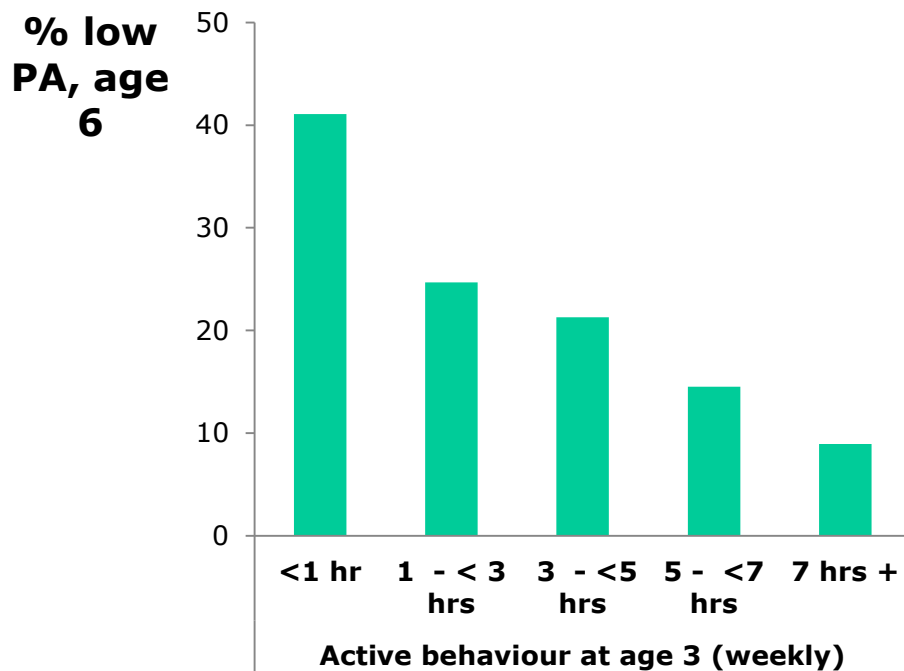
- watching TV
- using computer or games console

