The critical role of childhood adversity in obesity aetiology

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Obesity: one of many symptoms of a dysfunctional society
Health inequalities start very early in life. By the time of school reception year (4-5 years of age), children from the most deprived areas of England are twice as likely to be obese as children from the most affluent areas.
digital.nhs.uk/catalogue/PUB3… via @NHSDigital

**Reception year**

Between 2007/08 and 2016/17, the difference between obesity prevalence in the most and least deprived areas has increased from 4.5 to 6.8 percentage points.
Density of fast food outlets in England

Relationship between density of fast food outlets and deprivation by local authority

\[ y = 2.451x + 34.129 \]

\[ R^2 = 0.5423 \]

Top 5 local authorities with the highest levels of deprivation
1. Blackpool
2. Knowsley
3. Kingston upon Hull
4. Liverpool
5. Manchester

Bottom 5
1. Hart
2. Wokingham
3. Chiltern
4. Waverley
5. Elmbridge

Ultra-processed junk food in Sweden, 1960-2010
(Juul & Hemmingsson, *PHN*, 2015)
Fat cell dynamics
(Spalding et al., *Nature*, 2008)

“Weight trajectories seem to be set in place even earlier in life than most of us would expect.”

Solveigh Cunningham
To develop better treatment and prevention models, we need a better understanding of the causes of weight gain.

Many obese patients anecdotally report negative childhood experiences, bullying and abuse.

How does childhood adversity affect obesity risk?
Very strong associations between childhood adversity and multiple health outcomes

Disturbances in the early social environment plays a huge role in many adverse health outcomes, why not obesity?
Meta-analysis on childhood abuse and obesity
(Hemmingsson et al., Obesity Reviews, 2014)

There was also a positive dose-response association
Conceptual review paper

Part 1: Proposed links between socioeconomic adversity and obesity
(Hemmingsson, Obesity Reviews, 2014)
Part 2: Proposed body weight regulation model

**What happens when we diet?**

- Reduced metabolic rate
- Increased ghrelin, decreased leptin
- Unchanged adipocyte quantity

Eating and exercise habits often stem from childhood and are difficult to change long-term.
Obesity causation, extended and updated model
(Hemmingsson, *Current Obesity Reports*, 2018)

The overflowing cup: how stress drives us towards calorie dense junk food, energy homeostasis disrupted
Suggestion for obesity prevention: clean up the aquarium

Support vulnerable families
Junk food regulation
Inequality
Financial system overhaul
(negative externality, tragedy of the commons, etc)
Thank you

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