Using the Health Survey for England to examine ethnic differences in obesity, diet and physical activity

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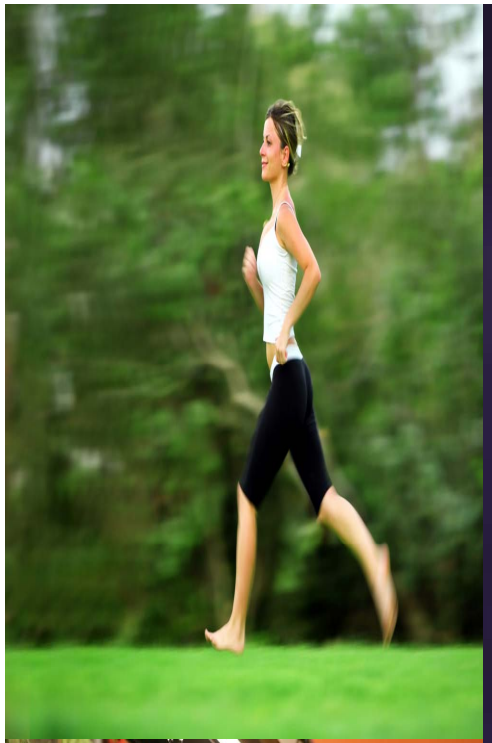
Overview

- Background and aims of project
- Methods
- Strengths of the data source
- Methodological challenges
- Key results



Background

- Worldwide concern at growing levels of obesity (high levels in UK)
- Evidence of ethnic differences in obesity, diet and physical activity
- Why?
  - Cultural beliefs (e.g. significance placed on food, eating together as family, cultural barriers to physical activity)
  - Body image
  - Concept of physical activity
  - Migration
  - Socio-economic confounders

Aims of the project

- To identify ethnic differences in healthy eating, physical activity and obesity in England in relation to a wide range of factors (age, gender, educational level, migrant status, income area-level deprivation etc)
- To understand how parental characteristics impact on these outcomes for children
- To identify change in physical activity and obesity between 1999 and 2004 for different ethnic groups

Methods

- Health Survey for England 1999 & 2004 (ethnic boosts)
- Logistic regression using survey command (SVY) in STATA
- Explanatory variables such as gender, age, educational level, generation, income etc (diet and physical activity for obesity)
- Household data - parental diet, physical activity, obesity and parental socio-economic characteristics
- Merge the 1999 and 2004 datasets to assess change and increase sample size for separate ethnic models
- Missing data work

Strengths of the data source

- Rich data source
  - representative sample
  - ethnic boost allows more detailed analysis
  - strata and cluster variables enables use of survey (SVY) commands in STATA
  - detailed and wide-ranging variables (socio-economic status, health behaviour)
  - household data enables parent-child linkage
  - long-running time-series with reasonable consistency
- Easy access and excellent support from ESDS and NatCen

Challenges (1)

- ethnic groups and sample design
- measurement of obesity
  - BMI ethnic cut-offs
  - BMI child cut-offs
  - alternative measures of obesity
- small numbers for separate ethnic models
  - bivariate models for adults with combined Pakistani/Bangladeshi group (and some combined categories in the explanatory variables)
  - overweight including obesity for children (with some combined categories in the explanatory variables)

Challenges (2)

- complex dataset
  - data manipulation skills
  - weights
  - variables can be difficult to navigate
- comparability of 1999 and 2004
- imperfections in the data forced crude decisions
- missing data
  - complex & time consuming
  - software for missing data doesn’t allow SVY
  - combined weights for non-response and survey design

Key results: adult obesity

- Indian, Pakistani, Bangladeshi and Chinese men lower odds of obesity than white (after controlling for other factors)
- Black Caribbean women more likely than white to be obese (2004 analysis Black African too). Chinese women less likely to be obese
- Physical activity decreased likelihood of obesity for men and women
- Fruit and vegetable intake not a predictor of obesity for men or women
- Socio-economic status: low levels of qualifications increased obesity for men and women, and equivalised household income for women.
- Increase in obesity for white men between 1999 and 2004
- No consistent results/pattern for other variables across ethnic groups

Key results: child obesity (including overweight)

- No ethnic differences when controlled for other factors (Black Caribbean girls at $p<0.1$)
- Child physical activity and fruit and vegetable intake not significant in 2004 models and not available for 1999/2004
- Mother's BMI strong predictor for boys and girls
- Father's BMI predictor for boys and girls. Having no data for the father was also a predictor for boys
- Mother's social class predictor for boys; mother's educational level predictor for girls
- Increase in obesity for girls between 1999 and 2004

Key results: child obesity (including overweight)

- Mother's and father's BMI is a fairly consistent predictor of their children's BMI across all the ethnic groups
- Mothers' social class and qualifications are not consistent predictors of children's BMI across all the ethnic groups
- Increase in obesity between 1999 and 2004 was for white girls only

Summary and conclusions

- Challenging and interesting project
- Rich data source – free, easy to access, good support
- A number of methodological challenges to overcome
- Future work on alternative measures of obesity

Thank you!