% with 3+hrs weekday screen time at age 6

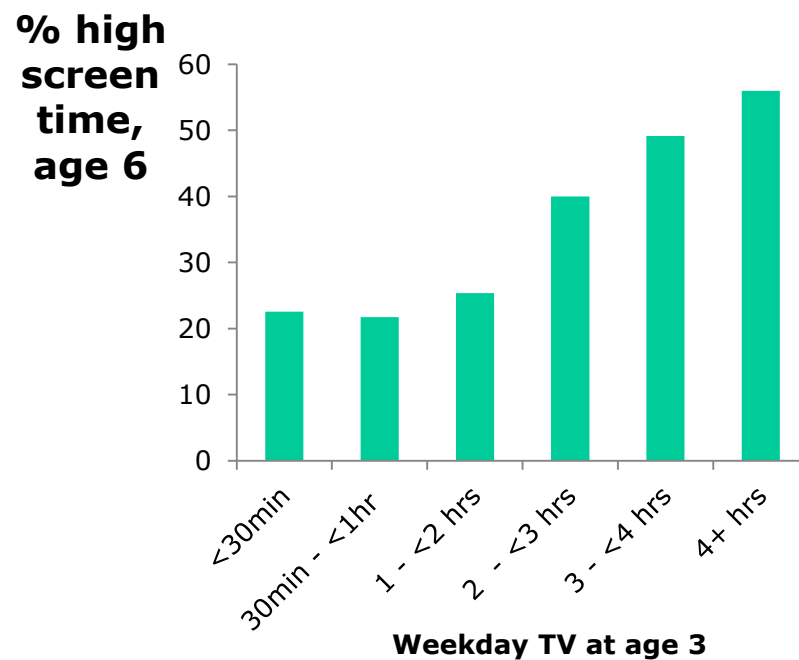


“Tracking” of PA and sedentary behaviour from earlier years

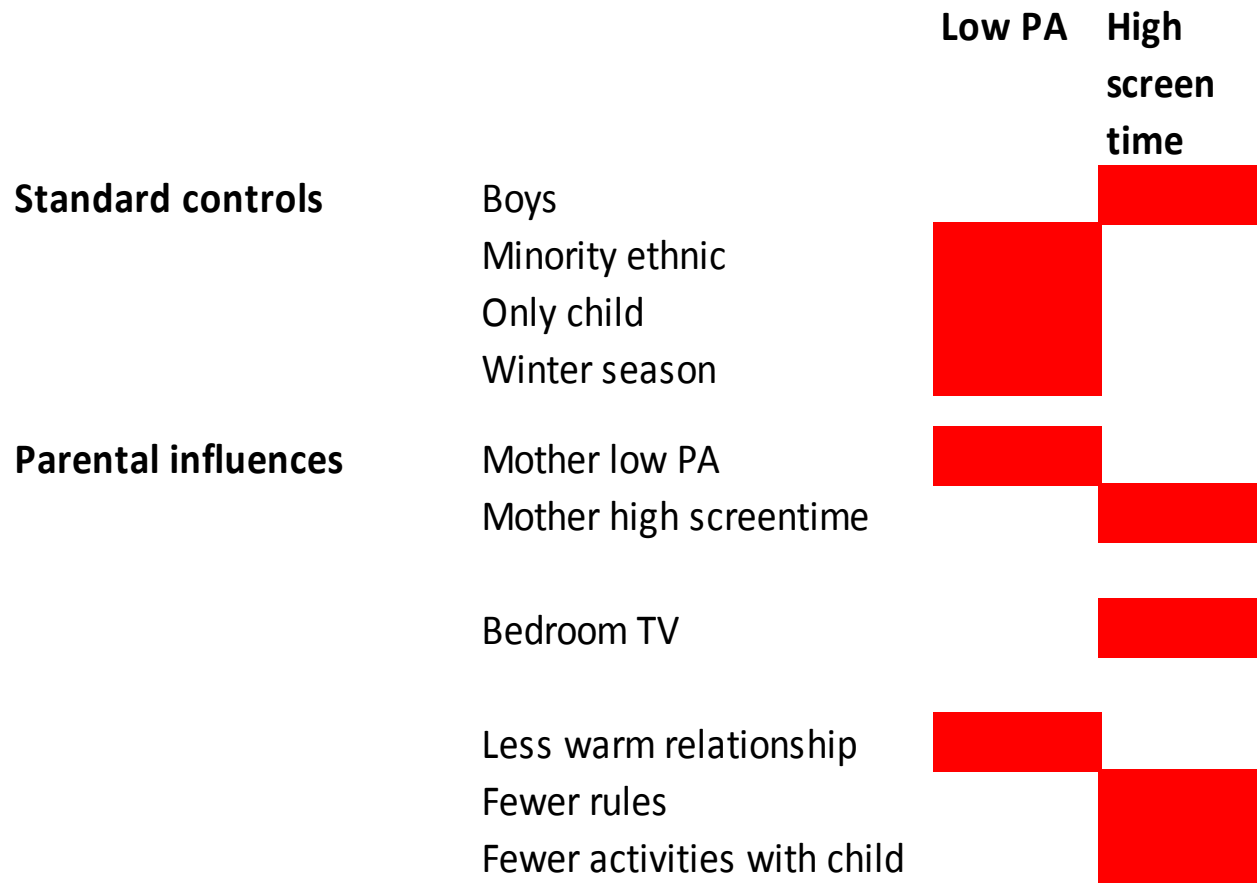
Association between PA at ages 3 and 6



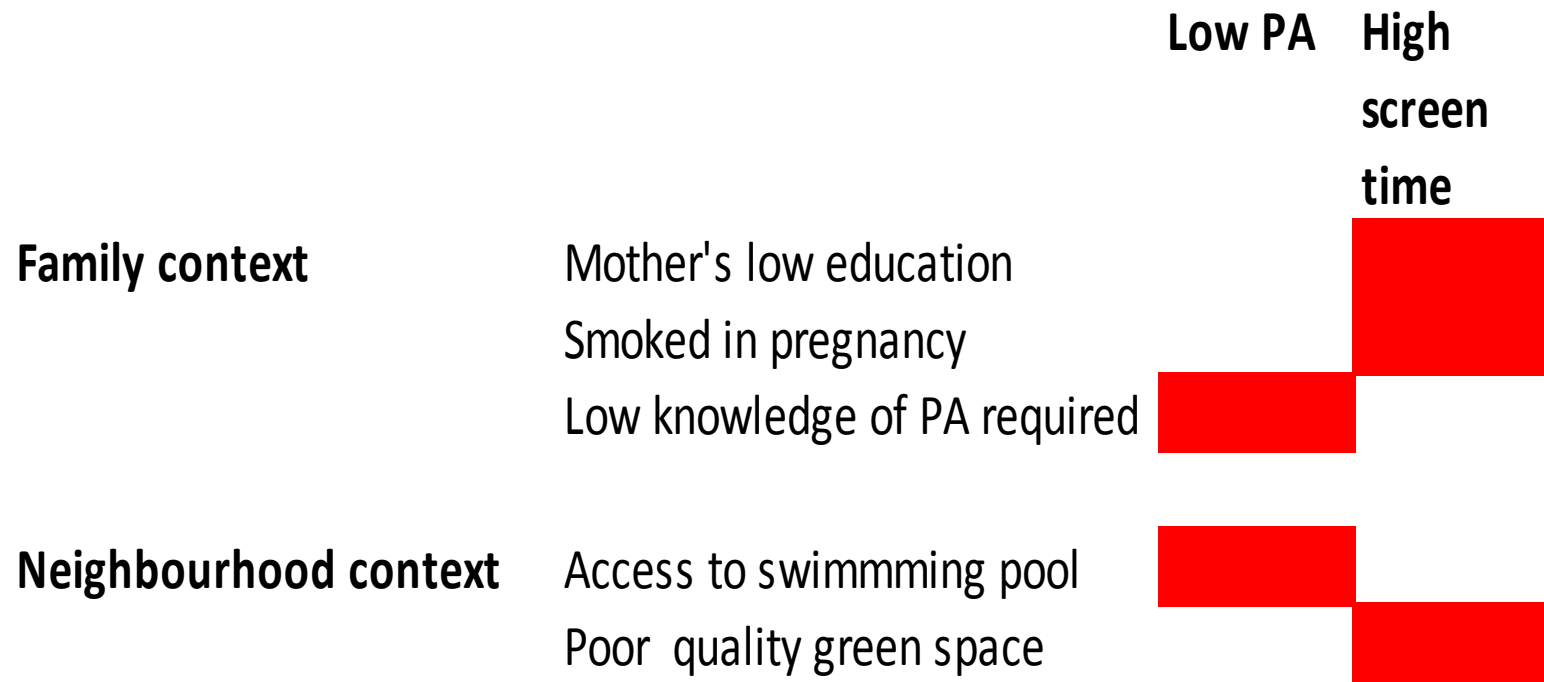
Association between screen time at ages 3 and 6



Factors associated with PA and sedentary behaviour – multivariate findings (1)



Factors associated with PA and sedentary behaviour – multivariate findings (2)



Study limitations

- Causation uncertain
- Reliance on mothers' reports (except for BMI measures)
- Lack some potentially useful information

Summary of key findings

Overweight and obesity: risk factors

- Mother's overweight or obesity
- Mother's poor physical health
- Dietary practices
- Low parental supervision
- Low area "child-friendliness"

Low PA and high screen time: risk factors

- Parental modelling
- General parenting: low warmth, activities with child, rules
- Poorer local area amenities
- (For PA) Low knowledge of PA requirements
- (For screen time) Bedroom TV, deprivation

Policy Implications

- Early intervention may be most valuable
- Family rather than child-centred interventions
 - Improving mothers' recognition and concern for a child's overweight likely to be only a first step
 - Improve dietary practices and overall parental supervision
 - Increase mothers' awareness of desirable PA levels for their children
- Neighbourhood environment
 - Links between area "child-friendliness" and obesity require further investigation
 - Better access to places where children can be physically active, including attractive green spaces, may increase activity levels and reduce sedentary behaviour