

BMI development and early adolescent psychosocial well-being: UK Millennium Cohort Study

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Pediatrics, forthcoming

Objectives were to:

1. identify BMI developmental trajectories across the first decade of life;
2. examine early life predictors of trajectory membership;
3. investigate whether being on a particular BMI trajectory is associated with markers of psychosocial well-being.

Millennium Cohort Study (MCS)

- Sample drawn from all live births in the 4 countries of the UK during 2000-2002
- Clustered at the electoral ward level with oversampling
- 18,552 households
- Home interviews
- 5 sweeps deposited: 9 months and 3, 5, 7 & 11 years
- Next sweep (age 14) available soon

Variables

BMI data (n=16 936)

Exposures:

Pregnancy and infancy factors – mother smoked during pregnancy; child was breastfed; Solids introduced before 4 months; gross motor delay

Early childhood factors – Maternal BMI; sugary drinks; Fruit consumption; skip breakfast; sports participation; TV viewing; non-regular bedtime; late bedtime

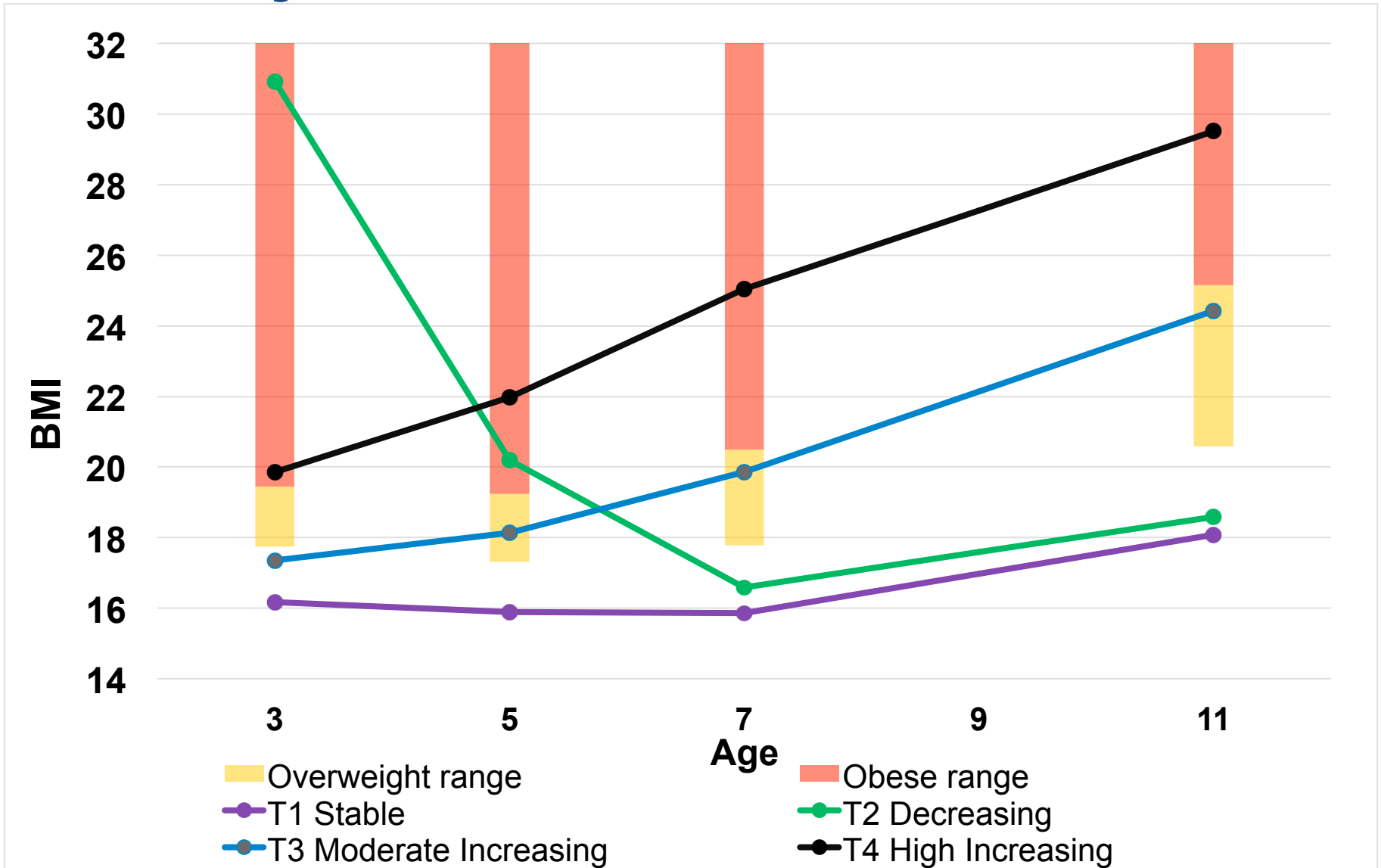
Psychosocial outcomes:

- Socioemotional difficulties
- Antisocial activities
- Cigarette smoking
- Drinking alcohol
- Low self-esteem
- Unhappiness
- Body dissatisfaction

Statistical methods:

- Latent class analysis used for trajectory membership
- Regression models to estimate predictors of BMI trajectory membership, and their psychosocial correlates.

BMI trajectories in childhood



‘Modifiable’ predictors of BMI trajectory membership

	Moderate Increasing	High Increasing
Pregnancy and infancy factors		
Smoked in pregnancy (Yes)	1.17 (1.03 to 1.33)*	1.97 (1.51 to 2.58)***
Gross motor delay (Yes)	0.92 (0.76 to 1.13)	1.47 (1.05 to 2.04)*
Early childhood factors		
Maternal BMI	1.10 (1.09 to 1.11)***	1.14 (1.12 to 1.16)***
Skip breakfast (Yes)	1.66 (1.37 to 2.02)***	1.76 (1.21 to 2.56)**
Non-regular bedtime (Yes)	1.22 (1.01 to 1.46)*	1.55 (1.08 to 2.22)*
Late bedtime (Yes)	1.26 (1.00 to 1.57)*	1.50 (0.93 to 2.41)

*p<0.05, **p<0.01, ***p<0.001

Psychosocial well-being at age 11 by BMI trajectory compared with the 'stable' group

	Moderate Increasing	High Increasing
Emotional symptoms	0.18 (0.05 to 0.32)**	0.53 (0.25 to 0.80)***
Conduct problems	0.03 (-0.06 to 0.11)	0.38 (0.17 to 0.60)***
Hyperactivity	-0.04 (-0.19 to 0.11)	0.27 (-0.07 to 0.60)
Peer problems	0.27 (0.16 to 0.38)***	0.84 (0.58 to 1.11)***
Prosocial behaviour	0.16 (0.06 to 0.25)**	0.16 (-0.04 to 0.35)
Antisocial activities	0.00 (-0.04 to 0.03)	0.03 (-0.06 to 0.11)
Smoked cigarettes	2.03 (1.65 to 2.75)**	5.05 (2.56 to 16.11)**
Drank alcohol	1.19 (0.98 to 1.43)	1.82 (1.23 to 2.66)*
Low self-esteem	0.28 (0.15 to 0.41)***	0.84 (0.51 to 1.16)***
Unhappiness	0.66 (0.27 to 1.06)**	2.07 (1.15 to 2.99)***
Body dissatisfaction	0.47 (0.37 to 0.57)***	0.98 (0.76 to 1.19)***

*p<0.05, **p<0.01, ***p<0.001

Conclusion:

- Several potentially modifiable early life factors including smoking in pregnancy, skipping breakfast and bedtime routines were important predictors of BMI development in the overweight and obese range
- BMI growth in the overweight and obese range was linked to worse psychosocial well-being in early adolescence.



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